

CSCI 15000 §03 #10656

Discrete Structures Summer 2023

Morgan Wajda-Levie, Lecturer in Computer Science
morgan.wajdalevie93@myhunter.cuny.edu

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Textbook

Readings and homework will be assigned from:

Epp, Susanna S.; *Discrete Mathematics with Applications, Fourth Edition*;
Brooks/Cole—CENGAGE Learning; 2011; ISBN-13 978-0-495-39132-6

Course goals

Discrete mathematics is the language of Computer Science, with its own vocabulary, grammar, and idioms. This class seeks to build students comfort, confidence, and fluency when speaking and writing the language of discrete mathematics, as a necessary precursor to future coursework in Computer Science.

Successful completion of this course should provide a solid understanding of mathematical logic, and its use for constructing rigorous proofs of mathematical concepts. Students will explore and prove properties of core mathematical concepts such as functions, sets, number theory, combinatorics, and graphs. This class directly supports Departmental Learning Outcomes 1A (“demonstrate an understanding of the basic foundations ... of mathematics and statistics ...”) and 1C (“display knowledge of the theory of computation and algorithms”).

Office Hours

Office hours will be held on Monday and Wednesday from 2:00pm-3:00pm, or by appointment, location to be announced. Office hours are subject to change at any time, but changes will be announced in class and via Blackboard announcement.

I encourage students to reach out to me with questions by e-mail. Cell phone photographs of handwritten notes are often better than typing mathematical text in e-mails. I try to respond promptly to student e-mails. If you have not heard from me in over 2 class-days, follow-up e-mails are welcome.

Grading

Your grade will be compiled from a number of components. Students should, above all else, focus on mastering the material and see the various graded work as an opportunity to demonstrate their efforts. Students are welcome and encouraged, at any point over the semester, to speak with me about their progress and performance in the course.

20% Quizzes Short quizzes (30 minutes) will be given for each textbook chapter covered. Students should be able to recognize and restate the concepts covered within the chapter.

20% Problemsets Problemsets will cover multiple chapters, and include a mixture of review problems and challenging problems where students are expected to synthesize and apply concepts. Students should prepare to spend multiple days working on a single problemset.

20% Midterms Midterms will last 90 minutes and consist of a few involved questions.

20% Final The final exam will be 2 hours and cumulative.

10% Attendance Students are expected to attend every class. Should students be unable to attend class for any reason, I ask that they reach out to me by e-mail, preferably in advance.

10% Participation Students are expected to make active use of class time, with an emphasis on effort in engaging with course concepts over demonstration of mastery. Students will be *rewarded*, not penalized, for making an effort to answer a question or solve a problem in class and missing the mark.

Schedule

The following schedule should be seen as an overview of the course structure and the quantity of assignments. Exact dates will depend on our progress, and be announced in class and over Blackboard.

Week 0		Introduction
	Textbook	1.1, 1.2, 1.3
Week 1		Making Mathematical Statements
	Textbook	2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4
	Evaluations	Problemset 1, Quiz 1
Week 2		Proving Mathematical Statements
	Textbook	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7
	Evaluations	Problemset 2, Quiz 2, Midterm 1
Week 3		Recursively Proving Mathematical Statements
	Textbook	5.1, 5.2, 5.3, 5.4, 5.6, 5.7
	Evaluations	Problemset 3, Quiz 3
Week 4		Properties of discrete structures
	Textbook	6.1, 6.4, 7.1, 7.2, 7.3, 7.4, 9.4, 9.2, 9.3, 9.5
	Evaluations	Problemset 4, Quiz 4, Midterm 2
Week 5		Conclusion
	Textbook	10.1, 10.2, 10.5
	Evaluations	Problemset 5, Final

How to succeed in this course

This course covers a wide range of material and will likely require a substantial amount of effort. While I trust students to find the study methods that work best for them, I suggest the following:

- Read assigned textbook sections, preferably before class, paying attention to terms defined there. Evaluations will be based on material covered in the textbook.
- Take risks in class. Work through questions and problems with the instructor and with each other. Don't be afraid to talk about what confuses you.
- Practice reading mathematical notation and try to "sound it out" as if you were learning to read for the first time.
- Interrogate the concepts and terms you encounter.
- Remember that math, like any language, is a journey, and your comfort will grow with time and effort.

If you get behind

If you find yourself in trouble, please do not despair. You can still succeed in this class, while respecting your own health.

- Take care of yourself.
- Speak to me, by e-mail or in person, as early as possible. We can work together to find the best way forward.
- Try to keep coming to class, and don't be afraid to ask questions about *any* of the material. You will never be penalized for asking questions.
- Remember that you are probably not the only student struggling.

Accessibility

Every student enrolled in this course deserves to be here. In designing this course, I have made every effort to consider a wide range of learning styles and access needs, but you, the student, know your needs better than anyone else, and I am committed to working with all students to provide reasonable access and accommodation. Please speak with me as soon as possible about any access needs that you might have as soon as possible. I look forward to working with you.

Hunter Policies

Academic Integrity

Hunter College regards acts of academic dishonesty (e.g. plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

Bullying

Bullying, cyberbullying, online hate, intimidation, threats, harassment, and pressure to share schoolwork are all forms of violence. CUNY holds a zero tolerance stance towards all such acts. The University is committed to prevention of any form of bullying, will respond promptly to threats and/or acts, and will protect victims of bullying from retaliation. As a criminal matter, the New York Attorney General defines cyberbullying as the use of email, websites, instant messaging, chat rooms, text messaging and digital cameras to antagonize and intimidate others. Disrupting a teleconferencing platform (such as Zoom/Skype/Blackboard Collaborate Ultra) is a federal crime.

ADA Compliance

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical and/ or Learning) consult the Office of AccessABILITY located in Room E1124 to secure necessary academic accommodations. For further information and assistance please call (212-772-4857)/TTY (212-650-3230).

Sexual Misconduct

In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).

b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link: <http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf>