Course Information and Syllabus

1   Contact Information

Lecturer	Russell Schwartz
Email	russells@andrew.cmu.edu
Phone	268-3971
Office	MI 654B
Office Hours	Mondays 3:30pm-5:00pm or by appointment

TA	Yang Yang
Email	yy3@andrew.cmu.edu
Phone	217-419-5984
Office	GHC 7413 (office hours in GHC 8102)
Office Hours	Wednesdays 3:30pm-5:00pm or by appointment

We will also have a Piazza site for the class that you can use to ask questions of the instructor or TA or to discuss with others. Office hours for Dr. Schwartz will be held in the Schwartz lab, Mellon Institute 654. You can also find most of the supplementary readings mentioned in the text there. These optional texts are available for anyone to read in the lab. Please do not remove any textbooks from the laboratory, though, since we have only one copy of most of them and it needs to remain in the lab as a reference.

2   Grading

Your grade in this class will be based on six problem sets, each of which you will have two weeks to complete, and a final project. There will be no exams in this course. Your grade will be based 75% on problem sets and 25% on your final projects. Those taking the graduate version of this class (03-712/02-712) will be required to do additional problems on the problem sets and will be expected to choose more ambitious final projects. The class will be graded on separate curves for the 03-512/02-512 and 03-712/02-712 students.

3   Homework

This class will have six problem sets, which will generally have both short-answer questions and small programming assignments. Additional questions (marked with asterisks) will be provided for students in 03-712/02-712. Students in 03-512/02-512 are not expected to do these questions.

We will be attempting to handle all course materials electronically this year, so homeworks will be turned in, graded, and returned to you through Canvas. All electronic files, including your source code and any requested output files, should be turned in through Canvas. For each assignment, please turn in a single PDF file containing the question-and-answer portion of each of your assignments and a single zip file containing all source code and any request auxiliary files (ouputs, test cases, etc.) the assignment request. We need to be able to compile and run your code to grade it, so please do not use any libraries that are not included with a standard release of the language. Even if you cannot get your code to compile or run, I encourage you to turn it in for partial credit. I will accept source code in Java, C, C++, Matlab, or Python.

All assignments will be due by the start of class on the due date listed. I will not grant extensions except for a valid medical reason with a doctor's note, although you can turn in homework after the deadline with a 10% penalty for each day late up to one week after the assignment is due. Assignments turned in more than one week late will receive no credit. For purposes of calculating a late penalty, the entire assignment will be considered to have been turned in whenever the last piece of it is turned in. I expect you to plan ahead if you will be unavailable the day an assignment is due and arrange to get it to me on time.

Final projects can be either individual or group, with the amount of work expected to be commensurate with the number of people working on the project and whether they are registered for undergraduate or graduate credit. I will suggest some projects, but I encourage you to come up with your own ideas and discuss them with me. Around the middle of the term, I will ask each of you to meet with me to discuss your project plans and submit a brief project proposal. In addition to the project itself, each group or individual will be required to submit a written report and deliver an oral report on the final project. More details will be available later in the term.

4 Collaboration Policy

I encourage collaboration on your assignments, but all work you turn in must be your own. You are welcome to discuss the problems with each other, but each of you must write your solutions and all of your source code independently. Do not share solutions or post or exchange solutions online. Do not copy-and-paste any code from each other or from any other source or use any non-standard third-party libraries (i.e., anything we would need to download beyond a standard compiler/interpreter installation to run your code). The only exception to this rule is for group final projects, where only a single report and set of code is sufficient for each group.

When turning in your work, you should appropriately cite any sources you consult beyond what we cover in the class lectures. This includes other students and on-line resources.

5 Course Content

The course will be roughly divided as follows:

- Models for Optimization (4 weeks)
- Simulation and Sampling (6 weeks)
- Model Inference (4 weeks)
- Student Presentations (1 week)

Finer detail on topics of specific lectures and associated readings can be found on the Course Calendar.

6 Readings and Lecture Videos

The course has a textbook that was developed based on the class lecture notes:

Russell Schwartz. **Biological Modeling and Simulation.** MIT Press: Cambridge, MA, 2008.

Copies are available through the CMU Book Store and various online retailers. The References section of each chapter will recommend additional background readings. You may find these helpful if you want to know more about any of the topics we cover, but they are optional and you should not need them to complete any of the assignments. A few additional readings will be provided on Blackboard for topics not covered in the text.

I have also recorded videos of most lectures from a previous year. The quality is poor and the content will change somewhat each year, but you may find them useful. You can view them here:

https://www.youtube.com/playlist?list=PLUKmtlUTHfBOgpZFmTvsTwkUh2K1RAse-

7 Accommodations for Students with Disabilities

If you have a disability and have an accommodations letter from the Disability Resources office, I encourage you to discuss your accommodations and needs with me as early in the semester as possible. I will work with you to ensure that accommodations are provided as appropriate. If you suspect that you may have a disability and would benefit from accommodations but are not yet registered with the Office of Disability Resources, I encourage you to contact them at access@andrew.cmu.edu.

8 Other Resources

Take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress.

All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. Asking for support sooner rather than later is often helpful.

If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is here to help: call 412-268-2922 and visit their website at http://www.cmu.edu/counseling/. Consider reaching out to a friend, faculty or family member you trust for help getting connected to the support that can help.