Discrete Structures II
Fall 2024

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Office Hours: Tues., Wed., Thurs. 10-11 (Southwick 350S)

Course Goals

This is a math class that covers many different mathematical topics and shows you how to use that math in other areas (computer programming, epidemiology, Rubik's cubes, childcare, etc.). When you have successfully completed this course, you will be able to:

- Solve abstract mathematical problems in graph theory and group theory
- Recognize these abstract math concepts in real-world applications and use your knowledge to solve real-world problems
- Present solutions to abstract math and real-world problems clearly and well

Course format

The class will meet twice a week. These meetings will be recorded and posted on Blackboard. The detailed schedule (material covered each day, exam dates, etc.) is on Blackboard.

Before each meeting, you will have assigned textbook reading (see "Reading" below) and send me feedback on what you've read. During class meetings I will answer your questions and we will work on problems together. Your grade will depend on your attendance, reading, problem sets, and exams.

NOTE: Although the intention is to meet in person, emergencies come up! If class is ever cancelled or held on Zoom, an announcement will be posted on Blackboard and emailed to your UML account.

[1]This is the best way to get in touch with me. I respond to emails sent by 4pm on the same day, emails sent after 4pm will be answered the following day.

Reading (also see "Reading Guidelines")

Our textbook is "Applied Discrete Structures" by Doerr and Levasseur. THIS BOOK IS AVAILABLE FOR FREE. You can find it online at `discretemath.org`. The browser version occasionally formats oddly so I recommend downloading the PDF. You may also choose to buy a paper edition, but it is *not* required.

In this course we will cover material from chapters 9, 10, 11, 13, and 15. We will occasionally use supplemental material, which will be distributed on Blackboard. Before each class meets, you will read the relevant sections and submit comments on Gradescope. The reading schedule is posted on Blackboard. See "Reading Guidelines" for details on how to read the textbook and submit comments.

Problem sets (also see "Solution Guidelines")

Every time class meets, you will be assigned **Everyday Exercises**. These are straightforward problems that help you practice the material. The EE will be due before the following class. These are graded on completeness.

Big Problems are assigned once a week, due the following week. These are larger and more complex than EE. These will be graded for correctness and completeness.

You will each be assigned one **Official Solution to the Everyday Exercises**. They will be posted on the class website as a study resource for the whole class. See "Solution Guidelines" for more information on this.

You will hand in all of your homework on Gradescope, which you can access through the class Blackboard site. **I will not accept any paper homework.**

Exams

There will be two in-class midterm exams. There will be one cumulative final exam. It will take place during exam week, scheduled by the registrar's office. You will be allowed to bring your own notes to exams but no calculator.

Attendance

I will be using an online system to take attendance in every class. You will use your phone or laptop to log on and verify attendance.

Absences and missed work

If you miss class or work for a reason that is **beyond your control** (e.g. illness, family issue, religious event), you can make it up. In order to do so please notify me as soon as you can, ideally before the work is due.

If you miss class or work for any **avoidable** reason (e.g. vacation) you might or might not be able to make it up. You must notify me as soon as you learn of the issue and you must provide evidence of your excuse.

Germs

PLEASE HELP KEEP US ALL HEALTHY. My whole family (especially the little ones) appreciates your cooperation.

- If you feel sick (with COVID or anything else), stay home!!!!! I will help you make up any missed work.
- If I feel sick, I will stay home! If class is virtual or cancelled, I will post an announcement to Blackboard and your UML email.
- If you have specific health concerns feel free to talk to me.

Support

This is a challenging time and a challenging course. Here are some resources.

- Math help, including math department tutoring:
  `https://www.uml.edu/Sciences/mathematics/Students/For-Students.aspx`
- College classes help, including University tutoring:
  `www.uml.edu/class/tutoring/tutor-schedule/`
- Disability services: I am happy to work with you for any reasonable accommodation. If you need specific accommodations, please request them according to `www.uml.edu/student-services/disability/`
- General support: Please email or phone me if you have trouble with your internet, got laid off, don't know how to hand in your homework, or have any other speedbumps and we'll figure it out together.

Grading

Your grade depends on the midterm exams (10% each), the final exam (30%), the Big Problems (25%), the Everyday Exercises (10%), your Official Solution to an Everyday Exercise (5%), attendance (5%), and reading responses (5%). In particular,

- The Everyday Exercises will be graded for completion; sincere effort is enough.
- The Big Problems will be graded for correctness and completeness. You need to give the right answer and to include enough detail for the grader to follow each step of your answer.
- The Official Solution to an Everyday Exercise will be graded for correctness, completeness, and clarity. You need to write this carefully so that everyone in the class can learn from it. See "Solution Guidelines".

Academic integrity

Don't cheat. You are expected to follow the UML Undergraduate Policy on Academic Integrity. See `www.uml.edu/Catalog/Undergraduate/Policies/Academic-Policies/Academic-Integrity.aspx`. Rules specific to this course:

- You may BRAINSTORM homework solutions with classmates, in fact you are encouraged to do so.
- You may use your textbook, the internet, or other resources to get IDEAS on how to solve homework problems.
- You may NOT ask a tutor, a friend, the internet to give you the COMPLETE answer to any assignment.
- You may NOT ask a tutor, a friend, the internet to WRITE your answer for you. Everything you hand in must be in your own words.
- If you feel really stuck, ASK ME for help! I'm always happy to give hints and assistance on any assignment.