Wyoming INBRE Research Network Retreat

October 26-28, 2023

University of Wyoming
Laramie, WY

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RETREAT PROGRAM	
Thursday October 26, 2023	
5:00-7:00pm	**Welcome Reception** UW Conference Center, 22nd Street and Grand Avenue (west end of Hilton Inn)
Friday October 27, 2023 Breakfast on your own.	
8:30am	**Science initiative Building located on 9th Street between Lewis and Bradley Streets. Please gather by 8:30 am in the 1st floor lobby on 9th street.** Drivers: y*ou can drop students off and park on the side streets or in Lot 101 on Bradley and 12th Street with a parking pass.* **Welcome remarks and Introductions:** R. Scott Seville (Wyoming INBRE Program Director and PI, University of Wyoming) and WY INBRE Executive Committee. (pick up a name tag and be prepared to get to your first presentation)
8:50am	Head to presentations: upstairs in Science Initiative (SI) or walk to Biological Sciences
9:00 to 10:50am	**Lab Presentations** – check your schedule for time and locations. NOTE: All Molecular Biology presentations are in Science Initiative. There is a glass 'fishbowl' space off the 2nd floor lobby where you will meet and a lab rep will take you to their lab presentation.
	Biological Sciences: from Science Initiative 2nd floor – walk out the main door, down the sidewalk to the right, across Lewis St and continue past the steel gate. Walk uphill. The building in front of you is Health Sciences. Continue past the long Health Sciences building on your right. You will get to a plaza of bike stands on your left, 'round, ribbed' Classroom building on your right. **Biological Sciences is the building on the far side of the bike plaza. *Departments of Psychology and Zoology and Physiology, and Integrated Microscopy Core are in this building.***

	Integrated Microscopy Center (Zoology and Physiology): as you enter Biological Sciences, take the stairs DOWN, turn left, and left and the lab is in front of you. For students who have a disability, please go into the Physical Science building (twin building) and use the west-side elevator to the basement, then go through the large hallway past the Planetarium entrance to the Biological Science building. The lab door will be at the end, on your right.
	Pharmaceutical Sciences (Bushman Lab) – meet at the green cardboard dumpster at the north end of Health Sciences and we will walk up to HS 438.
11:00 – 11:50am	**Science Initiative tours**: meet in 1st floor lobby
	Center for Advanced Scientific Instrumentation (CASI) Jay Gatlin, Department Chair, Molecular Biology
	INBRE Date Science Core (IDSC) Nic Blouin, Senior Research Scientist Sean Harrington, Senior Research Scientist
11:50 am-1:20pm	**LUNCH on your own:** check in with your college group
1:30 – 2:30pm	**Lab Presentations:**
	Dai Biomechanics Lab (Kinesiology & Health) Location: Corbett is on Grand Ave Meet in 119 Corbett (SW corner of 1st floor) (park in lots north or south of Corbett with permit)
	Oakey Laboratory for Multiscale Biology and Biomaterials (Chemical Engineering) Location: EERB (Engineering & Education Research) (park in lot 101 on Bradley Street with permit and walk into EERB, meet Oakey on bleachers)
3:00 – 4:00pm	**UW Campus tour-** Wyoming Union Visitor Center (next to the UW Bookstore and west lobby)

