

Systems Biology (Fall 2016)
BINF 701/BIOS 701
Syllabus

Wednesdays, 1:30-4:10 PM
327 Occoquan Building, SciTech Campus
August 31 through December 14

Instructor: Dr. Christopher Lockhart, 703-993-4459, clockha2@gmu.edu (preferred)

Office: 328C Occoquan Building, SciTech Campus

Office Hours: By appointment

Course Description

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. This is a 3-credit course.

Prerequisites

Admission to PhD program in biosciences or bioinformatics; CHEM 663 or equivalent.

Textbook

This course will use the textbook “A First Course in Systems Biology” by Eberhard O. Voit (ISBN: 978-0-8153-4467-4). You can find this book at the GMU bookstore or on Amazon.com (<https://www.amazon.com/First-Course-Systems-Biology/dp/0815344678>). Lecture material will be based heavily on this textbook.

Grading Policy

Student grades will be assessed through a midterm project (worth 30% of the total grade), a final project (worth 30%), and a final exam (worth 40%).

Final grades will be determined from the scale below:

A+	98-100%
A	90-97%
B+	87-89%
B	80-86%
C+	77-79%
C	70-76%
D	60-69%
F	≤ 59%

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. 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.

Schedule

The tentative schedule for the semester is detailed below. Note that this is subject to change. Please contact me as soon as possible if you are unable to attend any important dates (marked by *).

August 31	Introduction to Systems Biology
September 7	Introduction to Mathematical Modeling
September 14	Static Network Models
September 21	The Mathematics of Biological Systems
September 28	Parameter Estimation
October 5	Midterm Presentations*
October 12	Midterm Presentations*
October 19	Gene Systems
October 26	Protein Systems
November 2	Metabolic Systems
November 9	Signaling Systems
November 16	Population Systems
November 23	Thanksgiving Recess
November 30	Final Presentations*
December 7	Final Presentations*
December 14	Final Exam*