Syllabus
CS 220: Applied Discrete Mathematics

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1 Course Information

Course website: `https://www.cs.umb.edu/~ryanc/cs220/`

The course website contains

- staff and office hours
- daily schedule of topics
- slides, notes, reading assignments, and other course materials
- links to other course resources (Discord, Gradescope, etc)

The course website will be updated frequently.

2 Course Description

An introduction to the mathematical structures and concepts used in computing: sets, mathematical induction, ordered sets, Boolean algebras, predicate calculus, trees, relations and lattice theory. Formal and informal theories and corresponding mathematical proofs are taught.

3 Prerequisites

CS 110 and MATH 140 or permission of instructor.

4 Textbook

There is no *required* textbook for this class, but there are two optional textbooks.

The optional *recommended* textbook is *Applied Discrete Mathematics* by Sandy Irani, available through `https://learn.zybooks.com/`.

The optional *supplemental* textbook is *Book of Proof, 3rd ed.* by Richard Hammack, available for free online at `https://www.people.vcu.edu/~rhammack/BookOfProof/`.

5   Course Work and Grading

Expected grading scale:

A	B	C	D	F
≥ 90	≥ 75	≥ 60	≥ 50	< 50

Expected grading breakdown:

Final grade consists of:

30%	Homework
10%	Quizzes and in-class exercises
25%	Midterm exam
35%	Final exam

Originally, this said "25–30% for HW, 10–15% for class exercises".

In order to pass the course, a student must pass the final exam.

No courses required by the CS major, minor, or certificate may be taken pass/fail.

5.1   Attendance

Attendance is required. There is graded in-class work.

If a student must miss lecture due to illness or other obligations or activities, they should email the instructor in advance to get the absence excused. See also the university's attendance policy: `https://www.umb.edu/registrar/policies/attendance`.

Every student is responsible for knowing everything covered in lecture, whether they attend or not.

5.2   Homework

Homework submissions are accepted only online via Gradescope in PDF format.

Homework submissions must be typed. Scanned handwritten submissions may be accepted, but will incur an automatic grade penalty. If the grader finds the handwritten solution difficult to read, it will not be graded and the submission will not receive credit.

Exceptions: Some homework questions require drawing graphs or other figures. Those can generally be drawn by hand, scanned, and included in the homework submission without penalty. They must still be clearly legible.

Late submissions are generally not accepted.

See also Section 6 about academic integrity.

5.3 Exams

There will be a midterm exam and a final exam.

Exams will be open-notes. Specific restrictions on notes will be announced before each exam.

5.4 Incomplete Grade Policy

See `https://www.umb.edu/registrar/policies/incomplete/` for the University's policy on Incomplete grades.

Here is an excerpt from the school's incomplete policy:

> The grade incomplete (INC) is reported only where a portion of the assigned or required class work, or the final examination, has not been completed because of serious illness, extreme personal circumstances, or scholarly reasons at the request of the instructor. If your record is such that you would fail the course regardless of your missing work, you will fail.

6 Academic Integrity

Education at UMass Boston is sustained by academic integrity. Academic integrity requires that all members of the campus community are honest, trustworthy, responsible, respectful, and fair in academic work at the university. As part of being educated here, students learn, exercise, increase, and uphold academic integrity. Academic integrity is essential within all classrooms, in the many spaces where academic work is carried out by all members of the UMass Boston community, and in our local and global communities where the value of this education fulfills its role as a public good. Students are expected to adhere to the Student Code of Conduct, including policies about academic integrity, delineated in the University of Massachusetts Boston Graduate Studies Bulletin, Undergraduate Catalog, and relevant program student handbook(s), linked at `https://www.umb.edu/academics/academic_integrity`.

In particular, for this course: Students are *allowed* and *encouraged* to discuss concepts and talk about problems at a high level. Students are *not allowed* to look at the work of another student or to share their own work with another student. ("Work" includes homework submissions, answers to quizzes, exam answers, and so on. See also Section 8 regarding AI tools.)

The consequences of cheating may include failing the course and being reported to the University.

7 Accommodations

UMass Boston is committed to creating learning environments that are inclusive and accessible. If you have a personal circumstance that will impact your learning and performance in this class, please let me know as soon as possible, so we can discuss the best ways to meet your needs and the requirements of the course. If you have a documented disability, or would like guidance about navigating support services, contact the Ross Center for Disability Services by email (`ross.center@umb.edu`), phone (617-287-7430), or in person (Campus Center, UL Room 211). To receive accommodations, students must be registered with the Ross Center and must request accommodations each semester that they are in attendance at UMass Boston. For more information visit: `https://www.umb.edu/academics/seas/disability-services/`. Please note that the Ross Center will provide a letter for your instructor with information about your accommodation only and not about your specific disability.

8 AI Policy

AI is prohibited: In this class, all work submitted by students must be generated by the students themselves, whether working individually or in groups. Students should not have another person or entity do the writing of any portion of an assignment; this includes hiring a person or a company to write assignments and using AI tools like ChatGPT. All work submitted must contain citations for any material that has been quoted or referenced. If students are unsure about whether or not a source is appropriate to use in the assignment, they should contact the instructor.