4:00 – 5:30pm	**OPEN TIME**
INBRE Network Reception and Banquet **UW Conference Center** 22nd and Grand Avenue (west end of Hilton)	
5:30-6:00pm	Reception (hors d'oeuvres and cash bar)
6:00-7:00pm	INBRE Graduate Student Flash Talks
7:00pm-	INBRE Network Dinner
Saturday October 28, 2023 Breakfast on your own.	
UW Conference Center Coffee/Tea/Orange Juice	
9:00-10:00am	**UW Recruiting Panel** • **College of Agriculture, Life Sciences, and Natural Resources**- Evan Bedard, College Relations Representative • **College of Engineering and Applied Sciences**- Ian Hammontree, Assistant Lecturer, Chemical and Biomedical Engineering • **College of Health Sciences**- Craig Vaske, Manager Academic Advising • **UW Admissions Office**- Wendi Vanlandingham, Director of Transfer Relations. • **Wyoming Research Scholars Program**- Jamie Crait, Program Director • **Department of Molecular Biology-** Professor David Fay • **Department of Zoology and Physiology**- Professor Scott Seville
10:00-11:00am	**UW INBRE Student Research Panel** • Nathan Butz, Kevin Fontana, Lachlan Johnson, Bryson Mijares, Ryan Pitesky, Steven Poyer, Rishab Ranjitkar, and Annie Walgren (INBRE and RAIN)
11:00-12:00pm	**Box lunch/ Networking/ Meeting adjourns**

NOTES

LABORATORY DESCRIPTIONS

ANIMAL SCIENCE

Animal Science

Jim Pru Lab (https://www.uwyo.edu/anisci/personnel-directory/wyoming-faculty-and-staff/james-pru/research/index.html)

Our lab seeks to understand the unique molecular dialog that exists at the maternal: embryo interface during early pregnancy. We use conditional mutagenesis and gene editing approaches to understand the genetic underpinnings of uterine responses to pregnancy, and, when gone awry, how these genes contribute to women's reproductive diseases such as endometrial cancer, endometriosis and adenomyosis.

CHEMICAL ENGINEERING/BIOMEDICAL ENGINEERING

John Oakey Laboratory for Multiscale Biology and Biomaterials

(Alan Stenquist (graduate student) and Josey Frazier (INBRE undergraduate intern)

We investigate how biological systems assemble and function from single molecules to cells, tissues, and entire organisms. This insight informs our approach to designing biomaterials that direct healing processes and can be used in tissue engineered therapies and regenerative medicine.

MOLECULAR BIOLOGY LABS

Thomas Boothby Lab **https://www.boothbylab.org/**

We want to understand how organisms survive in extreme environments. What are the functional mediators that they use, by what mechanisms do these mediators function, and how did they evol.

Grant Bowman Lab https://gbowman21.wixsite.com/bowmanlab

We study anatomical features in bacterial cells. Through genetic engineering, the principles of sub-cellular organization are applied toward the development of "microbial stem cells", which can be used to enhance industrial biomanufacturing.

David Fay Lab uwyo.edu/molecbio/faculty-and-staff/david-fay/index1.html

The Fay Lab seeks to understand fundamental molecular mechanisms that underly cell functions and animal development from worms to humans. We do this by studying free-living microscopic nematodes, C. elegans, which are extraordinarily amenable to many different kinds of laboratory studies including genome editing and advanced microscopic techniques. The nature of our approaches has led us in many unexpected directions over years, as we prefer to follow the biology wherever it takes us.

Eunsook Park Lab https://plantorganelles.org

We are studying organelle dynamics and communications and its role in plant-microbe interaction. Particularly we are investigating chloroplast-nucleus communications during plant immune responses and fungal pathogen's molecular strategy to disturb the plant immunity.

Todd Schoborg Lab (with Jacob McDaniel and Jack Govaerts). https://www.schoborglab.org/
We are biologists interested in understanding what makes animal cells misbehave to cause disease and disrupt development.
Demonstration on the u-CT machine, and a virtual reality set up where the students can put on the headset and explore some different datasets (flies, frogs, lots of archeology artifacts, etc)

Dan Wall Lab https://www.uwyo.edu/molecbio/faculty-and-staff/daniel-wall.html
We want to understand how cells distinguish self from non-self in complex and diverse microbial environments. As a model system, we study a social soil bacterium and use molecular techniques to identify and elucidate the genes and their functions involved in cooperative cell-cell interactions.

KINESIOLOGY AND HEALTH

Boyi Dai Biomechanics Lab (Ling Li and Kaden Van Valkenburg)
https://www.uwyo.edu/kandh/labs/biomechanics/research.html
We are interested in understanding why injuries occur in sports, work, and daily lives and how we can better prevent injuries. Examples include ACL injuries in athletes, low back injuries in construction workers, and falls in older adults.

