

Syllabus

Discrete Mathematics

Spring 2024

This course is an introduction to *computer science*, a branch of mathematics. The objective is to begin cultivating the knowledge, maturity, and state-of-mind of an academic computer scientist. This involves developing fluency in the *first-order logic* and the *language of set theory*, honing skills in the *art of proof-writing*, and studying several topics of historical interest.

1 Contact Information & Office Hours

Daniel Gonzalez Cedre	Instructor	dgonza26@nd.edu	Thu.	4:00 pm	8:00 pm	215 DeBartolo Hall
AND BY APPOINTMENT						
Aydin Wells	Grad. TA	awells24@nd.edu	Mon.	4:00 pm	5:30 pm	356B Fitzpatrick Hall
			Tue.	10:00 am	11:30 am	356B Fitzpatrick Hall
Helena Berens	Undr. TA	hberens@nd.edu	Tue.	3:30 pm	4:45 pm	129 DeBartolo Hall
Max Graves	Undr. TA	mgraves4@nd.edu				
Celeste Mannel	Undr. TA	cmannel@nd.edu	Wed.	6:00 pm	7:00 pm	306 DeBartolo Hall
Norah Swatland	Undr. TA	nswatlan@nd.edu	Wed.	5:00 pm	7:00 pm	306 DeBartolo Hall

2 Calendar & Schedule

January		MLK JR.		PS1
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			
February		PS2	PS3	PS4 PS5
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29			
March		PS6 EXAM 1	SPRING BREAK	PS7 EASTER
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			
April		PS8	PS9 PS10 EXAM 2	
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30			
May		PS11 READING DAYS FINAL EXAM		
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19			

Lectures	Mon. Wed. Fri.	11:30 am	12:20 pm	116 DeBartolo Hall
Recitations ¹	Thu.	4:00 pm	8:00 pm	215 DeBartolo Hall ²
Exam 1	03/08/2024	11:30 am	12:20 pm	116 DeBartolo Hall
Exam 2	04/26/2024	11:30 am	12:20 pm	116 DeBartolo Hall
Final Exam	05/09/2024	4:15 pm	6:15 pm	120 DeBartolo Hall

Tab. 1: Lecture and exam schedule.

¹ *Recitations* are *entirely optional* sessions where the instructor will be available to answer questions and go over problems.

² Except on 04/04/2014, where recitation will take place in 306 DeBartolo Hall.

3 Assignments

Problem Sets

There will be roughly 10 graded problem sets throughout the semester. The lowest two out of these 10 will be dropped. Problem sets will be assigned every week, due at midnight one week after they are assigned, and should be submitted on Gradescope (*v. subsection 5.2*). Late work will receive zero points and there will be no makeups.

Exams

There will be two midterm exams and a cumulative final exam. Two sheets of handwritten notes will be permitted, written on 8.5 x 11 or A4 paper. *If the final exam grade is greater than either midterm grade, the final replaces the lower grade.* Makeup exams will be handled case-by-case.

4 Grading

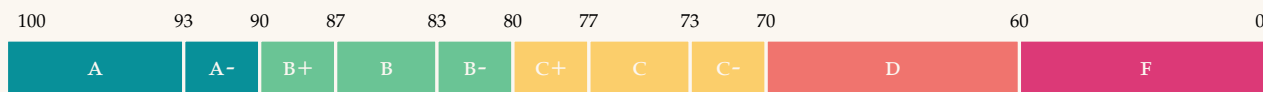


Fig. 1: The scale for determining letter grades. Final grades are rounded up.

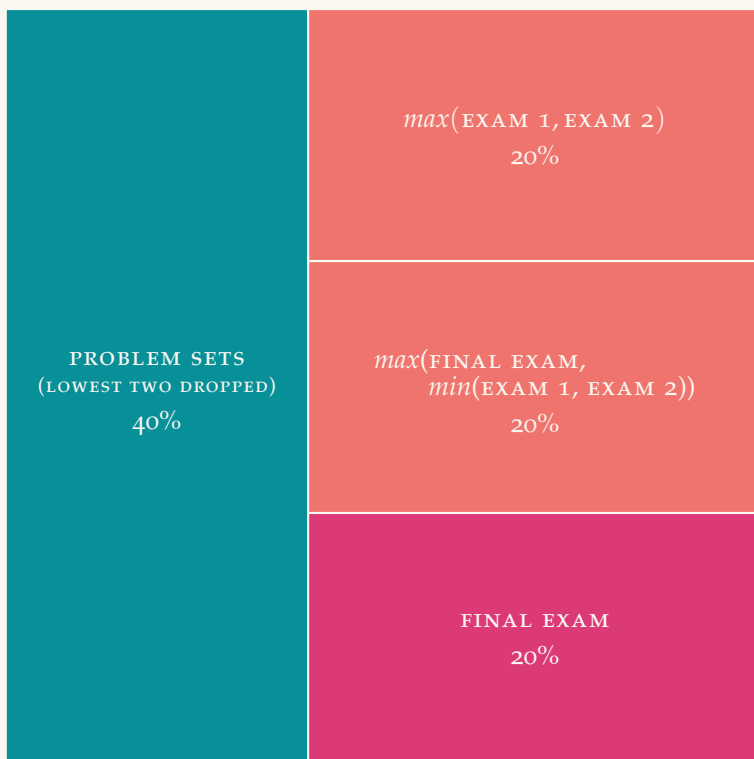


Fig. 2: Breakdown of grades by type. The lowest problem set is dropped. If the final exam score is greater than either of the midterm exams, its score will replace the lower of the two midterm exams.

