ECE242 Data Structures and Algorithms
Fall 2015
Syllabus

Instructor: Prof. Eric Polizzi
Office: Marcus 201C
Web: http://www.ecs.umass.edu/~polizzi

Day and Time: Lecture: M-W-F 10:10am-11:05am Goessmann 20
Discussion: Thursday 10-11:15; 11:30-12:45; 1:2:15pm ELAB307


Outline of the Course

This course introduces basic data structures and their application using the Java programming language. We introduce a mathematical framework for evaluating the efficiency of Java code, and develop implementations of basic data structures such as lists, stacks and queues. We study searching and sorting algorithms and introduce recursion as a strategy for improving the running time of these algorithms. This leads us to study more advanced data structures that are defined recursively, such as trees and heaps. We cover several advanced topics, such as hash tables and the storage and exploration of graphs.

Course Goals

At the end of this course, you should have learned:

• How think about data and operations on data
• How to design data structure for efficient use
• How to determine the efficiency of an algorithm
• Basic data structures and algorithms
• More complex programming techniques

Class Meetings

There are two types of class meetings held for this course:

• Lectures will be held three times a week by Professor Polizzi. The main goal of the lectures is to present and discuss the main content that is covered in this course.
• Discussion sessions are held weekly by Professor Polizzi. The goal of the discussion session is to reemphasize the topics covered in the lecture and illustrate the concepts using specific code examples. Projects will be presented and discussed. Homework assignments will also be corrected. You are expected to have studied the topics covered in lecture and to prepare questions that might have arisen.

These components of the course are designed to provide ample opportunity for you to clarify reading assignments, ask questions, and practice your skills. You are encouraged to seek any additional help you need during their office hours.

Grading

Your final grade will be derived from your performance in two areas:

• Projects are somehow large coding assignments that require the development of solutions to practical problems.
• Exams consist of on mid-term exam during the semester and one final exam. The exams are closed-book, closed-notes and evaluate how well you retained and understood the course content as well as
how well you can apply the course concepts to new problems. For each exam, an in-class review session will be held to provide time for resolving issues regarding the content and procedure of the exam.

Homework and projects are assigned according to the schedule posted on the course website. Solutions to project assignments must be submitted on Moodle (using a single file e.g. zip file). Midterm is held according to the schedule on the course website. The final exam is scheduled by the university.

The final grade will be norm-referenced (i.e., graded “on a curve”) with the following weighting:

- Projects (6*6%): 36%
- Mid-term Exam: 28%
- Final Exam : 36%

You are encouraged to track your scores on Moodle to ensure that you have received the appropriate credit for each of your assignments and exams. No extra credit or “make-up” assignments will be given (with exception to the cases stated in the examination policy below).

Course Policies

Class start at 10:10am. Late arrival is distracting and inconsiderate.

Exams will be based heavily on class notes, projects and discussions. Examinations assume familiarity with all lectures, projects and homework problems. You are expected to attend all classes and are responsible for knowing the material and assignments from every class.

Assignments are due as posted on the course web page. Late submissions will not be accepted. Scheduling conflicts regarding exams should be reported to the instructor immediately. In case of a medical emergency, late submission or a Make-up exams will be given only if you provide a valid written excuse (as defined in Undergraduate Rights and Responsibilities) and notify me prior to the missed exam. Other missed exams will be considered failures. If advanced notice is possible and not given, the instructor may refuse the request.

Due to the very large class size email-based requests for homework and project assignment will be limited to a maximum of three per assignment per student/team. If you need further help, we highly encourage you to make use of office hours. If you are having difficulties with any of the material (or basic background), come to office hours. Do so before you fall behind.

Consultation with fellow students is encouraged. However, directly copying another student's work (past or present) defeats the purpose of the assignments and exams and is an honor code violation. Unless otherwise noted, you are expected to complete all assignment individually (or by team of two for projects). Violations will result in serious penalties including course failure and possible disciplinary action. If in doubt, please consult the instructor or the official UMass guidelines regarding academic honesty.