

Syllabus: CSC 280 Fall 2022

This syllabus is subject to change.

Course: CSC 280: Computer Models and Limitations

Instructor: Kaave Hosseini `kaave.hosseini@rochester.edu`

Lecture: MW 2:00 PM - 3:15 PM Location: Morey Room 321

Office hours: W 4:50 PM - 6:00 PM Location: Wegmans 2507

TA: Meisen Shu `mshu4@u.rochester.edu`

TA: Ethan Ferland `eferland@u.rochester.edu`

Course description This course studies fundamental computer models and their computational limitations. Finite-state machines and pumping lemmas, the context-free languages, Turing machines, decidable and Turing-recognizable languages, undecidability, and NP-completeness.

Prerequisites CSC173 and MATH 150.

Textbook Introduction to the Theory of Computation, Michael Sipser, third edition, 2013.(USA version)

Some other resources for extra reading and practice include:

1. Introduction to Automata Theory, Languages, and Computation (3ed.), J. E. Hopcroft, R. Motwani, J. D. Ullman, 2006
2. Automata and Computability, D. Kozen, 1997

Assessment Your letter grade cut-offs (out of 100) are as follows.

A	A-	B+	B	B-	C+	C	C-	D+	D	D-
90	88	84	80	78	74	70	68	64	60	58

Partial grades are rounded up. The final grade will not be curved negatively, but there is a possibility of positively curving the grades. (based on the overall statistics of final grades)

- Attending lectures 5%
- Workshop participation 20%
 - Workshop assignment brought to class 15%
 - Workshop participation 5%
- Homework 20%
- Three midterms 55% in total
 - Midterm with lowest grade 15%
 - Other two midterms 20% each

Homework assignments Every week there will be a homework assignment. The goal of the homework assignment is to ask a few basic questions to make sure you understand the concepts. You should do the assignment individually and then upload your solution to Gradescope by the deadline. No partial grade is given for these questions.

Workshops Every week there will be a workshop assignment. These are more challenging questions that require some work. You are expected to work on the workshop questions (possibly for several hours). You should work on the questions individually and bring your attempted solutions to the workshop session and give it to the TA at the beginning of the workshop. If you don't have a full answer, then bring your (failed) attempts. Some partial points will be given to these recorded attempts. The attempted solutions can be any of the following. 1. explain the problem in easier terms with less notation 2. explain the difficulty in the problem compared to what you have seen previously 3. resolve a special case of the problem 4. work on some examples 5. give an intuitive explanation 6. possibly any other piece of helpful information. During the workshop session, which is run by the TAs, the questions will be discussed in small groups, and eventually, by the end of the session, a full answer will be reached and presented to all the questions. Overall workshop participation points are based on 1. the solution to workshop assignment that you bring to class 2. attendance and active participation during the workshop.

Midterms There will be three midterms during the class. (There is no final) The dates for the midterms are

- Midterm 1: October 3rd (Monday)
- Midterm 2: November 7th (Monday)
- Midterm 3: December 14th (Wednesday) (Last day of class)

Communication Announcements, homework assignments, discussions, etc will be posted on Piazza. Here is the sign-up link for the course: piazza.com/rochester/fall2022/csc280

Academic Integrity Students must follow UR's Code of Academic Integrity: <https://www.rochester.edu/college/honesty/policy/index.html>

Disability resources The University of Rochester respects and welcomes students of all backgrounds and abilities. In the event you encounter any barrier(s) to full participation in this course due to the impact of a disability, please contact the Office of Disability Resources. The access coordinators in the Office of Disability Resources can meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can reach the Office of Disability Resources at: disability@rochester.edu; (585) 276-5075; Taylor Hall; www.rochester.edu/college/disability.