Discrete Mathematical Modeling - Math 381 A - Autumn 2021

Lecturer: Dr. Matthew M. Conroy

Email: conroy@math.washington.edu (always specify Math 381 in the subject line) Please use an email program or gmail rather than sending mail through Canvas, if possible.

Text: There is no "required text" for this course. There will be suggested readings as the course progresses.

Lectures: There will be lectures most MWF in Smith 405 from 12:30 to 1:20 PM. I will post lecture slides, and video lectures (not recordings of the lectures in Smith 405) will also be available.

Course topics: This course will introduce you to a number of mathematical modeling concepts including: linear and integer programming, graph theory, Markov chains, multidimensional scaling, Monte Carlo simulation, and queuing theory.

Canvas: Course materials will be on Canvas. Assignments will be made available through Canvas, and you will turn assignments in through Canvas. I will use Announcements on Canvas to communicate with the class, generally. **I expect that everyone has their notifications set so that, when I post an Announcment, you will be immediately notified. I will expect that everyone reads and acts on the Announcments in a timely fashion.**

Weekly structure: Each week, there will be lectures, video lectures, and lecture slides introducing the course concepts.

I will suggest things to read and to try that will help you learn more about each topic.

Quizzes and exams: There will be a quiz due at the end of the first week of the course. This is the only quiz or exam in the course.

Assignments: Most weeks, there will be an assignment due on Friday.

Most of the assignments will involve some programming. Any programming language can be used for any of the assignments.

I encourage you to send drafts of your assignments to me for feedback before the assignments are due. The earlier you can send them, the more time you will have to incorporate the suggestions I make. **I expect everyone to speak to me in office hours before sending a draft.** This can save both of us a lot of time.

Office hours: I will hold office hours on Zoom at the same time each week. **You should attend some zoom hours every week**. Come with questions about course material and assignments. I'll let you know when the zoom hours will be and how to connect. If you are able, I really appreciate people having their cameras turned on during these zoom hours to improve the human-ness of our interactions. You are welcome to come hang out and see what everyone is talking about.

You are encouraged to work with other students to complete assignments.

However, the work you turn in should be your own. **Do not copy another student's work, and do not allow your work to be copied.** There is no point in turning things in that are not your own, personal work.

Course grades: Everyone who fully participates in the course will receive a grade of 4.0. Fully participating means showing significant work on each weekly assignment as described below.

There are only two grades possible in this course: 4.0 and 0.0.

I will score the assignments coarsely, and I will give you lots of feedback. For each assignment, I will give you a score of H, M, or L, or no score if an assignment is not turned in, or is very minimally done.

- H means the assignment is well done, with at most minor issues.
- M means the assignment is well done in parts, but has one or two significant issues (such as incompleteness).
- L means the assignment has a number of significant issues.

So, H is better than M, M is better than L. And H is better than L.

To pass the course (i.e., get a 4.0 and not a 0.0), there are four requirements:

1. Pass the first week quiz. This will require you to install and run the software lpsolve and solve a simple LP by the end of the first week of the course. This quiz will be graded all-or-nothing.
2. Get mostly (i.e., at least 50 percent of your scores) H's, **and** at most two L scores on your assignments. You can miss one assignment completely without any penalty. If you do not miss any assignments, I will "drop" your lowest score when assessing your course grade.
3. You must get an M or H on the two-week simulation assignment.
4. You must get an M or an H on at least one of the final two assignments (so, you cannot get two L's, or miss one and get an L on the other, and pass the course, for example.)

Do the first week quiz, get mostly H's, and don't neglect the final two assignments or the simulation assignment, and you will pass.

If you miss (i.e. do not get an H, M, or L on) more than one assignment, then you will not pass.

Late assignments will not be accepted. However, you are allowed to miss *one* assignment, for any reason, without penalty to your grade, as described above. It is always to your advantage to turn assignments in rather than not.

If you are sick or having other difficulty getting an assignment done on time, I encourage you to contact me so I can help, if possible.

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/.

Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form at https://registrar.washington.edu/students/religious-accommodations-request/.