

CSC-400 Discrete Structures for Computer Science Fall 2023

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Office Hours: Tuesday 4:00-5:30

Course Website: <https://d2l.depaul.edu/d2l/home/958218>

Course Description

This course introduces the basic mathematical tools and background essential for studying computer science and for general problem solving. The topics to be discussed include: logic and set theory, relations and functions, counting and basic probability, and graph theory.

Prerequisites

None.

Textbooks

- Eric Lehman, F. Thomson Leighton and Albert R. Meyer, *Mathematics for Computer Science*.

A link to the textbook is uploaded on D2L (under the tab “Content”). We will be using the slides prepared by one of the authors of the textbook (Albert Meyer).

- Seymour Lipschutz and Marc Lipson, *Schaum’s Outline of Discrete Mathematics, Fourth Edition*.

This book contains many solved exercises, and in general is very useful as a reference.

Learning Outcomes

- Students will learn the basic discrete mathematics background essential for studying computer science.
- Students will be exposed to the mathematical language/formalism necessary for reasoning logically and for presenting their arguments rigorously.
- Students will be able to use basic mathematical tools for modeling and solving problems in computer science.

Topics

1. Propositional and predicate logic (modules 1 & 3).
2. Sets (module 4).
3. Relations and functions (modules 4 & 8 & 10).
4. Graphs (modules 10 & 12 & 13).
5. Counting and probability (modules 15 & 17 & 18).
6. Mathematical induction and proofs if time permits (modules 2 & 5).

Grading

- *Assignments (5-6 assignments)—30%*

Homework assignments are due on the specified due date and time. Late submissions will not be accepted. You should double check your submission on D2L to make sure that you submitted the correct file; **NO** resubmission due to submitting the incorrect/incomplete file will be accepted.

- *Midterm Exam—30%*

In-Class Students.

The midterm exam is on Monday, October 9th, from 5:45-7:45 PM (during regular class hours), in class. No make up exams will be given. The exam is open book. Electronic devices and internet access are not allowed.

Online/ASync Students.

You will need to take a proctored exam at an approved testing facility (university, library, etc.) or at CDM; no online exams will be given. You will need to register through MyCDM/D2L to take your proctored exam during a time window that is specified in the registration system; no make-up exams outside of this time window will be given. The duration of the midterm exam is two hours (120 minutes). Please register as soon as possible. Please note that you will need to meet the University's vaccination requirements in order to take your proctored exams. The exam is open book. Electronic devices and internet access are not allowed.

- *Final Exam—40%*

In-Class Students.

The final exam is on Monday, November 20th, from 5:45 - 8:15 PM (in class). No make-up exams will be given. The exam is open book. Electronic devices and internet access are not allowed.

Online/ASync Students.

You will need to take a proctored exam at an approved testing facility (university, library, etc.) or at CDM; no online exams will be given. The duration of the exam is two hours and 30 minutes (150 minutes). You will need to register through MyCDM/D2L to take your proctored exam during a time window that is specified in the registration system; no make-up exams outside of this time window will be given. Please register as soon as possible. Please note that you will need to meet the University's vaccination requirements in order to take your proctored exams. The exam is open book. Electronic devices and internet access are not allowed.

Tutoring

Online Tutoring is available for this class, please see [CDM Tutoring | DePaul CDM](#).

Attendance

If you miss a lecture, then you will be responsible for the materials covered during that lecture.

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted in D2L and sent via email.

Academic Integrity and Plagiarism

All students are expected to abide by the University's Academic Integrity Policy (which you can find at <http://academicintegrity.depaul.edu/>) which prohibits cheating and other misconduct in student coursework. Publicly sharing or posting online any prior or current materials from this course (including exam questions or answers), is providing unauthorized assistance prohibited by the policy. Both students who share/post and students who access or use such materials are considered to be cheating under the Policy and will be subject to sanctions for violations of Academic Integrity. If you have any questions be sure to consult with your professor.

Respect for Diversity and Inclusion

At DePaul, our mission calls us to explore “what must be done” in order to respect the inherent dignity and identity of each human person. We value diversity because it is part of our history, our traditions and our future. We see diversity as an asset and a strength that adds to the richness of classroom learning. In my course, I strive to include diverse authors, perspectives and teaching pedagogies. I also encourage open dialogue and spaces for students to express their unique identities and perspectives. I am open to having difficult conversations and I will strive to create an inclusive classroom that values all perspectives. If at any time, the classroom experience does not live up to this expectation, please feel free to contact me via email or during office hours.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: csd@depaul.edu

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Course Evaluation: School Policy

Course and instructor evaluations are critical for maintaining and improving course quality. Please complete the evaluations at the end of the quarter.