Syllabus, Math 2603 - D (Intro Discrete Math)
Aug 24, 2026 - Dec 17, 2026
Donggyu Kim

Note: the syllabus is subject to change until the end of the first week of the semester. Any changes to the syllabus and/or course schedule after the semester begins will be relayed to the students in class and through e-mail.

Course Description

An introduction to discrete mathematics focusing on rigorous reasoning and foundational structures in mathematics and computer science. Topics include logic and proof, mathematical induction, counting methods, recurrence relations, algorithms and complexity, graph theory and graph algorithms.

Course Learning Outcomes

1. **Apply formal logic** to analyze and construct valid arguments.
2. **Construct mathematical proofs**, including direct proofs, proofs by contradiction, and mathematical induction.
3. **Solve counting problems** using fundamental combinatorial techniques such as permutations, combinations, and the inclusion-exclusion principle.
4. **Analyze relations and graphs**, including properties of equivalence relations, partial orders, and basic graph structures.
5. **Formulate and solve problems**.

Lecture and Studio Format

Instructors hold lectures in person on Tuesdays and Thursdays, while TAs hold studios in person on Mondays and Wednesdays.

- Lectures: 9:30 am - 10:45 am TR, Instructional Center 111.
- Studio D01: TBD, 12:30 pm - 1:20 pm MW, Skiles 169.
- Studio D02: TBD, 12:30 pm - 1:20 pm MW Skiles 257.
- Studio D03: TBD, 2:00 pm - 2:50 pm MW Skiles 257.

Office hours

Email: donggyu@gatech.edu.
Location: Skiles 237b.
Office hours: TBD

TAs' office hours : TBD

Textbook

Discrete Mathematics with Graph Theory, Goodaire and Parmenter, 3rd edition.

Grading Scheme

Grades will be based on quizzes (30%), two midterm exams (40%), and a final exam (30%) according to the standard scale: A[90-100], B[80-90), C[70-80), D[60-70), F[0-60).
If the overall response rate of CIOS reaches 85%, the scale will be: A[89.5,100], B[79.5,89.5), C[69.5,79.5), D[59.5, 69.5), F[0,59.5).

Homework and Quiz

Homework problems are taken from the Exercises part at the end of each section and will be posted on Canvas after each lecture, but they will not be collected. However, you should walk through these problems carefully and thoroughly in order to understand the material. Most quiz and exam problems will be similar to those. If you want additional practice, feel free to work on more problems in the book to strengthen your understanding.

We will have weekly quizzes during Wednesday studios. The material being tested are based to the lectures given on Tuesday and Thursday of the previous week. The type of questions will be similar to those in the homework.

We will discuss homework problems and possibly other problems during Monday studios to help you get prepared for the quizzes.

Your lowest quiz score will be dropped. If the overall response rate of CIOS reaches 85%, one more lowest quiz score will be dropped.

No books, notes, calculators, cell phones, or other electronic devices are allowed during quizzes.

Exam Dates

- Midterm 1: Tuesday, August 25, in class. (Tentative)
- Midterm 2: Tuesday, September 29, in class. (Tentative)
- Cumulative Final Exam: TBD

No books, notes, calculators, cell phones, or other electronic devices are allowed during exams.

Missed work policy

You may only receive credit for missed quizzes or exams in the following circumstances.

- University-approved absence: Please give your instructor notice as soon as possible once your absence has been approved.
- Religious holiday: By the end of class on Thursday, September 6, you must notify your instructor of any classes (including studio) you will miss due to religious holidays.
- Illness and family emergency: Except under extenuating circumstances, you must notify your instructor *in advance* and notify the Office of the Dean of Students, so that they can confirm it with your instructor.

Otherwise, missed quizzes and missed exams result in a 0.

In the case of an excused absence for a quiz, then the weight for that quiz will be shifted equally to your remaining quizzes.

If you have an excused absence for a midterm exam, then the weight for that exam will be shifted to the final exam.

Attendance

You are expected to come prepared and actively participate in every lecture and studio. In the event of an absence, you are responsible for all missed materials, assignments, and any additional announcements or schedule changes given in class. Class disruptions of any kind will not be tolerated. Please show courtesy to your fellow classmates and instructor. It is at the discretion of the instructor whether they wish to record their lecture or not.

Students with Disabilities and/or in need of Special Accommodations

Georgia Tech complies with the regulations of the Americans with Disabilities Act of 1990 and offers accommodations to students with disabilities. If you are in need of classroom or testing accommodations, please make an appointment with the Office of Disability Services to discuss the appropriate procedures. More information is available on their website. Please also make an appointment with me to discuss your accommodation, if necessary.

The Honor Code and Academic Dishonesty

Do not cheat! Abide by the honor code at all times.

Any evidence of cheating or other violations of the Georgia Tech Honor Code will be submitted directly to the Office of Student Integrity. Cheating includes, but is not limited to:
1. Using a calculator, books, or any form of notes on quizzes or tests.
2. Copying directly from any source, including friends, classmates, tutors, internet sources (including Wolfram Alpha), or a solutions manual.
3. Allowing another person to copy your work.
4. Taking a test or quiz in someone else's name, or having someone else take a test or quiz in your name.
5. Asking for a regrade of a paper that has been altered from its original form.

Email policy

For questions relating to course structure, please check the syllabus first. Exam dates, policies, etc. are available on the syllabus.

Let's not discuss grades by email. Any questions about grades should be asked during office hours or in an appointment scheduled outside of office hours.

Let's not discuss math by email. Let's discuss mathematics on Piazza instead! This will open the question to the entire class, including all TAs, instructors, and other students who may be able to provide insight. We can also discuss questions during office hours, or at a scheduled appointment outside of office hours.

Student Support and Resources

- The instructor holds regularly scheduled office hours, and students are strongly encouraged to drop by for help. Come sooner rather than later. Experience shows that some Georgia Tech students are reluctant to ask for help as it something they never had to do in high school. Don't fall into this trap. The School of Mathematics wants every student to succeed and we will help you if you make the effort.
- Announcements and grades will be posted on *Canvas*.
- There will be a Piazza forum for this course, accessible through *Canvas*, for online discussion. Any questions or comments of interest to more than one student should be posted on Piazza.