

**Math 5110, Section 1**  
**Fall 2015**

**Course Syllabus**

**Instructor of Record:**

Owen Lewis (olewis at math dot utah dot edu)

**Office:** LCB 301

**Textbook:**

None required

**Suggested Resources:**

Mathematical Models in Biology, Leah Edelstein-Keshet (SIAM)

Nonlinear Dynamics And Chaos, Steven H. Strogatz

**Classroom & Hours:**

AEB 360

TH 9:10 - 10:30 am

**TA:** Jenna Noll (noll at math dot utah dot edu)

**Office:** LCB 311

**Office Hours:**

Owen: H 3:30 - 4:30 pm

Jenna: W 1:45 - 2:45 pm

**Website:**

<http://www.math.utah.edu/~olewis/classes/5110aFA15.html>

All announcements and assignments will be posted on this web page. I will be using Canvas/Uonline to handle grades and may post announcements on that system as well. Any changes will be announced in class as well as on the website.

**Assignments and Grading**

**Homework:**

Homework will be assigned every other week (approximately) and posted on the class website. You are welcome and encouraged to discuss problems with your classmates. However you should write up your assignment on your own. No late homework will be accepted. Your lowest homework grade will be dropped and will not affect your final grade in the class. I strongly recommend typesetting your homework with a computer. This will help with grading and leave you with a convenient digital copy of your work for the future. For typesetting math assignments, the best choice is often L<sup>A</sup>T<sub>E</sub>X or one of it's many variants. Personally, I like the formatting of the `hmcpsset.cls` L<sup>A</sup>T<sub>E</sub>X class. It can be downloaded at <https://www.math.hmc.edu/computing/support/tex/classes/hmcpsset/>, where you will also find some documentation and examples of it's use.

**Midterms:**

There will be two takehome midterm exams approximately 5 and 10 weeks into the course. No make-up tests will be offered.

**Midterm Dates:** TBD

**Final Project:**

There will be a final project at the end of the semester. You will be expected to read a scholarly article in the subject of Mathematical Biology and give a presentation (approximately 20 minutes depending on class size) to the class. In this presentation, you will explain the mathematical concepts developed in the article and what insight they give into the biological system of interest. This may be done in groups of up to 4 people.

**Final Exam:**

There will be a written final exam. It will also be takehome. The university has scheduled our final to take place on Dec. 15<sup>th</sup>, at 8 am, so that is when the exam will be due. No make-up exams will be offered; plan accordingly. I do not create “Practice Exams” for my students.

**Final Exam Due:** 12/15.

**Grading:**

The grading for the course will be broken down as follows:

- Final: 20%
- Final Project: 20%
- Midterms: 20% Each
- Homework: 20%

Your grades on each assignment and exam will be based not only on the correctness of your solution, but also on the clarity of its presentation. If neither I nor the TA can decipher your argument, then we will not give you credit for it. Work will only be “regraded” if I receive, in writing, an explanation as to why you believe you deserve more credit than you were originally given.

**Holidays:**

There will be no class meeting on Tues. the 13<sup>th</sup> or Thurs. the 15<sup>th</sup> of Oct. due to Fall break.

There will be no class meeting on Thurs. the 26<sup>th</sup> of Nov. due to Thanksgiving.

**Drop Date:**

The final day to drop classes is Fri. the 4<sup>th</sup> of Sept.

**Students with Disabilities:**

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

**Topics we will cover:**

- Discrete time models
- Continuous time models
- Fixed points of dynamical systems
- Stability of fixed points
- Bifurcations
- Models of Biochemical Kinetics
- Population modeling
- SIR and other infectious disease models
- Other models in Math Bio. as time permits.

**If you have any questions, contact Owen Lewis: olewis at math dot utah dot edu**