

# *Introduction to Mathematical Modeling*

## SYLLABUS

### Instructor

Stefan Heinz      Ross Hall 214, 766-4203, [heinz@uwyo.edu](mailto:heinz@uwyo.edu)  
URL:              <http://www.uwyo.edu/heinz/>  
Office hours:     MWF 10:00 am – 10:50 am.  
Also available by appointment, and often by simply dropping by.

### Class Meeting

MWF 12:00–12:50 pm in Engineering Building 1044

### Textbooks

Heinz, S. 2011 Mathematical Modeling.  
Springer-Verlag, Heidelberg, Dordrecht, London, New York.

### Grading Scheme

40%	Homework
15%	Term Test #1
15%	Term Test #2
30%	Final Exam

### Grade Requirements

A	> 90%
B	> 80%
C	> 70%
D	> 60%
F	< 60%

**Homework:** Homework is the most vital part of this course. Mathematics, more than most subjects, is one which you learn not by listening and absorbing, but by trying out yourself. The learning of mathematics is also more sequential than that of other subjects ... so all the more need to be regular in doing problems yourself! Homework assignments will be assigned approximately once per week, and will be submitted to me on the specified due date (usually one week later), at the end of class. It is fine for you to discuss the homework with other students. However, please do not copy anyone else's work directly. Copying may adversely affect your grade; but more importantly, you won't be adequately preparing yourself for the tests in this way. If there are very good reasons that you could not submit your homework on the specified due date, you may (after talking to me) turn in your homework later but before I returned the graded homework. Homework submitted later than this return day will not contribute to your grade.

**Tests:** There will be two term tests and one final exam, all of which are ‘closed book’; however, you will be permitted to use a handheld calculator and one ‘cheat sheet’ (one 8.5x11 inch sheet with information written on one side in your own handwriting). Shared calculators or other aids during tests and the exam, is not permitted. Term tests will cover a specified unit of material only, but the final exam will be comprehensive. Later during the semester we will fix dates for the term tests. The finals week is Dec. 13-19. Make-up tests, for those who miss tests, will only be granted in cases of verifiable illness or the most extreme circumstances (at my discretion). Please contact me in advance of such a situation if possible, or leave a message with the Math Department (766-4221). Even in legitimate cases, the make-up test will be harder than the original test.

**Attendance/Participation:** I strongly recommend class participation and attendance and consider this activity essential in determining borderline grades.

**Course Topics:**

- 1) Deterministic Analysis of Observations
- 2) Stochastic Analysis of Observations
- 3) Deterministic States
- 4) Deterministic Changes
- 5) Stochastic States

**Disability statement:** If you have a physical, learning, or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with, and provide documentation of your disability to, University Disability Support Services (UDSS) in SEO, room 330 Knight Hall, 766-6189, TTY: 766-3073.