INSTRUCTOR: Aman Ullah.
Locations/times: Lecture: Tuesday 4:30-7:10 p.m., PW: Colgan 304B & DL (Zoom’s link is available on the blackboard i.e., Zoom Meeting)
Phone: (703) 993-7182; Email: aullah3@gmu.edu
Office Hour: Tuesday: 10:00 PM-1:00 PM or by appointment through Zoom’s Link

Prerequisite: Admission to the Ph.D. program in biosciences or bioinformatics, CHEM 663 or equivalent.

Objective of the course:

Systems biology seeks to understand how complex biological systems function. This involves the use of computational methods and models to integrate information obtained about these systems through a wide range of methods spanning multiple spatial and temporal scales. Current research examples will be used to motivate and demonstrate these approaches.


Grading Policy: The course grade will be determined as follows:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Percent of Final Grade</th>
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<tbody>
<tr>
<td>Homework:</td>
<td>20%</td>
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<tr>
<td>Mid-Term:</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam:</td>
<td>30%</td>
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<tr>
<td>Final Project:</td>
<td>30%</td>
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Grades are assigned on the following basis:

90 to 100%: A;
80 to 89.99%: B;
70 to 79.99%: C;
60 to 69.99%: D; 
Less than 60%: F.

Students are expected to attend lectures in class and via Zoom (DL section) during class time, and participation is highly recommended. Students are asked to take the initiative and read the references mentioned in class.

**Academic Honesty Policy:**

Academic dishonesty will not be tolerated. This includes cheating, plagiarism, and falsification of academic records. That being said, you can help each other out on the homework (this does not mean that you can copy each other's homework).

**Student Services**

**Disabilities:** Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students by upholding the laws that ensure equal treatment of people with disabilities. If you are seeking accommodations for this class, please first visit http://ds.gmu.edu/ for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu | Phone: (703) 993-2474.

If you have a documented learning disability or other condition that may affect academic performance you should: (1) make sure this documentation is on file with Office of Disability Services.

**Mason Live/Email:** Students are responsible for the content of university communications sent to their George Mason University email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account.

**University libraries:** University Libraries provide resources for distance learning students [See Library website: http://library.gmu.edu/for/online].

**Tentative Course Schedule:**

**Lecture 1, Aug 24th**

**Chapter 1: Biological Systems**
Lecture 2, Sep 31st

Chapter 2: Introduction to Mathematical Modeling

Lecture 3, Sep 7th

Chapter 2, and Chapter 3: Introduction to Mathematical Modeling and Static Network Models

Lecture 4, Sep 14th

Chapter 3: Static Network Models

Lecture 5 Sep 21st

Chapter 4: The Mathematics of Biological Systems

Lecture 6, Sep 28th

Chapter 4: The Mathematics of Biological Systems

Lecture 7, Oct 5th

Midterm

Lecture 8, Oct 12th

Fall Break (Classes do not meet this week)

Lecture 9, Oct 19th

Chapter 5: Parameter Estimation

Lecture 10, Oct 26th

Chapter 8: Metabolic Systems

Lecture 11, Nov 2nd

Chapter 9: Signaling Systems

Lecture 12, Nov 9th

Fundamental of Calcium signaling

Lecture 13, Nov 16th
Physiological Modeling: The heart as an example

Lecture 14, Nov 23rd
Final Projects: presentation

Lecture 15, Dec 2nd
Final Projects: presentation

Lecture 16, December 9th
Reading week

Final Exam, December 14th @ 4:30 PM.
Final exam will be held during exam week on class time.

Changes if needed will be announced in the class.

Safe Return to Campus Statement

- All students taking courses with a face-to-face component are required to follow the university’s public health and safety precautions and procedures outlined on the university Safe Return to Campus webpage (https://www2.gmu.edu/safe-return-campus). Similarly, all students in face-to-face and hybrid courses must also complete the Mason COVID Health Check daily, seven days a week. The COVID Health Check system uses a color code system and students will receive either a Green, Yellow, or Red email response. Only students who receive a “green” notification are permitted to attend courses with a face-to-face component. If you suspect that you are sick or have been directed to self-isolate, please quarantine or get testing. Faculty are allowed to ask you to show them that you have received a Green email and are thereby permitted to be in class.

- Students are required to follow Mason’s current policy about facemask-wearing. As of August 11, 2021, all community members are required to wear a facemask in all indoor settings, including classrooms. An appropriate facemask must cover your nose and mouth at all times in our classroom. If this policy changes, you will be informed; however, students who prefer to wear masks either temporarily or consistently will always be welcome in the classroom.