5 Resources

Website

<https://daniel-gonzalez-cedre.github.io/teaching> is the website for the course, where you will be able to find lecture notes, problem sets, and the syllabus. All of this material will also be mirrored on Canvas, but updates will be pushed to this website first and most frequently.

There is no required textbook for this class; instead, the instructor is preparing *lecture notes* that will be continually updated throughout the semester. If you'd like other books, we highly recommend these *with the understanding that the presentation of the material might differ substantially*.

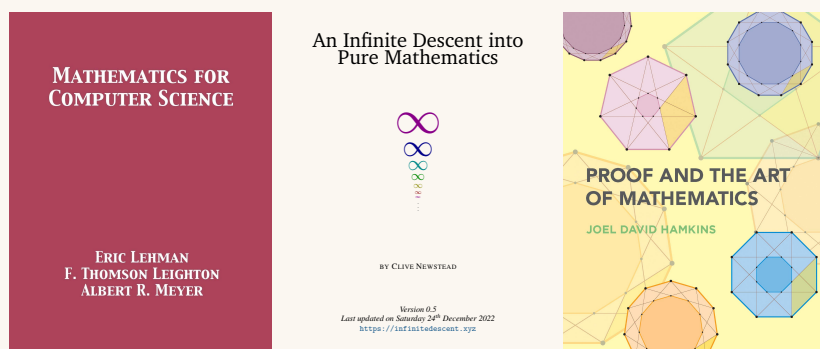


Fig. 3: Some examples of high-quality supplementary resources, though these should not be treated as replacements for the lecture notes. We also recommend the *introduction* and *first chapter* of Jech's *Set Theory* for an overview of the axioms.

Slack

A Slack channel named [#2024_spring_discrete-math](#) has been set up for the class on nd-cse.slack.com. This will be the easiest and fastest way to contact the instructor and TAs, and we encourage you all to use Slack to communicate with us and with each other.

Gradescope

All problem sets will be submitted through Gradescope, where the instructor and TAs will post grades and provide feedback.

Canvas

In addition to the lecture notes, syllabus, and problem sets that can be found on the course website, the Canvas page will also host solution sets and lecture recordings. *Video and audio for all lectures will be recorded and posted to Canvas through Pantopto.*

6 Honor Code

	COLLEAGUES	RESOURCES	SOLUTIONS
CONSULTING	ALLOWED	ALLOWED	FORBIDDEN
COPYING	FORBIDDEN	CITE	FORBIDDEN

“As a member of the Notre Dame community, I acknowledge that it is my responsibility to learn and abide by principles of intellectual honesty and academic integrity, and therefore I will not participate in or tolerate academic dishonesty.”

Tab. 2: The rules of engagement.

7 Accommodations

Students with Disabilities

The policy and practice of the University of Notre Dame provides reasonable accommodations for students with properly documented disabilities. Students who have questions about SBAS¹ or who have, or think they may have, a disability are invited to contact SBAS for a confidential discussion in the Sara Bea Center for Student Accessibility Services or by phone at (574)-631-7157.

Visit <https://supportandcare.nd.edu/> for more information about disability accommodations.

¹ Sara Bea Accessibility Services

Mental Health

If you are having mental health issues that are interfering with your ability to function in this course, please reach out to the instructor or the UCC² so that we can help you. The UCC provides *cost-free* and *confidential* mental health services to help you manage personal challenges that may threaten your emotional or academic well-being.

For more information about the University Counseling Center, please visit <https://ucc.nd.edu>.

² University Counseling Center

Academic Support

You are encouraged to visit with your Department Director of Undergraduate Studies (DUS) or your academic advisor for personalized assistance. Located in 204 Cushing Hall, engineering advisors are available to support your academic and professional goals, to provide guidance for effective study habits, and to connect you to resources across campus. In addition, the Academically Collaborative Engineering Spaces (ACES) Program offers *study rooms* and *small group tutoring* services for select courses.

For more details, see your director of undergraduate studies or academic advisor.

8 Copyright Notice

Unless explicitly noted otherwise, all materials created for this course by the instructor are copyrighted material of the instructor. Please ask for permission from the instructor before reposting or distributing any materials!