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CS 3800: Theory of Computation, Fall 2013
Northeastern University

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General Information

CS3800 is an undergraduate course on the theory of computation. It serves as an introduction to formal models of languages and computation. Topics covered include finite automata and regular languages, pushdown automata and context-free languages, Turing machines, computability, and NP-completeness.

This course meets 1:35pm - 2:40pm M,W,Th at Behrakis Health Sciences Cntr, room 310.

Instructor: Daniel Wichs
Office 340, West-Village H
Office Hours: Monday 2:45 - 4 pm (after class), or by appointment.

Teaching Assistant: Chin Ho Lee
Office 266, West-Village H
Office Hours: Wednesday 4:45 - 5:45 pm.

Course Website: http://www.ccs.neu.edu/home/wichs/class/toc-fall13
(alternative: search "wichs", use link from my home-page).

Course Information

Lecture Slides: We will mainly rely on slides by Prof. Emanuele Viola, posted on the course website.

Textbook: Although a textbook is not required, it is *highly recommended*. We will follow the following textbook very closely:

- *Introduction to the Theory of Computation*, 2nd or 3rd Edition, Michael Sipser.

Prerequisites:

- CS2510 Fundamentals of Computer Science 2.

- CS2800 Logic and Computation.

We will also rely on the material from CS1800, Discrete Structures, which itself is a prerequisite for CS2800

Grading:

- Problem Sets: 30% (will drop lowest grade)

- 2 Midterms: 40%

- Final Exam: 30%

Problem Sets: When solving a problem you can use all the results seen in class. You should not use other sources. I want you to spend your time thinking about the problems, not searching for a solution on the web. Some of the exercises will be routine, but others will be more challenging. I do not expect you to solve all of the homework problems, but I hope that you will benefit from working on the more difficult ones. A few hints on the homework assignments:

- Start early: Difficult problems are not typically solved in one sitting. Start early and let the ideas come to you over the course of a few days.

- Be rigorous: CS3800 is a theory course, and as such, a certain level of mathematical rigor will be expected in your solutions.

- Be concise: Express your solutions at the proper level of detail. Give enough details to clearly present your solution, but not so many that the main ideas are obscured.

- Cooperate: Some of the problems will be difficult, and it will often be helpful to discuss them with others. Feel free to form study groups. However, the idea is for everyone to understand the problems and experience working through the solutions, so you may not simply "give" a solution to another classmate. In particular, each student must write up his or her own homework solutions and must not read or copy the solutions of others. You should try working on each problem on your own before discussing with others. If you work with others on a problem, you must note with whom you discussed the problem at the beginning of your solution write-up.