CS 321 Data Structures (Summer 2017)

Instructor: Dr. Jyh-haw Yeh

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URL: http://cs.boisestate.edu/~jhyeh/cs321/cs321_summer.html

Class Time: MoTueWe 4:30-6:20 PM    Location: CCP 260

Office Hours: MoTuWe 3:30-4:30 PM

Teaching Assistant:

<table>
<thead>
<tr>
<th>TA</th>
<th>Office hours</th>
<th>Location</th>
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<tbody>
<tr>
<td>Ujwal Karki</td>
<td>Thu &amp; Fri</td>
<td>CCP 225.11</td>
</tr>
<tr>
<td><a href="mailto:ujwalkarki@u.boisestate.edu">ujwalkarki@u.boisestate.edu</a></td>
<td>2:00 - 4:00PM</td>
<td></td>
</tr>
<tr>
<td>Mikel Joaristi</td>
<td>Mon, Tue &amp; Wed</td>
<td>1:00 - 3:00PM</td>
</tr>
<tr>
<td><a href="mailto:mikeljoaristi@boisestate.edu">mikeljoaristi@boisestate.edu</a></td>
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Textbook:


Course Objectives

At the end of the course, students will be

- able to apply the most efficient known algorithms to solve searching and sorting problems.
- familiar with variety of different data structures and their appropriate usage.
- able to choose appropriate data structures to implement algorithms.
- able to apply basic graph search algorithms (such as BFS and DFS) to applications.

Catalog Description

Sorting, searching, and order statistics. Further data structures: trees, priority queues, dictionaries, balanced search trees, B-Trees, heaps, hash tables, and graphs.

Prerequisites

- CS 221: Computer Science II
- MATH 189: Discrete Mathematics

Design and Analysis:

- Students will get programming design experience in this course.
- Students will get efficiency analysis experience in this course.
Course Outline Topics:

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Weeks</th>
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<tr>
<td>Getting Started (Chapter 2) &amp; Introduction to Asymptotic Notations (O, ( \Theta ), ( \Omega ))</td>
<td>Week 1</td>
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<tr>
<td>Sorting (Chapter 6, 7, 8)</td>
<td>Week 1 &amp; 2</td>
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<tr>
<td>Mid-term Exam 1 &amp; Review</td>
<td>Week 3</td>
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<tr>
<td>Basic Data Structures (Chapter 10)</td>
<td>Week 3</td>
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<tr>
<td>Hash Tables (Chapter 11)</td>
<td>Week 3 &amp; 4</td>
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<tr>
<td>Trees (Concept &amp; Terminology, Expression Trees)</td>
<td>Week 4</td>
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<tr>
<td>Search Trees (Chapter 12, AVL Trees, and Chapter 18)</td>
<td>Week 4 &amp; 5</td>
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<tr>
<td>Mid-term Exam 2 &amp; Review</td>
<td>Week 5 or 6</td>
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<tr>
<td>Graph Algorithms(Chapter 22, 23)</td>
<td>Week 7</td>
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<tr>
<td>Final Exam &amp; Review</td>
<td>Week 7</td>
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<tr>
<td>Programming Assignments Discussion</td>
<td>n/a</td>
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Grades and Grading Policies

Grading:

- Homeworks/Programs: 50%
- Test 1: 15%
- Test 2: 15%
- Final: 20%

Final Grade: You are guaranteed to receive at least the grade as follows (I reserve the right to lower the cutoffs if I feel it is appropriate).

- \( 89 \leq A^- < 90 \leq A < 97 \leq A^+ \)
- \( 79 \leq B^- < 80 \leq B < 87 \leq B^+ \)
- \( 69 \leq C^- < 70 \leq C < 77 \leq C^+ \)
- \( 59 \leq D^- < 60 \leq D < 67 \leq D^+ \)
- \( F < 59 \)

Grading Policy:

- Homeworks will not be accepted late.
- Programming assignments must be submitted electronically to the instructor by 11.00PM of the due date to avoid any penalty. Within one week after the deadline, you can still submit your assignment. However, 20% late submission penalty will be applied. No submission will be accepted after one week past the due date.
- All students should submit correct and complete files to the instructor. Any accidentally wrong or incomplete submission may need to submit again and incur the submission penalty. The points you can get for incorrect programs are as follows.
  - Can not be compiled or run time error: no points.
  - Wrong answer: Varying from 0% to 80% points depends on the answer.

Academic Honesty:

- Each student must work independently unless specified otherwise.
- Determination of academic dishonesty is at the discretion of the instructor of the course within the policy guidelines of the University.