CSci 421
Introduction to Algorithms
Course Organization

Winter 2001 Handout 1

January 3, 2001

Time/Place: MWF 1:30-2:20, 045 EE

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Prerequisites: CSE 322 and 326.

Text: *Introduction to Algorithms – A Creative Approach*, Udi Manber, Addison-Wesley, 1989

Grading: There will be written homework assignments (about weekly), a midterm, and a final. Homeworks may include some small programming projects. Relative weights *approximately* 60%, 15%, 25%, give or take 10%.

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Catalog description: Techniques for the design of efficient algorithms. Methods for showing lower bounds on computational complexity. Particular algorithms for sorting, searching, set manipulation, arithmetic, graph problems, pattern matching, etc.

Objectives: Learn basic techniques for design and analysis of algorithms, including correctness proofs. Learn a number of important basic algorithms. NP-complete and other intractable problems.

Main Techniques:
Design: Induction, Graph search, Divide and Conquer, Greedy, Dynamic Programming, Branch and Bound.
Analysis: Asymptotic Analysis, Recurrences.
Intractablity: Reduction.

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Reading Assignments: Keep up. (I'll march through the book pretty much in sequence until further notice. Start with 1 thru 3.3. Chapter 4 is review; I won't cover it explicitly.)

First Homework Assignment: Due Friday 1/12.

1. Text 2.2.
2. Text 2.11.
3. Text 2.20. Call the three colors "0,1,2." Assume the circles and chords are in "general position," i.e., no two of them intersect in more than a finite number of points.
4. Text 2.28.
5. Text 2.35.