

# CS 321-001 Data Structures (Spring 2019)

**Instructor:** Dr. Jyh-haw Yeh

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**URL:** <http://cs.boisestate.edu/~jhyeh/cs321/cs321.html>

**Class Time:** TTH 4:30-5:45 PM      **Location:** CCP 259

**Office Hours:**

MoTueWe	2:00-3:00 PM
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**Teaching Assistant :**

TA and Tutor	Office hours	Location
(TA) Farjana Yesmin (Tutor) Sean O'Toole (Tutor) Tuan Nguyen	Check the tutor center schedule	Tutoring Center (CCP 241)

**Textbook:**

- *Introduction to Algorithms, 3rd Edition* by T.H. Cormen, C.E. Leiserson, R.L. Rivest and C. Stein/McGraw-Hill

## 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.

**Pre-requisites:**

- CS 221 Computer Science II, and MATH 189 Discrete Mathematics

**Co-requisites:**

- CS-HU 271 Agile Development, and CS-HU 310 Intro to Database System Usage

**Design and Analysis:**

- Students will get programming design experience in this course.
- Students will get efficiency analysis experience in this course.

## Course Outline Topics:

<i>Chapter</i>	<i>Lectures</i>
Getting Started (Chapter 2) & Introduction to Asymptotic Notations ( $O, \Theta, \Omega$ )	2
Sorting (Chapter 6, 7, 8)	5
Basic Data Structures (Chapter 10)	1
Hash Tables (Chapter 11)	2
Trees (Concept & Terminology, Expression Trees, Huffman Trees)	3
Search Trees (Chapter 12, AVL Trees, and Chapter 18)	5
Graph Algorithms(Chapter 22, 23)	3
Programming Assignments Discussion	4
Exams & reviews	5

## 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.