

Theory of Computation (CS:4330) Fall 2019

Class Schedule

The course meets 9:30–10:45 am Tuesday and Thursday at 110 MLH (MacLean Hall).

Instructor and Office Hours

Kasturi Varadarajan: 101D MacLean Hall, 335-0732, kasturi-varadarajan@uiowa.edu
Office hours: Monday 3:00–4:30 pm, Wednesday 1:30–3:00 pm

Teaching Assistant

To be announced on course webpage
TA Office hours: To be announced on course webpage

Course Web Page

www.cs.uiowa.edu/~kvaradar/fall2019/toc.html

I will publish this url on ICON as well. This page is where the homeworks will be posted. Use ICON to look up grades, homework solutions, etc.

What this Course is About

We will explore the fundamental capabilities and limitations of computers. More precisely, the goal is to understand functions that can and cannot be computed. We will pursue this first in restricted computational models, such as finite automata, and then examine more general models, culminating in the Turing Machine.

Our textbook is *Introduction to the Theory of Computation* (Third Edition) by Michael Sipser. We will cover material from the first five to six chapters of this text.

Prerequisites

Undergraduate Algorithms (CS:3330)

Grading

The grading will be based on 8–9 homework assignments (25 percent), two midterms (20 percent each), and a final (35 percent). The emphasis will be on developing and understanding algorithmic constructions and showing the impossibility of algorithms for certain problems. Thus, all the homeworks will involve problem solving with pen and paper.

The policy on late homework is that you have a quota of three days for the entire semester that you may use for late submissions. So for example, there will be no penalty if you submit the third homework a day late, the fifth two days late, and the rest of the

homework assignments on time. Once you use up your quota of three days, any homework submitted late will not be accepted and you will get 0 points for that homework.

When you submit a homework X days late, your quota gets decreased by X irrevocably. You can only be late by an integer number of days – if you submit 10 hours after the deadline, for example, your quota is depleted by one day.

Exam Dates

The midterms will be on October 10 and November 14 in class. The final will be during finals week, as scheduled by the Registrar's office; I'll post the coordinates later on the course webpage.

Collaboration

No collaboration is allowed on the exams. For homework problems, collaboration is alright, assuming each of you has first spent some time (about 30 minutes) working on each problem yourself. However, no written transcript (electronic or otherwise) of the collaborative discussion should be taken from the discussion by any participant. It will be assumed that each of you is capable of orally explaining the solution that you turn in, so do not turn in something you don't understand.

Departmental Information

Department of Computer Science, 14 MacLean Hall. The office of the DEO, Prof. Alberto Segre, is located here.

Administrative Home

The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course, and we will follow CLAS teaching policies. Please visit the following website for the portion of the syllabus pertaining to CLAS teaching policies and resources:

<https://clas.uiowa.edu/faculty/teaching-policies-resources-syllabus-insert>