Discrete Mathematical Modeling - Math 381 A - Winter 2021

Lecturer: Dr. Matthew M. Conroy

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

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
- queuing theory (time permitting)

Canvas: Course materials will be on Canvas. Lectures will be posted under Discussions, to encourage discussion of them. Assignments will be made available through Canvas, and you will turn in assignments in through Canvas. I will use Announcements on Canvas to communicate with class, generally. **I will 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 lecture slides you can read on that week's topic. I will post accompanying video lectures based on these slides.

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

There will be a weekly assignment due each Friday starting the second week of the quarter. Sometimes these will involve programming, and/or using a new piece of software. I will give you feedback each week on these 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 will hold office hours on Zoom at the same time each week if you want to talk about things. I'll let you know when these will be and how to connect.

You are encouraged to work with other students to complete these 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:

This quarter will be very unusual. This course is not meant to be taught online, and this quarter's version of the course will be very, very different from the usual course. As a result, it will be difficult for me to assess work done in the same way. Particularly as we are all suffering under

the strains of this pandemic, I do not want students to worry too much about their grade in the course.

For these reasons, I am making the unusual choice of giving everyone who participates in the course the same grade of 3.5. Participating means showing some significant work on each weekly assignment and writing a thorough summary essay. As long as you do those things, you will get a grade of 3.5 in the course.

Thus, there are only two grades possible in this course: 3.5 and 0.0.

I will grade the assignments coarsely. For each assignment, I will give you a grade of H, M, or L, or no grade 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 that assignment has a number of significant issues.

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

To pass the course (i.e., get a 3.5 and not a 0.0), you need mostly (i.e., at least 50 percent of your scores) H's, and at most two L grades. You can miss one assignment completely without any penalty (I will "drop" the lowest grade when considering your overall course performance.)

For example, suppose we have seven assignments during the quarter. If your grades are H,H,H, M,M,L,L, then you will pass. If your grades are M,M,M,M,L,L,L, for example, then you will not pass.

If you miss more than one assignment, you will not pass.

We may have a two-week assignment. If we do, then your grade on it may count twice in assessing your overall performance.

The reason for the particular grade of 3.5 is that that is about what the median has been in this course (in quarters that I have taught the course). In this way, the grades will be comparable to other quarters, at least as far as the median is concerned.

Late assignments will not be accepted. However, you are allowed to miss *one* assignment, for any reason, without penalty to your grade. This is implemented by dropping each student's lowest assignment score when determining each student's course grade. 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/.