

Course Information

CS 430 Introduction to Algorithms
Fall Semester, 2010

Staff

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Office hours:	Monday, 1pm–2:30pm Wednesday, 1pm–2:30pm or by appointment	Monday, 2:30pm–4:30pm Wednesday, 2:30pm–4:30pm Friday, 12:15pm–1:15pm

Lecture/Recitation Schedule

Class meets 11:25am–12:40pm in 121 Life Sciences (southwest corner of 31st and State) on Mondays and Wednesdays from August 23 through December 1. There will be no class on Monday, September 6 (Labor Day), Monday, October 11 (IIT Fall Break), or Wednesday, November 24 (Thanksgiving Break).

The TAs hold recitation sessions during the semester on Fridays, 11:25am–12:15pm in 104 Stuart Building (northwest corner of 31st and State); there will be no recitation sessions Friday, October 8 (IIT Fall Break) or Friday, November 26 (Thanksgiving Break).

Textbook

Introduction to Algorithms, 3rd edition, by Thomas Cormen, Charles Leiserson, Ronald Rivest, and Clifford Stein, MIT Press, 2009. **Earlier editions are not acceptable.**

Prerequisites

CS 331 and CS 330 or Math 230 or CS 401 or CS 403.

By topic: Recursion, lists, stacks, queues, trees, counting/recurrences, mathematical proofs

Course Outline

- [1 lecture] Introduction.
- [1 lecture] Review of asymptotics and recurrence relations (Chapters 1–4; notes).
- [4 lectures] Sorting (Chapters 6–9).
- [2 lectures] Binary search trees (Chapters 12–13, omitting section 12.4).
- Exam 1—Wednesday, September 22**
- [1 lecture] Augmenting data structures (Chapter 14).
- [2 lectures] Dynamic programming (Chapter 15).
- [1 lecture] Greedy Algorithms (Chapter 16, omitting sections 16.4 and 16.5).
- [2 lectures] Amortized analysis (Chapter 17).
- [2 lectures] Heaps (Chapter 19).
- [1 lecture] Disjoint sets (Chapter 21, omitting section 21.4).
- Exam 2—Wednesday, November 3**
- [4 lectures] Graphs (Chapters 22–25).

[2 lectures] NP-completeness (Chapter 34).

[2 lectures] Approximation Algorithms (Chapter 35, sections 35.1 and 35.2 only).

Exam 3—Monday, December 6, 10:30am–12:30pm (as per final exam schedule)

Homepage and Handouts

All handouts will be in PDF on the class webpage at: www.cs.iit.edu/~cs430. This web site may be used to post announcements, so look at it frequently.

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.

Homework & Honesty Pledge

There will be about eight homework assignments (roughly one every two weeks). 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. Academic dishonesty will be severely punished.

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 reference used except the textbook, including any Web sites. This pledge must be turned in with the first assignment; no homework will be accepted until the signed pledge is submitted.

Homework may be handed in without penalty until solutions are posted, but may *not* be handed in thereafter.

Examinations

There will be three equally weighted *open book* exams:

Exam 1: Wednesday, September 22, 2010, in class

Exam 2: Wednesday, November 3, 2010, in class

Exam 3: Monday, December 6, 10:30am–12:30pm (as per final exam schedule)

During the lectures certain problems will be noted as “good exam questions.” Some of these problems will appear on the exam.

Grading Policy

The *approximate* weighting scheme will be 25% for the homework assignments and 25% for each of the exams.

Bugs

Occasionally Professor Reingold, being human, makes mistakes in lectures. If you catch one, and point it out on the spot in lecture, you’ll be rewarded with a very valuable green glow-in-the-dark plastic bug. Aside from its intrinsic beauty and value, it is worth extra credit toward your final grade: On “Bug Day” at the end of the semester, bring your collection in to be counted and noted in the Blackboard grade records.

Grade Distribution

The last time that Professor Reingold taught CS 430 (Spring, 2009), the distribution of final grades was 13 A, 12 B, 12 C, 4 D and 4 E.