

# EECS 203: Discrete Mathematics

Syllabus, Winter 2022

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## 1. Course Overview

### Instructors

- Prof. Greg Bodwin (*he*) - [bodwin@umich.edu](mailto:bodwin@umich.edu)
- Prof. Kim Diaz (*she*) - [kkhalsa@umich.edu](mailto:kkhalsa@umich.edu)
- Prof. Emily Graetz (*they*) - [graetzer@umich.edu](mailto:graetzer@umich.edu)
- Prof. Seth Pettie - [pettie@umich.edu](mailto:pettie@umich.edu)

See our Canvas page for a complete list of instructors, including Instructional Assistants (IAs) and Graduate Student Instructors (GSIs) & check out our staff profiles!

### Course Description

Discrete mathematics is often called the “language of computer science.” It is the backbone upon which all computational processes are built. In all likelihood, most of the mathematics you have studied so far concerns functions of real numbers and their derivatives, integrals, roots, etc. But there are other branches of mathematics that have created very different objects to model real-world problems. In discrete mathematics, we give up the notion of a *neighborhood* and a *real number*, and instead consider operations on 1s and 0s (logic), modular arithmetic and number theory, set theory, functions and relations on sets, graphs, counting, discrete probability theory,

etc., and how these form the foundational language through which we formulate and solve real-world problems in computer science.

### Required Materials

The official textbook for the course is “Discrete Mathematics” 8th Edition, by Ken Rosen. Alternatively, if you have access to the 7th edition, you will find most of the same material as in the 8th edition, but page numbers, example numbers, etc. will differ. An online version of the book is available from the University of Michigan library at <https://ebookcentral-proquest-com.proxy.lib.umich.edu/lib/umichigan/detail.action?docID=5471269#>.

### Canvas

We will use Canvas as the main web portal for the course. There is one common Canvas site for all six lectures and 24 discussion sections. Here we will post lecture slides, lecture recordings, course calendar, assignments and solutions, grades, and course announcements. The Canvas calendar includes assignment due dates, exam dates, review session information, etc. Our course Canvas page will include links to all of the other websites and tools that we use (Piazza, Gradescope, Google Calendar for Office Hours, etc).

### Important Dates

Mark your calendar for the course exam dates, listed below. More information on exams can be found in the [Exams section](#) of this syllabus.

Exam 1	<b>Wednesday, February 16</b>	<b>7:00 - 9:00 pm</b>
Exam 2	<b>Wednesday, March 23</b>	<b>7:00 - 9:00 pm</b>
Exam 3	<b>Tuesday, April 26</b>	<b>7:00 - 9:00 pm</b>

### Communication Outside of Class

#### Office Hours

Office hours are a great way to get to know your instructors better and to ask any and all questions related to course content, homework, etc. Many students report that actively engaging in office hours is the thing that benefited their understanding the most. A Google Calendar listing office hours can be found on both the Canvas homepage and a Piazza logistics page. This Calendar will always accurately reflect scheduled office hours, as these times may change during the course of the semester. You may go to any office hours you like and as many as you like.

***Remote office hours will be available.*** See the office hours calendar for times.

### **Piazza**

We will be using a class interaction tool called Piazza for questions and answers. You can access our Piazza page through the link on Canvas. You will be able to post questions, answer other people's questions, give or ask for clarification on answers, see instructors' comments, etc. You can even ask questions privately to the staff. When making a Piazza post, please search before asking. Do not share answers to homework on Piazza.

### **Admin Form**

Use the [Admin Form](#) for any administrative issues for EECS 203 including personal (health, absence, VISA accommodations), technical, distance learning, homework, gradescope, or exams. Please provide as much relevant information as possible. In particular, we will use the information you provide should you become ill or have to quarantine for an extended period of time in consideration of final grades. Content-related questions should be addressed through Piazza.

### **Email**

If you need to contact the course staff by email, you can reach us at [eeecs203-admin@umich.edu](mailto:eeecs203-admin@umich.edu) . Be sure to include [eeecs203] in the subject line.

## **2. Student Support and Well-Being**

### **Inclusion Statement**

It is our intention that students from all backgrounds and perspectives will be well served by this course, and that the diversity that students bring to this class will be viewed as an asset. We welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, socioeconomic background, family education level, ability - and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class. Your suggestions are encouraged and appreciated.

