

CS303 - Algorithms and Data Structures Spring 2006

Syllabus

Catalog Description

Efficient design of data structures, recursive algorithms, algorithms for sorting and searching, complexity analysis of algorithms, applications of algorithms and data structures in problems, state spaces, and search strategies in artificial intelligence. Laboratory emphasizes object-oriented approach.

Prerequisites:

CS 250, CS 302 & MA 126 (with "C" or better in each.) 4 hours.

Instructor:

Kenneth Sloan <sloan@uab.edu>, 133 Campbell Hall

Office Hours:

M&W 10:30-12:00

Text:

Robert Sedgwick, *Algorithms In Java, Parts 1-4* ,
Robert Sedgwick, *Algorithms In Java, Part 5*.

Course Outline:

- I. Introduction - Math review of the programming process
- II. Algorithm Analysis -O()
- III. List, Stacks, Queues
- IV. Trees
- V. Hashing
- VI. Priority Queues, Heaps
- VII. Sorting
- VIII. Sets
- IX. Graphs
- X. Algorithm Design Techniques
- XI. Advanced Topics (as time allows)

This course is accompanied by CS303L. Algorithms and Data Structures Laboratory. The class work will be language independent and concentrate on design and analysis. The laboratory will concentrate on

practical application, with many written and programming exercises.

There will be two in-class Quizzes and a Final Examination.

Grades are based on both the assignments administered through the Lab and the examinations administered through the main class.

There is a [CIS Discussion Forum](#) associated with this class - please use it!

Last Modified: 8 January 2005