PSYCHOLOGY LABS

Attention & Learning Lab
Cynthia Hartung Lab (Meisa Khaireddin and John Vasko) www.uwyoall.com
Effects of stimulant medication and physical exercise on executive functioning, ADHD and mood in adolescents and emerging adults with and without ADHD.

Clinical Psychology: Addictive Behaviors Lab
Alison Looby Lab (Katie Berry)
https://www.uwyo.edu/psychology/research/addictive-behaviors-lab.html
Our work examines college student alcohol use in a bar laboratory. What is a bar laboratory? Do we administer real alcohol to our research participants?

Clinical Psychology
Christina McDonnell Lab https://tinyurl.com/uwyocareslab
We want to better understand and support mental health among Autistic individuals, with a particular focus on traumatic stress.

Clinical and Personality Psychology
Kasey Stanton Lab: https://www.uwyo.edu/psychology/faculty/stanton.html
Our goals are to improve the validity and accuracy of mental health diagnosis, as well as to better understand how people's moods and personality traits are related to their experiences of different mental health symptoms.

PHARMACEUTICAL SCIENCES

College of Health Sciences

Jared Bushman Lab

We are researching damage to the nervous system and developing strategies to reconnect severed nerves in the place of promoting regeneration. Nerve reconnection, as opposed to nerve regeneration, results in immediate return of nerve function rather than waiting for months or years required for regeneration to occur. A lab demonstration will show electrical conduction of uninjured, injured (no reconnection) and reconnected injured nerves.

Lab activity: hands-on electrophysiology of explanted nerves.

ZOOLOGY & PHYSIOLOGY

Michael Dillon lab (Shayne Dodge and Sabrina White) http://www.dillonlab.org/

Work in the lab focuses on two primary questions: 1.) How do (abiotic) environments determine whether and where animals persist?, and 2.) How do animals respond, at cellular to organismal to population levels, to environmental challenges?

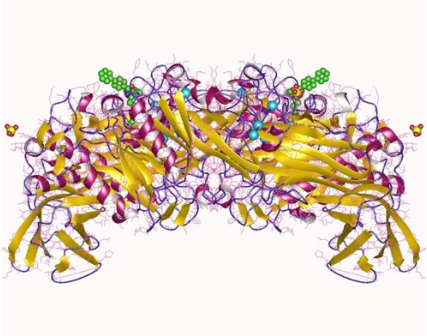
Navratil-Cherrington Labs – Joint Presentation

Amy Navratil Lab

Gonadotropes are cells located in the body's master endocrine gland and regulate reproduction. A large surge of Luteinizing Hormone (LH) secreted by gonadotropes is absolutely essential for initiating ovulation required for pregnancy. Our laboratory in interested in understanding the cellular and molecular mechanisms that regulate LH, which is critical both to our basic understanding of mammalian biology and for new clinical approaches for fertility management in women.

Brian Cherrington Lab (Ari Tourtellot)

We study how a novel posttranslational modification, termed citrullination, alters female reproduction and associated diseases. A major focus of the lab is investigating citrullinated proteins in the etiology of rheumatoid arthritis.



Cherrington Lab
University of Wyoming, Department of Zoology and Physiology
bdcherringtonlab.org

INTEGRATED MICROSCOPY CORE

Zhaojie Zhang www.uwyo.edu/microscopy

The Integrated Microscopy Core has several state-of-the-art microscopes that are used primarily for bio-medical research. These microscopes can provide high-resolution and multi-dimensional imaging for variety of different biological samples.

CENTER FOR ADVANCED SCIENTIFIC INSTRUMENTATION (CASI) TOUR

Jay Gatlin, Department Chair, Molecular Biology

INBRE DATE SCIENCE CORE (IDSC) TOUR

Nic Blouin, Senior Research Scientist
Sean Harrington, Senior Research Scientist