### *Lived name/pronoun*

We will gladly honor your request to address you by an alternate name or gender pronoun. Please advise us of this preference early in the semester so that we may make appropriate changes to our records.

## Accessibility and Disability Policy

If you have any disability as defined under the Americans with Disabilities Act that might affect your ability to participate in class, or to turn in assignments on time or in the form required, please contact your instructor and the Office of Students with Disabilities at the start of the term so that arrangements can be made to accommodate you. The submission process for SSD VISA forms has changed, and instructors are now supposed to be able to get their students' VISA forms directly from the University. However, it is a new system, so to make sure that we do in fact have your accommodations on file, please complete the Extended Time Request form early in the semester. In order to allow time to provide appropriate accommodations, please complete the Extended Time Request Form by Monday, January 31st. If you received your accommodation after that date, please update the form ASAP. We need to receive your request a week before the exam date, in order to assure your accommodation.

## Student Well-being

As a student, you may experience a range of issues that can negatively impact your learning, such as anxiety, depression, interpersonal or sexual violence, difficulty eating or sleeping, loss/grief, and/or alcohol/drug problems. These mental health concerns or stressful events may lead to diminished academic performance and affect your ability to participate in day-to-day activities. In order to support you during such challenging times, the University of Michigan provides a number of confidential resources to all enrolled students, including:

- Counseling and Psychological Services (CAPS): 734-764-8312; [caps.umich.edu/contact](https://caps.umich.edu/contact)
- Sexual Assault Prevention and Awareness Center (SAPAC): 24-Hour Crisis Line: 734-936-3333; [sapac.umich.edu](https://sapac.umich.edu)
- Psychiatric Emergency Services: 734-996-4747
- Services for Students with Disabilities (SSD): 734-763-3000; 734-615-4461 [TDD]; 734-996-6661 [VP]; [ssdoffice@umich.edu](mailto:ssdoffice@umich.edu)

In addition, Joanna Millunchick, Associate Dean for Undergraduate Education in the College of Engineering, is offering regular office hours to discuss issues of concern during this COVID-19 pandemic. If you have a question, concern, or something you'd like to share about how things are going this semester, please use this [form](#). Include your email if you would like to receive a response. Submissions will be monitored and responded to by staff from the Office of the Associate Dean for Undergraduate Education.

You can also speak directly with Joanna Millunchick, Associate Dean for Undergraduate Education during one of her online office hours. Use this [link](#) to see the office hours schedule and join the queue.

### 3. Course Components

#### Lectures

There are six lecture sections, all of which meet on Tuesday/Thursday. We encourage you to attend the lecture section you are enrolled in, however you are allowed to attend a different lecture section if you want to. Meeting times and locations for all lectures can be found on the Lecture & Discussion calendar, linked on Canvas.

#### Discussions

During discussions the course staff will go over concepts introduced in lecture and present additional examples. You will also have the opportunity to ask questions and get clarification regarding concepts covered in the lectures.

As with lectures, you are encouraged to attend the discussion section for which you are enrolled, but you can attend a different discussion if you need/want to, with the exception of the Focus on Fundamentals discussion sections.

**Focus on Fundamentals** discussion section attendance is required for those enrolled in those sections, and attendance is also limited to those enrolled in those sections. A description of the Focus on Fundamentals sections can be found on the LSA Course Guide. If you are enrolled in a Focus on Fundamentals discussion section, but cannot attend that time, please enroll in a different discussion. Similarly, if you are enrolled in a Focus on Fundamentals discussion but do not feel comfortable attending the class each week in person, please enroll in a different discussion.

See the Canvas website for meeting times for other discussion sections.

#### Attendance Policy

We encourage you to attend the lecture section and discussion sections that you signed up for, but you may attend any section (with the exception of the Focus on Fundamentals discussion sections, which are open only to those enrolled in those sections).

**Attendance is not required in lecture, nor in discussion** (with the exception of Focus on Fundamentals discussions, where regular attendance is expected). All lectures and (most, if not all) discussions will be recorded and available through Canvas a few hours later. While we encourage you to attend in-person, we understand that you may choose to learn from the recordings instead if you are uncomfortable with the University's COVID policies and prefer not to attend class. Consistent with that policy, if you're sick, we ask that you not attend in-person until you have recovered from your illness.

## Exams

There are three exams in this course which will be given **on-line** from 7-9 pm on February 16th, March 23rd, and April 26th. Classrooms for each exam will be reserved about one week before the exam date. You are free to take each exam at home or in a reserved classroom.

