

CS357: Data Structures

Course Syllabus, Spring 2005

<http://cs.ua.edu/357/S2005>

Course Objectives:

After successfully completing this course, students will

- Have a solid grasp of data structures fundamental to computer science.
- Possess improved problem solving skills and the ability to analyze the quality of a program from an efficiency point of view.
- Be fluent in object-oriented programming.

Course Description:

Basic concepts of data, linear lists, strings, arrays, trees, graphs, and the related storage of representations and structures, applications include expression conversion, sorting, searching, and dynamic storage allocation.

Prerequisite: CS124; **Corequisite:** CS325.

Text:

- Michael T. Goodrich, Roberto Tamassia and David Mount, *Data Structures and Algorithms in C++*, John Wiley & Sons, 2004, ISBN 0-471-20208-8 (Required).

Instructors:

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Attendance Policy:

- Students are expected to attend all class meetings, and it is the student's responsibility to make up any work missed.

Grading Policy:

- Two midterms (15% each), and one final exam (25%).
- About 7 assignments and projects (35%).
- 10-15 Quizzes (10-15%).
- A student is allowed to make up assignments, projects, or tests missed only if he/she has an excusable reason.

Topics to be covered:

- Object-Oriented Programming with C++: Chapters 1 and 2
 - Analysis of Algorithms: Chapter 3
 - Stacks, Queues, and Deques: Chapter 4
 - Vectors, Lists, and Sequences: Chapter 5
 - Trees: Chapter 6
 - Priority Queues: Chapter 7
 - Dictionaries: Chapter 8
 - Search Trees: Chapter 9
 - Graphs: Chapter 12
 - Sorting Algorithms: Chapter 10
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