

CS 3358: Data Structures

Summer I 2012

Section 501

Instructor: Dr. Jill Seaman
Nueces 221
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Course Webpage: <http://www.cs.txstate.edu/~js236/cs3358>

Office Hours: M,T,W,TH: 3:00PM – 4:00PM and by appt.

Meeting Time/Place: MTWR 5:00PM-7:10PM DERR 241

Text: Data Structures and Problem Solving Using C++, Weiss, 2nd Ed.
ISBN 0-201-61250-X

List of required readings: (Reading schedule will be announced in class)
Chapters 1-3, 6, 8, 9, 16, 17, 18, 19, 20, 21

Prerequisites:

C or higher in CS 2308: Foundations of Computer Science II
C or higher in MATH 3398: Discrete Mathematics II, or concurrent enrollment in.

Course Description: A course covering classic data structures and an introduction to object-oriented development.

Course Objectives:

1. Understanding Abstract Data Types: motivations and basic concepts.
2. Understanding of the behavior of basic data structures (lists, stacks, queues, trees (binary trees and tree traversals, height-balanced trees), graphs, hash tables).
3. Ability to analyze a problem and determine the appropriate data structure.
4. Understand the importance of data modeling and data structures in advanced programming.
5. Understand and analyze elementary algorithms: sorting, searching and hashing.
6. Ability to analyze the impact of data structures technique on the performance of algorithms (time and space complexity)/programs.
7. Deep understanding of recursion and its applications.
8. Data structure implementation issues. Understanding of dynamic versus array implementations of data structures, factors involved in deciding on an implementation technique.
9. Practice in writing modular programs using the data structures that have been studied.
10. Understanding the mechanics of code design, organization, and the development environment.
11. Understanding data structure implementation in C++ using header files and implementation files.

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| Grading: | Quizzes: | 5% | ~6 total |
| | Programming Assignments: | 25% | ~7 total |
| | Exam I: | 20% | June 14 (Thurs) |
| | Exam II: | 20% | June 27 (Wed) |
| | Final Exam (comprehensive): | 30% | July 6 (Fri) 8:00pm (or earlier) |

Quizzes: Usually announced during the previous class and will count for 5 points each.

Makeup Policy: Missed quizzes and attendance cannot be made up. Programming assignments cannot be made up. Exams may be made up in exceptional circumstances, with documentation and/or approval from the instructor.

Attendance: I record attendance every day and expect you to be in class every day. I may use attendance as "extra credit" towards your grade, but it is NOT optional.

Late policy for programming assignments: see the class webpage.

TRACS: Your grades will be posted on TRACS. Everything else, including programming assignments and lecture presentations, will be on the class webpage.

Campus Labs: You may use DERR 231: (the Linux Lab) to work on your programming assignments. You may also use your own computer. You may use any IDE that supports C++ programming, but I expect you to understand how to use a make file to compile programs composed of multiple files.

Notifications from the instructor: Notifications related to this class will be sent to your Texas State e-mail account.

Withdrawals/drops: You must follow the withdrawal and drop policy set up by the University. You are responsible for ensuring that the drop process is complete. <http://www.registrar.txstate.edu/registration/drop-a-class.html>

Last day to drop: June 22, 2012.

Academic Honesty: You are expected to adhere to the University's Academic Honor Code as described [here](#). Also see the Texas State Student Handbook. **Unless otherwise stated, all assignments are to be done individually.** You may discuss general strategies for attacking assignment problems with other students in the class but you must write your own code.

Classroom Behavior: The main rule is to not disrupt other students during class.

Accommodations for students with disability:

Any student with a special needs requiring special accommodations should inform me during the first week of classes. The student should also contact the office of disability services at the LBJ student center.