

# CS 220 - Applied Discrete Mathematics

## Syllabus

**Instructor:** Ozgun Babur

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## Course Description and Objectives

An introduction to the mathematical structures and concepts used in computing: sets, mathematical induction, recursion, ordered sets, Boolean algebras, predicate calculus, graphs, trees, relations.

## Prerequisites

- CS110 (Introduction to Computing)
- MATH140 (or one term of calculus)

## Textbook

Applied Discrete Mathematics, Sandy Irani,

ISBN: 979-8-203-09468-1 (it is an online book).

Follow these steps to access the book:

1. Sign in or create an account at [learn.zybooks.com](https://learn.zybooks.com) with your UMB email
2. Enter zyBook code: **UMBCS220MATH320BaburSpring2023**
3. Subscribe

To learn how to use financial aid or deferred payment for the coursebook, please see [this link](#).

## Gradescope

If you are not already registered, please use the entry code **K3GE6N** to register for this course on [Gradescope](#) with your UMB email.

# Schedule

Jan 23	Intro	1
Jan 25	Logic	
Jan 30	Proofs	2
Feb 1	Sets	
Feb 6	Sets	3
Feb 8	Functions	
Feb 13	Functions	4
Feb 15	Boolean algebra	
Feb 20	<b>President's Day Holiday – no classes</b>	
Feb 22	Boolean algebra	5
Feb 27	Relations	
Mar 1	Relations	6
Mar 6	Computation	
Mar 8	Computation	7
Mar 13	<b>Spring Break - no classes</b>	
Mar 15	<b>Spring Break - no classes</b>	
Mar 20	Topics review	
Mar 22	Midterm Exam	
Mar 27	Midterm Exam review	
Mar 29	Induction and recursion	
Apr 3	Induction and recursion	
Apr 5	Integers	
Apr 10	Integers	
Apr 12	Counting	
Apr 17	<b>Patriots Day (Holiday) – no classes</b>	
Apr 19	Counting	
Apr 24	Discrete probability	
Apr 26	Discrete probability	
May 1	Graphs	
May 3	Graphs	
May 8	Trees	
May 10	Topics review	

# Assignments and Grading

The following grading scheme is subject to change (I will do my absolute best to not change it and if I do, I'll let you know):

- Homework assignments -- 15% of your final grade
- Weekly book assignments -- 15% of your final grade
- Midterm exam -- 30 % of your final grade
- Final exam -- 40% of your final grade. You must also pass the final exam (at least with a grade of 40) to pass the course.

You must have a documented reason to schedule a makeup exam. I must know that you need a makeup exam within 2 days after the exam date.

## Final Grade

Your final grade will be calculated using the following table. The minimum standard for passing the course is a percentage score of 40%. You also must pass the final exam (score at least 40% on the final exam). Keeping this in mind, your grade for the course will be calculated using the following table. Assume your final percentage score for the course is P:

$P \geq 90$	A
$85 \leq P < 90$	A-
$80 \leq P < 85$	B+
$75 \leq P < 80$	B
$70 \leq P < 75$	B-
$65 \leq P < 70$	C+
$60 \leq P < 65$	C
$55 \leq P < 60$	C-
$50 \leq P < 55$	D+
$45 \leq P < 50$	D
$40 \leq P < 45$	D-
$P < 40$	F

# Communications

Please make sure to check your UMB email regularly for announcements and direct communications. Blackboard will be used for Q/A, announcements and disseminating course materials, and Gradescope will be used for homework.

# 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](mailto: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: [www.rosscenter.umb.edu](http://www.rosscenter.umb.edu). 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.

# Academic Integrity and Student Code of Conduct

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 [www.umb.edu/academics/academic\\_integrity](http://www.umb.edu/academics/academic_integrity).

# Health, Wellbeing, and Success

The COVID-19 pandemic continues, and all students, faculty, and staff are required to be vaccinated, with limited exceptions. At the beginning of the Spring 2023 semester, masks are currently required on campus for all individuals (as of January 9<sup>th</sup>, 2023). This guidance may change through alerts provided by the campus. Those who have been granted an exemption to the vaccination requirement must continue to mask indoors on campus even if the current mask requirement is removed. Masks are still required inside University Health Services. This indoor

masking policy adheres to the CDC [Community Levels](#). Please note that UMass Boston will continue to follow CDC guidelines as they apply to local conditions and our vaccination, booster, and masking policy may change accordingly.

Medical guidance suggests that surgical masks, KN95-type masks, and other multi-layer filtered masks offer more protection against COVID-19 particles than cloth masks. If available to you, you are strongly recommended to use medical-grade masks to better protect yourself, your family, and others from virus particles. Double masking with one of these higher quality masks also provides increased protection. Surgical masks are also available at various campus locations.

To safeguard your own health and safety as well as that of all students, staff, and faculty, you are reminded to follow the campus policies regarding masking, vaccination, daily self-checks, isolation and quarantine guidelines, and other relevant rules regarding public health and safety. The campus policies and the most updated guidelines can be found at [https://www.umb.edu/coronavirus/covid\\_19\\_university\\_policy](https://www.umb.edu/coronavirus/covid_19_university_policy).

Based on the best available data, research, and health guidelines, we believe our safeguards all contribute to reducing the spread of COVID-19 on campus and minimizing the chance of severe symptomatology and hospitalizations. If you test positive for COVID-19, or if you are exposed to COVID-19 and are unvaccinated, you are expected to follow the university's isolation and quarantine guidelines, and I expect you to inform me if you will be absent for this reason. If you are absent or unable to complete coursework due to following the university's guidelines, I will provide flexibility to the greatest extent possible. Details are provided for students in such situations and are addressed in this syllabus.

UMass Boston is a vibrant, multi-cultural, and inclusive institution committed to ensuring that all members of our diverse campus community are able to thrive and succeed. The university provides a wide variety of resources to support students' overall success. As we continue to deal with the evolving impacts of the COVID-19 pandemic, these resources are more important than ever.

- Are you in emotional distress? Call 617.287.5690 to speak with a licensed clinician 24/7 who can offer support, crisis recommendations, and assistance with finding resources.
- Have a campus question or issue? Use Here4U in the UMass Boston app or via [www.umb.edu/here4U](http://www.umb.edu/here4U).
- Want advice in navigating a university or life situation? Contact the Dean of Students Office at [www.umb.edu/deanofstudents](http://www.umb.edu/deanofstudents).
- Want to connect with housing and food insecurity support, student life groups and events, or recreation activities? Visit [www.umb.edu/life](http://www.umb.edu/life).
- Want to access resources specifically for immigrant-origin, DACA, TPS, and undocumented students? Visit [www.umb.edu/immigrant](http://www.umb.edu/immigrant).
- Looking for additional identity-based community support? Find more resources at [www.umb.edu/identity-support](http://www.umb.edu/identity-support)

- Want to make the most of your academic experience? Visit [www.umb.edu/academics/vpass/academic\\_support](http://www.umb.edu/academics/vpass/academic_support).
- Unable to attend class on a specific date or participate in an exam or class requirement due to a religious observance? Fill out the excused absence form (requires 2-weeks' notice) to request religious accommodation at [www.umb.edu/religiousabsence](http://www.umb.edu/religiousabsence).