Course Information
(Revised)

CS 535 Design and Analysis of Algorithms
Fall Semester, 2018

Staff

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Office Hours: Thursdays before/after lectures, or by appointment

Teaching Assistants:
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Lecture Schedule

Class meets from August 23 through November 15, Thursdays, 6:25pm–9:05pm in 104 Stuart Building.

Textbook


Prerequisites

You are presumed to know all material from CS 330 and 430. This material is nicely presented in Chapters 1–14, 18, 22–25, and Appendices A, B, and C (excluding all starred sections). If you do not already know well at least 75% of this material, you do not belong in this course—there will not be time to learn it together with what the course will cover.

Course Contents

We will cover the following material (mostly in the text), in order:

1. Chapter 15 (dynamic programming—review)
2. Chapter 16 (greedy algorithms—review)
3. Chapter 17 (amortized analysis—review)
4. Splay trees (notes to be distributed)
5. Lazy WB trees (notes to be distributed) & chapter 19 (Fibonacci heaps)
6. Chapter 20 (van Emde Boas trees)
7. Chapter 21 (disjoint sets)
8. Chapter 30 (FFT)
9. Chapter 26 (graph flow)
10. Chapter 34 (NP-completeness)
11. Chapter 35 (approximation algorithms)
12. Chapter 33 (computational geometry)
13. Chapter 32 (string matching)

Homepage and Handouts

Any handouts will be in PDF on the class webpage at: www.cs.iit.edu/~cs535. This web site will be used to post announcements, so look at it frequently.

Homework

There will be about a dozen homework assignments (roughly one per week), each of major scope; some of the problems may involve implementation on the computer. You may discuss only general problem-solving strategies with other students; your homework solutions must be entirely your own work and clearly distinguished from other homeworks. If there is any evidence of collaboration, or seeking/offerings/obtaining any outside help, you will fail the course—no exceptions. Any resources aside from the text and class notes, in print or on the web, that you use in solving the homework problems must be explicated cited.

Homework is due 6pm of the due date; it must be submitted on Blackboard. Late HW is penalized 20% for each day or fraction of a day that it is late.

Honesty Pledge

You must sign a pledge (the form is on the web site given above) stating that all work you turn in will be your own, that you will neither give nor accept any collaboration or outside help, and that you will cite any resources used (except the textbook and any class notes). This pledge must be turned in with HW 0. Violating the pledge results in immediate failure of CS 535 (sadly, this has happened).

Reading Assignments

The list of reading assignments (on the web site given above) for the semester indicates the material that is to be read before each lecture. You should begin by (re)reading chapters 1–14, 19, 22–25, and Appendices A, B, and C (excluding all starred sections), as a review of CS 330 and CS 430.

Examinations/Grading Policy/Grade Distribution

There are no examinations. Your grade will depend on the homework problems, equally weighted.

The last time that Professor Reingold taught CS 535 the structure of the course was the same: there were a total of 40 problems, plus some extra credit problems. The problems were worth 10 points each for a total of 400 homework points plus 100 extra credit points. There were 153 students in the class with 86 A’s, 39 B’s, 25 C’s, and 3 E’s. The total HW+EC scores ranged from 414 down to 176.

Students taking the section of the course in lieu of the theory qualifying exam must do at least 75% of the problems marked “Qualifying Exam” and must get an A in the course.