Computer Engineering 12
Abstract Data Types and Data Structures

Spring 2015
Mondays, Wednesdays, and Fridays
10:30 am – 11:35 am and 1:00 pm – 2:05 pm

Instructor

Website: http://www.cse.scu.edu/~atkinson/teaching/sp15/012/
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Teaching Assistants

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Grading

Lecture

Midterm exams: 50%   (4/22 and 5/13)
Final exam: 50%   (6/8)

Laboratory

Lab attendance: 10%   (each and every week)
Programming projects: 90%   (4/5, 4/19, 5/3, 5/17, 5/31, 6/6)

Textbooks

Required: Gilberg and Forouzan, *Data Structures – A Pseudocode Approach with C*, Brooks/Cole.
Recommended: Kernighan and Ritchie, *The C Programming Language*, 2nd edition, Prentice Hall.

Pathways

This course is associated with the *The Digital Age* Pathway. If you declare this Pathway, you may use a representative piece of work from this course as one of the Pathway materials you will upload during your junior or senior year.

Learning Outcomes

Students will …

1. Discuss the relationships between an abstract data type and a data structure.

2. Separate an abstract data type into an interface and an implementation.

3. Compare and contrast simple container data types (lists, sets, maps, priority queues).

4. Compare and contrast classic data structures (arrays, hash tables, linked-lists, trees, graphs).

5. Implement the classic data structures in a low-level language such as C.

6. Know the average-case and worst-case running times for common operations (insertion, deletion, retrieval, minimum, maximum) on the classic data structures.

7. Compare and contrast classic searching and sorting algorithms.

Policies

Class Policies

You are free to attend either class period for lectures, but you must take the exams in the class period for which you are registered. There will be no exceptions to this policy.

Recording (a video or audio replication or photographic image recorded on devices including, but not limited to, audio recorders, video recorders, cell phones, smartphones, digital cameras, media players, computers, or other devices that record images or sound) of classroom lectures is prohibited unless advance written permission is obtained from the class instructor and any guest presenters. Students who require recording or other adaptations of lectures as a reasonable accommodation for a disability should contact the Office of Disability Resources in advance of the lecture in order to obtain permission for the recording.

Disability Accommodation Policy

To request academic accommodations for a disability, students must be registered with Disabilities Resources located in Benson, room 216. If you would like to register, please visit their website. You will need to register and provide professional documentation of a disability prior to receiving academic accommodations.

Academic Integrity Policy

The University is committed to academic excellence and integrity. Students are expected to do their own work and to cite any sources they use. ***A student who is guilty of a dishonest act*** in an examination, paper, or other work required for a course, ***or who assists others in such an act***, may, at the discretion of the instructor, ***receive a grade of F for the course***. In addition, a student found guilty of a dishonest act may be subject to sanctions up to and including dismissal from the University as a result of the student judicial process as described in the *Community Handbook*. A student who violates copyright laws, including those covering the copying of software programs, or who knowingly alters official academic records from this or any other institution is subject to similar disciplinary action.