CSCI 244 – Data Structures and Analysis of Algorithms
Fall 2011

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Class: MWF 2:35–3:45 in Collier 202
Office Hours: MW 4–6pm (by appointment)
To schedule a meeting: `http://goo.gl/zXqqJ`

Course Description

An examination of issues dealing with static and dynamic aggregates of data. Topics covered include logical characteristics of various data organizations, storage structures implementing structured data, design and implementation of algorithms to manipulate such storage structures, and classical applications of data structures. Representative data structures include stacks, queues, ordered trees, binary trees, and graphs. Both contiguous and linked storage implementations are considered and performance issues discussed.

Course Objectives

At the completion of this course, you should be able to:

- Describe the strengths and limitations of linear data structures, trees, graphs, and hash tables.

- Select appropriate data structures for a specified problem.

- Describe classic sorting techniques.

- Analyze algorithms using appropriate mathematical notation.

Texts

Data Structures & Problem Solving Using Java by Mark Allen Weiss, fourth edition

You should expect to spend about an hour before each class session working through the readings. This means reading the text for detail, studying the syntax for new language features, and working to learn vocabulary—not just skimming through the material before class.

Graded Material

- **Homework** The goal of homework problems is for you to practice using the current course content and to explore the topics in more detail. Problems will be assigned nearly every class session and will be due the next class.

- **Tests** Two tests will be given during the semester on Friday, October 7 and Monday, November 21.

- **Programming Assignments** Various programming assignments will be assigned during the semester. In some instances, you will simply implement a small stand-alone program. At other times, a sequence of assignments will build upon each other to produce a final program. All programming assignments will be graded based on correctness and the quality of testing.

- **Final** The final will be cumulative and will be given in-class on Thursday, December 15 at 1:30pm. Any change to the final exam schedule must be approved by both me and the dean of students.

Grade Determination

- (30%) Homework

- (30%) Tests

- (20%) Programming Assignments

- (20%) Final

Other policy matters:

- **Grading Scale:** I will use the standard 90-80-70-60 scale with pluses and minuses to assign grades.

- **Late Homework:** I will accept homework beyond its due date with the penalty of 30% of the assignment's value per day. For example, if a homework is work 10 points and it is turned in two days late, the maximum amount of points one can receive is 4 points.

- **Lab/Exam Absence:** If you are going to miss a lab or exam due to conflict, you must let me know before the lab or exam. If you miss a lab or exam due to some other circumstance, you must let me know as soon as possible and provide me with documentation. Valid circumstances include events like illness and family trauma. Invalid circumstances are events like hangovers and faulty alarm clocks.

- **Academic Accommodations:** Please let me know immediately if you have any disability that requires accommodation. Students who wish to request accommodations in this class for a disability should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services.

Attendance Policy

This course does not have a rigid attendance policy in the sense that there is a rule prescribing the number of lectures that you must attend. However, please do not take this as a license to never show up to class; I expect you to be at each class meeting. Your attendance in lecture is important (beyond the usual reasons) in that homeworks, due dates, and readings will be assigned in person during lecture.

Attendance in graded lab sessions is mandatory. You may assume that you must show up to each lab; if a lab is optional, I will let you know beforehand.

Academic Honesty Policy

Please read and understand the College's Academic Honesty Policy (which you can find in the Student Handbook). I will let you know what materials are appropriate to use for reference for specific assignments when they are assigned. For example, in the lab, you will generally be prohibited from using the Internet as a reference while doing lab assignments.

Since collaboration with your colleagues will be an important part of your careers, collaboration is permitted on all graded assignments (with the exception of exams). However, unless I state otherwise, you must turn in your own copy of each assignment *in your own writing*. If the ideas/algorithms expressed in an assignment are not entirely your own (*i.e.*, you worked with one of your colleagues), you must include a note stating who you worked with and the percent contributions of everyone who contributed to the work (including your contribution).

This syllabus is subject to change.