

CMPS 3140

Theory of Computation

Instructor: Dr. Chengwei Lei
Office: Science III 338
Office Hours: Check the schedule on office door, or by appointment
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Course Information:

Lecture Time: MoWe 11:00 am – 11:50 am

Lab Time: Tuesday 10:00 am – 12:30 pm

Room: Science 3 Rm 315

Final Exam Schedule: Wednesday Dec 12th, 11:00 am – 1:30pm

Course description: An introduction to computability theory to include finite automata, push-down automata, formal grammars, Turing machines, decidability, intractability and NP-completeness.

Text: *Introduction to the Theory of Computation. 3rd Edition, by Sipser. ISBN-13: 978-1133187790*

Course material

*THE INSTRUCTOR RESERVES THE RIGHT TO CHANGE THE ORDER AND TIME SPENT ON ANY PORTION OF THIS SYLLABUS

- Introduction to automata, computability, and complexity
- Automata and languages
- Regular languages
- Finite automata
- Context-free languages
- Push-down automata
- Church-Turing thesis
- Decidability & reducibility
- Time complexity
- NP-completeness
- Space complexity
- Intractability
- Circuit complexity
- Parallel computation
- Cryptography

Collaboration policy

For homework assignments, you are encouraged to discuss course concepts related to the assignments. However, graded assignments in this course should be completed **individually**.

Semester Mark

Semester Grade	Semester Mark
90 – 100	As
80 – 89	Bs
70 – 79	Cs
60 – 69	Ds
0 - 59	F

Attendance Policy

Students are responsible for their own attendance. The topics covered in lecture will be listed on the course website. Lab attendance is not required but is strongly encouraged.

Semester Grade

Average of Regular Semester Exams	40%	Regular Exams
Homework & Labs	40%	As determined by instructor
Comprehensive Final Exam	20%	Comprehensive Exam

Notes:

1. Each assignment is due at the **specified date at the specified time**. Late submissions will be accepted at a penalty of 20% for each day the assignment is late.
2. There will be three (2) one-hour **in-class** tests and a two-hour comprehensive final exam. No makeup test will be given without compelling justification.
3. For purposes of ABET Accreditation Assessment, the instructor reserves the right to retain copies of any submitted student work.

Classroom Behavior

- ☐ All cell phones and electronic devices should be in silent mode
- ☐ No food or drinks are allowed in the classroom
- ☐ Respect and courtesy to one another are expected at all times