Title of Course: Introduction to Mathematical Biology (MATH 4750)
Course meeting time and place: MWF 2:30 PM-3:20 PM, 205 MLH
Department of Mathematics: https://math.uiowa.edu

Course ICON site
To access the course site, log into Iowa Courses Online (ICON) https://icon.uiowa.edu/index.shtml using your Hawk ID and password.

Course Home
The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the add and drop deadlines, the “second-grade only” option (SGO), academic misconduct policies, and other undergraduate policies and procedures. Other UI colleges may have different policies.

Instructor
Name: Professor Zahra Aminzare
E-mail: zahra-aminzare@uiowa.edu
Office location: B1H MLH
Student drop-in hours: MW 10:30 AM – 12:00 PM or by appointment
(Students are invited to drop by during these hours to discuss questions about the course material or concerns. I am also available by appointment if you are unable to attend my drop-in hours.)

DEO: Professor Ryan Kinser, 14A MLH, ryan-kinser@uiowa.edu

Description of Course
This course covers the use and creation of mathematical models in biology, primarily those using continuous dynamical systems- ordinary and partial differential equations. Modeling approaches (the model as representation) and canonical models are motivated and discussed in the context of example systems drawn from a range of application areas, including but not limited to neurobiology, electrophysiology, epidemiology, ecology, evolution, demography, and spatio-temporal pattern formation, including morphogenesis. We will use Matlab for illustrations but no prior knowledge is needed.

Learning Objectives
Students who complete MATH:4750:0001 are expected to:
• learn different types of mathematical models for biological systems and some mathematical techniques that are useful for extracting information from these models.
• develop the ability to translate a biological process into a mathematical model.

Textbook/Materials
The class notes that students are expected to take during lectures are intended to be self-sufficient, however, most of the materials will be from the following references:

• Lecture Notes on Mathematical Systems Biology, Eduardo Sontag (Free from here)
• Mathematical Modeling in Systems Biology: An Introduction, Brian Ingalls (Free from here)
Course Expectations & Grading (+/- grading will be used):
Final course grades will be assessed based on your performance in the following activities:

- Lecture participation: You are expected to attend all lectures and be active in all classes.
- Homework: 30%; 10-11 weekly assignments except during the first and last week of the semester and the weeks of midterms (weeks 1, 6, 11, 15).
- Midterms: 40%: 2 midterms during weeks 6 & 11
- Final Comprehensive Exam: 30%

Date and Time of the Final Exam
The final examination date and time will be announced by the Registrar generally by the fifth week of classes and it will be announced on the course ICON site once it is known. Do not plan your end of the semester travel plans until the final exam schedule is made public. It is your responsibility to know the date, time, and place of the final exam. According to Registrar's final exam policy, students have a maximum of two weeks after the announced final exam schedule to request a change if an exam conflict exists or if a student has more than two exams in one day (see the policy here).

Final grades will be awarded based on the following ranges:

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<thead>
<tr>
<th>Grade</th>
<th>Percent</th>
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<tbody>
<tr>
<td>A+</td>
<td>98-100</td>
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<tr>
<td>A</td>
<td>93-97</td>
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<tr>
<td>A-</td>
<td>90-92</td>
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<tr>
<td>B+</td>
<td>87-89</td>
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<tr>
<td>B</td>
<td>83-86</td>
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<tr>
<td>B-</td>
<td>80-82</td>
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<tr>
<td>C+</td>
<td>77-79</td>
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<tr>
<td>C</td>
<td>73-76</td>
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<tr>
<td>C-</td>
<td>70-72</td>
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<tr>
<td>D+</td>
<td>67-69</td>
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<tr>
<td>D</td>
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<td>D-</td>
<td>60-62</td>
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<td>F</td>
<td>&lt; 59</td>
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Student Collaboration
Student collaboration is permitted on Homework only (however you must typeset and submit your solutions yourself). It is NOT permitted for the exam. Any attempt to collaborate during the exam will result in a 0 score on that test.

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Academic Honesty and Misconduct
All students in CLAS courses are expected to abide by the CLAS Code of Academic Honesty. Undergraduate academic misconduct must be reported by instructors to CLAS according to these procedures. Graduate academic misconduct must be reported to the Graduate College according to Section F of the Graduate College Manual.

Student Complaints
Students with a complaint about a grade or a related matter should first discuss the situation with the instructor and/or the course supervisor (if applicable), and finally with the Director or Chair of the school, department, or program offering the course.

Undergraduate students should contact CLAS Undergraduate Programs for support when the matter is not resolved at the previous level. Graduate students should contact the CLAS Associate Dean for Graduate Education and Outreach and Engagement when additional support is needed.
Drop Deadline for this Course
You may drop an individual course before the deadline; after this deadline you will need collegiate approval. You can look up the drop deadline for this course here. When you drop a course, a “W” will appear on your transcript. The mark of “W” is a neutral mark that does not affect your GPA. Directions for adding or dropping a course and other registration changes can be found on the Registrar’s website. Undergraduate students can find policies on dropping and withdrawing here. Graduate students should adhere to the academic deadlines and policies set by the Graduate College.

University Policies
Accommodations for Students with Disabilities
Basic Needs and Support for Students
Classroom Expectations
Exam Make-up Owing to Absence
Free Speech and Expression
Mental Health
Military Service Obligations
Non-discrimination
Religious Holy Days
Sexual Harassment/Misconduct and Supportive Measures
Sharing of Class Recordings