Illinois Institute of Technology  
Department of Computer Science

Course Information  
CS 430 Introduction to Algorithms  
Spring Semester, 2018

Staff

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Office: 228F, Stuart Building  
Office Hours: Immediately after class, or by appointment

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Office Hours: Monday 1pm–4pm (JZ), 4pm-7pm (LC)  
Tuesday 1pm–4pm (LC)  
Wednesday 1pm–5pm (YZ)  
Thursday 3:30am–5:30pm (YZ)  
Friday 1pm–4pm (JZ)

Lecture/Recitation Schedule

Undergraduate section: Class meets 11:25am–12:40pm in 111 Robert A. Pritzker Science Center on Mondays and Wednesdays from January 8 through April 25. The TAs hold recitation sessions in that same room Fridays, 11:25am–12:15pm.

Graduate section: Class meets 10am–11:15am in 111 Robert A. Pritzker Science Center on Mondays and Wednesdays from January 8 through April 25. The TAs hold recitation sessions in that same room on Fridays, 10am–10:50am.

Both sections: There will be no classes January 15 (Martin Luther King Day) or March 12–16 (Spring Break).

Absolutely no cell phones, tablets, or laptops are allowed to be used at any time in class! All devices must be off or in silent mode.

Textbook


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
Homepage and Handouts

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

Course Outline

<table>
<thead>
<tr>
<th>Lecture Date</th>
<th>Lecture Topic</th>
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<tbody>
<tr>
<td>Jan 8</td>
<td>Introduction—How to draw a tree (Notes).</td>
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<tr>
<td>Jan 10</td>
<td>Review of asymptotics and recurrence relations (Chapters 1–4; notes).</td>
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<td>Jan 17–29</td>
<td>Sorting (Chapters 6–9).</td>
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<td>Jan 31–Feb 5</td>
<td>Binary search trees (Chapters 12–13, omitting section 12.4).</td>
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<td>Feb 12</td>
<td>Augmenting data structures (Chapter 14).</td>
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<td>Feb 14–19</td>
<td>Dynamic programming (Chapter 15).</td>
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<td>Feb 21</td>
<td>Greedy Algorithms (Chapter 16, omitting sections 16.4 and 16.5).</td>
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<tr>
<td>Feb 26–28</td>
<td>Amortized analysis (Chapter 17).</td>
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<tr>
<td>Mar 5</td>
<td>Disjoint sets (Chapter 21, omitting section 21.4).</td>
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<td>Mar 19–21</td>
<td>Heaps (Chapter 19).</td>
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<td>Mar 26–Apr 4</td>
<td>Graphs (Chapters 22–25).</td>
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<td>Apr 9–18</td>
<td>NP-completeness (Chapter 34).</td>
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<td>Apr 23</td>
<td>Approximation Algorithms (Chapter 35, sections 35.1 and 35.2 only).</td>
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Using the course outline as a guide to reading assignments: To enhance your understanding the lectures, you should read the indicated material before the lecture.

Reading Assignments

Examinations

There will be three equally weighted, in class, open book exams (nothing electronic permitted): Exam 1: Wednesday, February 7 Exam 2: Wednesday, March 7 Exam 3: Wednesday, April 25 These exams are non-cumulative. There is no final exam. During the lectures certain problems may 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

Whoso loveth knowledge loveth correction. *Proverbs* 12, 1

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 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, 2017), the distribution of final grades was 41 A, 32 B, 37 C, 9 D, and 3 E. About a dozen students dropped the course.