

Syllabus Spring 2020
Biochemical/Cellular Sys Model - BINF 751
George Mason University, Bioinformatic and computational biology

INSTRUCTOR: Aman Ullah.

Locations/times: Lecture: Tuesday 4:30PM - 7:10PM, SciTech (PW): Colgan Hall 304B

Phone: (703) 993-7182; **Email:** aullah3@gmu.edu

Office Hour: Tuesday: 1:00 PM-4:00 PM or by appointment in (Colgan Hall), Room: 322

Course Description

Students will learn the concepts and techniques that will enable them to study cellular and subcellular processes using computational and mathematical methods. They will learn how to describe a cellular or subcellular process by mathematical equations and analyze them using mathematical and computational methods in order to get insight into cellular function in normal and diseased organisms.

Textbooks

- (1) *Mathematical Physiology* by James Keener and James Sneyd “*An Introductory Text on Computer Modeling in Molecular and Cellular Biology*”
- (2) *Computational Cell Biology*: edited by Chris P. Fall, John Tyson, John Wagner, and Eric Marland. “*An Introductory Text on Computer Modeling in Molecular and Cellular Biology*”

Lecture material will be based heavily on these textbooks.

Prerequisites

Calculus and knowledge of a programming language. Knowledge of differential equations is helpful.

Grading Policy

The course grade will be determined as follows:

Activities:	Percent of Final Grade:
Homework-	20%
Mid-Term Project -	20%
Final Exam -	30%
Final Project -	30%

Grades are assigned on the following basis.

98 to 100%:	A+
90 to 97%:	A
87 to 89%:	B+
80 to 86%:	B
77 to 79%:	C+
70 to 76%;	C
60 to 69%;	D
Less than 60%;	F

Homework assignments will be assigned several times during the semester. They will be due two weeks after they are assigned. Late HomeWorks will not be accepted.

Students are expected to attend all lectures and participate in class discussions.

Class Announcements

Any pertinent class announcements will generally be sent to your GMU email accounts. The most current lecture content (including PowerPoint presentations) will be posted to the class Blackboard page following each class.

Academic Honesty Policy

This course adheres to the Mason honor code, which states that students must not cheat, plagiarize, steal, or lie in matters related to their academic work. Please ensure that all work you submit is original and contains proper attribution. That being said, you can help each other out on the homework (this does not mean that you can copy each other's homework). If you have any doubts about what constitutes as plagiarism, please contact me.

Disabilities

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 (SUB I, Rm. 4205; 703-993-2474; <http://ods.gmu.edu>) to determine the accommodations you need, and (2) talk with me to discuss your accommodation needs.

Tentative Course Schedule:

Tuesday, January 21 -- Overview of the course and Chapter 1

Tuesday, January 28 -- Chapter 2

Tuesday, February 4 -- Chapter 2- Chapter 3

Tuesday, February 11-- Chapter 4

Tuesday, February 18 -- Chapter 5

Tuesday, February 25 -- Midterm

Tuesday, March 3 -- Chapter 6

Tuesday, March 10 -- No class -- Spring Recess

Tuesday, March 17 -- Chapter 6- Chapter 7
Tuesday, March 24 -- Chapter Chapter7- Chapter 8
Tuesday, March 31 -- Chapter 9
Tuesday, April 7 -- Chapter 10
Tuesday, April 13 -- Chapter 11
Tuesday, April 20 -- Chapter 12
Tuesday, April 27 -- Final Project
Tuesday, May 5 -- Reading Day
Tuesday, May 12 -- Final Exam 4:30-7:10

Changes if needed will be announced in the class.

Advice

If you want to do well in course: 1) Do all the homework. 2) Ask questions in class and office hours. 3) If you are having difficulty doing the homework, be sure to see the instructor for additional help.

WEATHER

For closings due to inclement weather, register for Mason-ALERT to receive text messages by email or phone.