CMSC 510 - Algorithms and Data Structures

What this course is about

CMSC 510 along with CMSC 270 forms a two term sequence focusing on data structures and algorithms. The goals of this course are to introduce you to more advanced techniques of algorithm analysis, focus seriously on recursion as a problem-solving technique, and complete the survey of core data structures and algorithms of computer science begun in CMSC 270.

Structure of the course

The weekly assignments for this course will consist of programming exercises and the occasional written homework set. In addition to the weekly assignments, we will have two midterm exams and a final.

Topics and Chapters

Basics of Algorithm Analysis	2, 4
Probabilistic Analysis and Quicksort	5, 7
Proof of Correctness	Handout
Basics of Graphs	20
Disjoint Set Data Structures	19
Minimum Spanning Tree Algorithms	21
Shortest Path Algorithms	23
Dynamic Programming and Greedy Algorithms	14, 15
Parallel Algorithms	26
NP Completeness	34, 35
Online Algorithms	27
RSA Algorithm	31

Grading

This is how the grades will break down:

Weekly assignments	40%
Two midterms	15% each
Final	30%

The due dates for assignments will be announced when each assignment is handed out. The penalty for late assignments is 5% off for every 24 hours past due.

Course materials

Our text is *Introduction to Algorithms, Fourth Edition* by Corman, Leiserson, Rivest, and Stein.

The course web site is at www.lawrence.edu/fast/greggj/cmsc510.html

Office hours

My office hours this term are 1-3 M-F. My office is 413 Briggs. My email address is greggj@lawrence.edu.