EECS 203 covers a lot of material. Anything that has appeared in lecture, discussion, or homework is fair game to appear on an exam. Practice exams will be posted prior to each exam. In addition, discussions and additional exam review sessions will be provided during the week prior to the exam. While the material in the course is inherently cumulative, the three exams are not explicitly cumulative.

## Exam Conflicts

It is the student's responsibility to make sure they can attend the scheduled exams. All students must complete the Exam Date Confirmation survey, due by the drop/add date for the term, to confirm their availability for the scheduled exams or provide details about their conflict. See Canvas for a link to the survey.

*Exam 1 and Exam 2:* For the first two exams, there will typically be an alternate exam time offered for those with a conflict due to another academic requirement or religious holiday, or who are representing the University of Michigan in an athletic competition, performing arts performance, etc.

*Exam 3:* Exam 3 takes place during the Final Exam time slot for EECS 203, which is set by the Registrar. We have very little flexibility around Final Exam time slots, and thus alternate times for Exam 3 are rarely granted. Unfortunately, we generally cannot grant alternate exam requests for weddings, family travel plans, and the like. **If you have a conflict with the Final Exam date, please let us know right away. You must get approval from the Professors before the drop/add deadline for the semester.** This gives you time to either drop the course, or reschedule your conflict, should your conflict not be approved. Do not assume an alternate Final Exam will be granted!

## Homework

Homework will generally be assigned on Friday and will be due the following Thursday at 10 PM with a two-hour grace period (with no penalty) for late submissions up until 11:59 PM that same day. Homework solutions will be released early the next day (Friday). Homework assignments (and solutions) will be posted on our Canvas page. **After 11:59 PM no late homework will be accepted for any reason.**

*We cannot accept late homework nor offer homework extensions. We understand that you may be unable to turn in some homeworks on time due to illness, deaths, or other family emergencies. **To accommodate these normal life events, we allow each student to drop 2 individual homework scores and 1 Groupwork score.** If you need to request an additional individual homework drop, please submit your request using the [Admin Form](#), and be prepared to **include documentation justifying 3 missed homeworks.***

### **Getting your homework done on time: Start early and attend office hours**

Many students find it beneficial to start the homework early and work on it in bits and pieces throughout the week. Cramming, at the last minute, is discouraged. Even the most seasoned professors of discrete mathematics will get stumped once in a while on the simplest of problems and it pays to budget your time so that you can walk away from your homework, get other things done, and return later when your brain is once again fresh and able to think out of the box. For this reason, office hours and Piazza will be shut down starting at 6 PM on Thursdays so that you have the time to write up your solutions clearly and succinctly.

You are encouraged to look over the homework on Friday when it is posted, begin sketching out solutions for problems that look straightforward, and keep track of the problems that look much harder. Over the weekend, we ask you to work further through the problems so that office hours on Mondays/Tuesdays can be devoted to helping you “get started” on those problems that continue to stump you. On Thursday, we encourage you to submit your solutions even though some of them may be unfinished; the grading feedback you receive, even on partial solutions, is helpful in refining your understanding of the material and in preparing for the exams.

### *Gradescope*

Homework is submitted by uploading your work to **Gradescope**. Please allow sufficient time to upload your assignment before the 10:00 pm deadline. Your work should be submitted as a PDF document. You are encouraged to learn the math formatting tool LaTeX, which produces PDF files of beautifully formatted mathematics. We will provide LaTeX templates for each homework assignment to help you use this valuable tool. Handwritten homework, scanned to PDF, is acceptable, but must be clearly readable. You must ensure that each PDF file is relatively small (well under the 50MB limit).

**When submitting your homework on Gradescope, make sure you match each problem to a page (or pages).** Matching pages ensures that the grader who is grading Problem 5, for example, will be shown the page(s) on which you solved Problem 5. If you don’t match pages to problems, the grader would have to click through all of your submitted pages to find the correct problem to grade, which is not an efficient use of our graders’ time. Therefore, *failure to match pages for a problem may result in a 0 for that problem.*

### *Honor Code applies to Homework*

You are encouraged to study in groups and work on the homework problems together, but your

individual homework submissions must be written *individually*. Directly copying homework solutions is a violation of the honor code.

