

**22C : 031 : 001 Algorithms
Fall 2007**

Class Schedule

2.30–3.45 pm, TTh at 112 MacBride Hall

Instructor

Kasturi Varadarajan: 101E MacLean Hall, 353-2541, kvaradar@cs.uiowa.edu
Office hours: 10.30–11.30 am, Monday, Tuesday, and Wednesday

Course Web Page

www.cs.uiowa.edu/~kvaradar/fall2007/algos.html

Departmental Information

Department of Computer Science, 14 Maclean Hall. The office of the DEO, Prof. James Cremer, is located here.

Content

We will study various computational problems using the lens of algorithmic analysis. While the lens itself is motivated by issues of efficiency in terms of running time or space, we will see that the lens leads to some very interesting solutions and general algorithmic techniques. We will also see that computational problems that look very similar to the naked eye appear very different when viewed through the lens.

For our textbook, we will use “Algorithm Design” by Jon Kleinberg and Eva Tardos. We will focus on the following portions corresponding to the text:

- Introduction to algorithm design and analysis (Chapters 1 and 2)
- Greedy Algorithms (Chapter 4)
- Divide and Conquer (Chapter 5)
- Dynamic Programming (Chapter 6)
- NP and Computational Intractability (Chapter 8)
- Local Search (Chapter 12)
- Randomized Algorithms (Chapter 13)

This is just the preliminary plan and it will certainly undergo modifications. We will also not stick to the order suggested above.

Prerequisites

The main prerequisite is 22C:21 (Data Structures). In particular, we will assume that we have implemented or are capable of readily implementing the basic graph traversal and shortest path algorithms as well as the usual sorting algorithms. This experience will allow us to discuss algorithms at the level of pseudo-code while assuming facility at being able to translate pseudo-code to actual programs.

Grading

The grading will be based on seven homeworks (6 points each), two midterms (15 points each) and a final (28 points). Two of the seven homeworks will require programming. The midterms will be held in class on Tuesday, October 2 and Tuesday, November 6.

Teaching Assistant

Vani Murarka, office hours to be announced shortly.

Students with disabilities

I need to hear from anyone who has a disability which may require some modification of seating, testing or other class requirements so that appropriate arrangements may be made. Please see me after class or during my office hours.