Data Structures Syllabus

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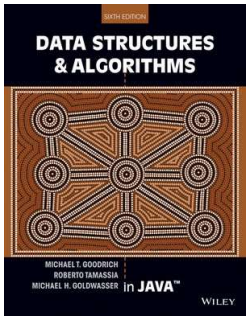
Mandatory Text



Data Structures and Algorithms in Java, 6th edition,
Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser

Course Summary

Course Description

(Four Credits) The design of data structures for representing information in computer memory. Topics include: Abstract data types and their implementations; Stacks; Queues; Priority queues; Dictionaries; Sorting; Recursion. For more details, please see the list of topics at the end of this syllabus.

Prerequisites

The prerequisite for this course is Introduction to Computer Science I (V22.0101). You must have received a C or better in this course. If you received a C-, D, or an F, you will not be allowed to continue. If you have not taken that course you must see me in order to take a placement exam.

Grades

Your grade will be based on approximately six programming assignments, one midterm examinations, quizes, and a final examination. The programming assignments will count for 20% of your grade; the one midterm exam will count for 20%, several quizzes for a total of 20%; and the final exam will count for 40%.

E-mail Accounts

All students are required to have e-mail addresses, and e-mail will be used extensively for communication

with the course tutors, and for submitting the homework assignments. Your e-mail headers and mailing list subscription information must clearly display your name. Do not use an alias instead.

Graders and Computer Assignments

Our class has been assigned graders and an IA. Graders are upper-level undergraduate students with exceptional academic records. They are available by e-mail to help you with questions about the computer assignments, to evaluate your submissions, and to steer you in the right direction when help is needed. Solutions must be submitted by e-mail, on or before the due date. Your grader will send you an e-mail giving a numerical grade for your program. The grader will run the final program on various inputs, so it is important that the program work correctly for any choice of input.

Remember that although the grader is there to help you, they are also helping many other students, so limit your e-mail communication to a reasonable amount. If you are have much difficulty with the programs, you should ask your instructor and/or TA for assistance.

Cooperation, Acknowledgments and Cheating

You are expected to do your own work. It is fine, in fact often very helpful, to work cooperatively with other students, but the work you submit should be your own. If you get an idea from another student, or from a tutor, that you use in your work, this is OK, but you must acknowledge that person in the program comments. When you turn in an assignment, you are saying that you have done this work yourself. See the Computer Science Department's Academic Integrity statement. Disciplinary action will be taken against those who violate the rules.

Students who spend little time on the homework invariably do poorly on exams and end up with a poor final grade.

Topics

This is a tentative list of the topics we will cover:

- Recursion
- Asymptotic Analysis of Algorithms: We will just scratch the surface as we look at the efficiency of some of our structures and algorithms
- Lists
- Stacks
- Queues
- Trees
- Heaps
- Sorting & Searching

Hashing

Priority Queues

Graphs

Huffman Codes