

Math 213: Introduction to Discrete Mathematics

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Course Times & Locations:

	Time	Location
Lecture	MWF 1:00PM-1:50PM	Altgeld Hall 245
	M 4:30PM-5:30PM, W 2:00PM-3:00PM	Altgeld Hall 109
Final Exam	May 13th, 8:00AM-11:00AM	TBD

Textbook: *Discrete Mathematics and Its Applications* (7th edition), Kenneth H. Rosen.

Prerequisites: Math 220, Math 221, or equivalent.

Course Description: This course provides an introduction to basic discrete mathematics with an emphasis on algorithms. A summary of topics, corresponding textbook sections, and the approximate number of allocated lectures is shown in the following table. Please note that these lecture numbers are estimates and may vary based on the needs of the class.

Topic	Textbook Sections	Number of Lectures
Sets and Functions	§2.1 – 2.3	3
Algorithms	§3.1 – 3.3	3
Induction	§5.1 – 5.2	3
Enumeration	§6.1 – 6.5	5
Discrete Probability	§7.1 – 7.3	3
Advanced Enumeration	§8.1 – 8.2, §8.5 – 8.6	7
Relations	§9.1, §9.3, §9.5	3
Graphs	§10	6
Trees	§11	5

Homework: Homework will be assigned on an approximately weekly basis. Assignments are due at 1:00PM (i.e., the beginning of lecture) on Fridays. A subset of the problems on each assignment will be graded for accuracy and the remainder of the assignment grade will be determined by whether or not you have made a reasonable and substantial effort to complete the remaining ungraded problems.

Because solutions are posted shortly after the deadline, no late homework assignments can be accepted. Homework must be legible and well-organized. Supporting work must be shown for all claims; correct answers with no support may receive little to no credit. Answers that are difficult to understand may also receive little to no credit.

Homework Submission: Homework will be turned in electronically, via Gradescope. You should have received the enrollment code in my initial “welcome” email (sent to your official UIUC email address). If you enrolled late and did not receive this email, please let me know as soon as possible.

Please submit assignments as a *single PDF document*. If you choose to hand-write your assignments, there are many phone applications that can produce such PDF files. I encourage you, however, to typeset your homework rather than hand-writing it. Mathematicians typically use LaTeX for typesetting. One free, online resource for writing documents in LaTeX is [Overleaf](#). There is also a convenient tool called [Detexify](#) for identifying the commands for specific symbols. Overleaf

has extensive documentation (with many good examples), but please feel free to contact me if you need further help. Although it is possible to draw diagrams in LaTeX, using a package called TikZ, you are also welcome to draw diagrams by hand and insert pictures. Each homework assignment will contain two bonus points for typesetting.

Quizzes: There will be ten short quizzes, each approximately 10 minutes long, that are given in lecture on Mondays. These quizzes will test basic knowledge of definitions, problem-solving techniques, and other important concepts from the previous week's lectures. The lowest quiz score will be dropped. Quiz dates are marked on the course calendar. There will not be quizzes on weeks with scheduled exams.

Exams: There will be three midterm exams and a cumulative final exam. Midterm dates are marked on the course calendar and are tentatively planned as: February 21st, April 1st, and April 29th. These date are based on the content covered by each exam, so may be slightly adjusted to meet the needs of the course. The final exam will be held from 8:00-11:00AM on Friday, May 13th.

Grading: Each homework assignment is worth 20 points, with 2 bonus points available for typesetting. There are ten homework assignments and the lowest score will be dropped, so homework is overall worth 180 (+18) points. Each quiz is worth 10 points. There are a total of ten quizzes and the lowest score will be dropped, so quizzes are overall worth a total of 90 points. Each midterm exam is worth 100 points and the final exam is worth 200 points. The overall distribution of points can be summarized as follows:

Assignment Type	Total Points
Homework	180 (+ 18)
Quizzes	90
Midterm Exams	300
Final Exam	200

There are a total of **770** (+18) available points in the course.

Students who earn at least 693 points (i.e., 90% of the total points) will be guaranteed at least an "A-", students who earn between 616 and 693 points (i.e., 80%-90% of the total points) will be guaranteed at least a "B-", etc. In practice, these gradelines may be more generous in order to reflect the difficulty of exams and historic student performance in the course.

Make-ups: If you have a documented and legitimate reason for missing an exam (i.e., illness, a death in the family, Covid-19 exposure, athletic travel for UIUC, etc), please contact me as soon as possible to make arrangements. This will typically be dealt with by weighting other exams more heavily and dropping the missed exam, but the exact solution may depend on individual circumstances.

Academic Honesty: Students are expected to follow the [University of Illinois student conduct code](#). While I highly encourage collaboration on homework assignments, you should write up your solutions independently to ensure that you fully understand the solution. If you do work with others, *you must list their names at the top of your homework assignment*. All exams should reflect your own original work, with no consultation of outside resources or collaboration. You may not use calculators, computers, phones, textbooks, or notes on exams.

Disability Accommodations: The University of Illinois at Urbana-Champaign is committed to providing equal access to educational opportunities via the [Division of Disability Resources & Educational Services](#) (DRES). If you feel that you may have a disability, you can contact DRES via e-mail at disability@illinois.edu or by phone at (217)-333-1970 to discuss possible accommodations. If you have existing accommodations through DRES, you should contact me as soon as possible to discuss how those accommodations will be implemented in this course.