

CMPS/MATH 2170: Discrete Mathematics

Fall 2018

Course Description

This course is an introduction to several areas of mathematics that are particularly useful in computer science. The following topics will be covered:

- Propositional and predicate logic
- Set theory
- Mathematical induction and recursion
- Number theory
- Counting
- Discrete probability
- ...

Learning Outcomes

Upon completion of the course, successful students will be able to:

- establish the logical equivalence of two mathematical statements;
- use rules of inference to construct proofs;
- prove theorems using proof by contraposition, proof by contradiction, and mathematical induction;
- understand the definitions and operations of sets, functions, and sequences;
- understand recursive definitions and model with recurrence relations;
- understand basic number theory and its applications in cryptography;
- apply basic counting techniques;
- find the distribution of a discrete random variable;
- understand conditional probability and Bayes' theorem.

Course Webpage

<http://www.cs.tulane.edu/~zzheng3/teaching/cms2170/fall18>

Time and Place

Lectures: MWF 2:00 - 2:50 pm in Stanley Thomas Hall 302

Labs: R 5:00 - 6:15 pm in Gibson Hall 126

Instructor

Professor Zizhan Zheng

Email: zzheng3@tulane.edu

Office: Stanley Thomas 307B

Office hours: MW 11:00 – 12:00 pm and by appointment

Teaching Assistant

TBA

Textbook

[Kenneth H. Rosen, *Discrete Mathematics and Its Applications*, 7th edition, McGraw-Hill, 2012](#)

Older editions of the book contain most of the covered material, but not all. Students are responsible for identifying the differences.

Grading

- Homework - 30%
- Quizzes - 15%
- Midterm - 20%
- Final Exam - 30%
- Class attendance - 5%

The weighted average will determine your letter grade roughly as follows: A \geq 90%; B \geq 80%; C \geq 70%; D \geq 60%; F < 60% +/- grades will be given for borderline cases.

All grades will be posted on Canvas.

Attendance

Students are required to attend all classes and labs unless they are ill or prevented from attending by exceptional circumstances. Students are responsible for notifying instructors about absences that result from serious illnesses, injuries, or critical personal problems.

Homework

Homework will be assigned in most weeks and will be due at the beginning of Thursday labs. All homework assignments will be posted on the [course webpage](#) one week before the due date. You may discuss homework problems with your classmates. However, what you turn in must be your own. You may not read another classmate's solutions or copy a solution from the web. There will be no late homework allowed. **Requests for a homework extension (with a valid reason) must be given to the instructor before the homework is due.**

Labs and Quizzes

Attendance in the labs is required. There will be short quizzes in most of the labs. **No make-up quizzes will be allowed, but the two lowest quiz scores will be dropped.**

Exams

There will be a midterm and a final exam. Both will be closed-book and closed-notes, but you will be allowed to bring a cheat sheet to each exam (one letter page single-sided). The final exam will be comprehensive. Missing an exam will result in a grade of zero. **A request for a make-up exam must be given to the instructor prior to the exam date (documentation may be required).**

Academy Integrity

This course will follow Tulane's [Code of Academic Conduct](#). Cheating will be reported to the Associate Dean of Newcomb-Tulane College. Discussion is encouraged. However, what you turn in must be your own. You may not read another classmate's solutions or copy a solution from the web.

Title IX

Tulane University recognizes the inherent dignity of all individuals and promotes respect for all people. As such, Tulane is committed to providing an environment free of all forms of discrimination including sexual and gender-based discrimination, harassment, and violence like sexual assault, intimate partner violence, and stalking. If you (or someone you know) has experienced or is experiencing these types of behaviors, know that you are not alone. Resources and support are available: you can learn more at titleix.tulane.edu. Any and all of your communications on these matters will be treated as either "Confidential" or "Private" as explained in the chart below. Please know that if you choose to confide in me I am mandated by the university to report to the Title IX Coordinator, as Tulane and I want to be sure you are connected with all the support the university can offer. You do not need to respond to outreach from the university if you do not want. You can also make a report yourself, including an anonymous report, through the form at tulane.edu/concerns.

Confidential	Private
<i>Except in extreme circumstances, involving imminent danger to one's self or others, nothing will be shared without your explicit permission.</i>	<i>Conversations are kept as confidential as possible, but information is shared with key staff members so the University can offer resources and accommodations and take action if necessary for safety reasons.</i>
Counseling and Psychological Services (CAPS) (504) 314-2277 or The Line (24/7) (504) 264-6074	Case Management and Victim Support Services (504) 314-2160 or srss@tulane.edu
Student Health Center (504) 865-5255	Tulane University Police (TUPD) Uptown - (504) 865-5911. Downtown – (504) 988-5531
Sexual Aggression Peer Hotline and Education (SAPHE) (504) 654-9543	Title IX Coordinator (504) 314-2160 or msmith76@tulane.edu