## Grades

Homework and other assignments are not curved, however we do curve exam scores (the distribution will be very close to the exam grade distribution from previous semesters). All assignment grades and [curved] exam scores will be posted on Canvas, and your overall grade is computed using the weights in the table below.

Course component	% of course grade
Individual Homework	15
Group Homework	5
Exam 1	26
Exam 2	26
Exam 3	26
Surveys	2
<b>Total</b>	<b>100</b>

## Letter Grade Thresholds

Your overall percentage in the course will determine your final course grade, according to the table below. We do not round scores to the nearest percentage.

Total (in percentages)	Letter Grade
[93, 100]	A
[90, 93)	A-
[87, 90)	B+
[83, 87)	B
[80, 83)	B-
[77, 80)	C+
[73, 77)	C
[70, 73)	C-
[60, 70)	D
[0, 60)	E



## 4. Academic Policies

### COVID-19 Policies and Procedures

As they have throughout the past year and a half, policies around academic and public health are subject to change as this pandemic evolves. This course will follow all policies issued by the University, which are documented on the [Campus Blueprint's FAQ](#). These policies may change over the course of the term, so please review the [Campus Blueprint's FAQ](#) for the most up to date information.

### Regrade Policy & Procedures

Homework and Exams are eligible for regrades. Regrade requests are generally open for one week from the time the graded work is returned.

While we strive to be consistent in grading, inconsistencies and errors do occur and we rely on you to help correct these mistakes. At the same time, our time, like yours, is limited so we ask that you follow the steps below to make sure your request is handled appropriately. Failure to follow these steps may result in a dismissal of your request.

#### **If you think your work may have been misgraded:**

1. Read through your answer thoroughly and note which rubric items you did/didn't receive.
2. Read through the posted solution thoroughly and try to map your marked rubric to the differences between your answer and the posted solution.

**After you've read your answer, our solution, and the rubric**, if you feel that your answer was misgraded **according to the posted rubric**, then you are ready to submit a regrade request.

3. All regrade requests are submitted via Gradescope.
4. Make sure you've done "the three things": read the posted solution, review your submission, and read the rubric items.
5. To make it as easy as possible for us to give you points back, start your regrade request with "I have read the posted solution, my answer, and the rubric items."
6. Continue your request by noting **which specific rubric items** you believe you should/shouldn't have gotten and why.
7. Note that unsubstantiated regrade requests may be subject to an additional point deduction penalty. Also note that if you've read this far and completed the steps above in your regrade request, then you'll have a *substantiated* regrade request and, even if you don't end up earning points back, you won't get a penalty either.

## Collaboration Policy

We encourage you to work with your classmates, discuss the material, form study groups, etc. However, when completing the individual homework, *your submitted assignment must be your own work*. Group homeworks are designed for collaboration and you should of course work together as a group on those problems. Group homeworks should also be submitted as a group- one person from your group will upload the assignment to Gradescope and tag the other members of your group.

## 5. Honor Code

### What is the Honor Code?

The Honor Code outlines certain standards of ethical conduct for persons associated with the College of Engineering at the University of Michigan. The Honor Code applies to all students in EECS 203, regardless of whether they are in CoE, LSA, or another School or College. The policies of the Honor Code apply to graduate and undergraduate students, faculty members, and administrators. Read about the UM Honor Code here: (<http://www.crlt.umich.edu/faculty/honor>). There is also an Engineering Honor Code: (also found at <http://www.crlt.umich.edu/faculty/honor>). In this class, as in many others at the University, you will be expected to include and sign the Honor Pledge on each assignment you submit. The Honor Pledge is as follows:

*I have neither given nor received unauthorized aid on this assignment, nor have I concealed any violations of the Honor Code.*

The Honor code is based on these tenets:

- o Engineers must possess personal integrity both as students and as professionals. They must be honorable people to ensure safety, health, fairness, and the proper use of available resources in their undertakings.
- o Students in the College of Engineering community are honorable and trustworthy persons.
- o The students, faculty members, and administrators of the College of Engineering trust each other to uphold the principles of the Honor Code. They are jointly responsible for precautions against violations of its policies.
- o It is dishonorable for students to receive credit for work that is not the result of their own efforts.

Among other things, the Honor Code forbids plagiarism. To plagiarize is to use another person's ideas, writings, etc. as one's own, without crediting the other person. Thus, you must credit specific information obtained from other sources, including web sites, e-mail or other written communications, conversations, articles, books, etc.