Fall 2008: EE360C Algorithms

Description

This course aims to study combinatorial algorithms.

We will begin by reviewing discrete mathematics. We will then study measuring program performance using the big-O notation. Following this, we will study fundamental data structures and their associated algorithms; specifically, we will cover lists, arrays, queues, stacks, hash tables, sets, binary trees, and graphs. We will then focus on general algorithm design principles, such as greedy approaches and dynamic programming. Our last topic will be matrix algorithms.

The principle focus of the lectures will be theoretical, in the style of the CLRS Algorithms text listed below. There will be a number of programming assignments, in which you will be required to implement algorithms. To help you in this regard, material on best programming practices, specifically, notes on issues such as tools, testing methodologies, documentation systems, tuning techniques, version control, debugging, build strategies, and portability will be provided. You will be required to adhere to these practices in the programming projects, and questions based on these topics may be asked in the exams.

Time and Location

All lectures will be 3:30–5:00PM in ENS 127.

Prerequisites

This course is intended for undergraduate students who have taken EE322C. You should be comfortable writing, compiling, and debugging Java programs of a moderate complexity (hundreds of lines).

Required Text

T. H. Cormen, C. E. Leiserson, R. H. Rivest, and C. Stein. Introduction to Algorithms. MIT Press, 2001 (Second Edition).

Format/Evaluation

There will be regular written homework and programming assignments which will constitute 30% of your grade. Three in-class exams will count for 66% (each exam will count for 22%). The remaining 4% will be based on class participation.

> NOTE: All departmental, college and university regulations concerning drops will be followed. The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4241 TDD.

Collaboration

- **Written homework**: Try to solve the problems by yourself. If you find a particular problem very difficult, you may discuss it with other students; if you choose to do so, please indicate this on the submission. (Even in this case, you should write your solutions independently.) If you obtain your solution with help from another source (e.g., a book), please cite this in the write-up.

- **Programming assignments**: These will be done individually. Again, while you may discuss your approach with other students, there should be no sharing of code. You should not use code other than that which you write by yourself, or given to you by us. This restriction specifically includes downloading code from the Internet.

Plagiarism and related corruptions will be dealt with severely.