Syllabus: Combinatorial Optimization

MCS 521, Spring 2010
LCD-grad 30026,
MWF 10–10:50, Thaft Hall 117
Instructor: Shmuel Friedland
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OFFICE HOURS: MWF 11:00-11:50 or by appointment

TEXT:

PREREQUISITE: Math 310 or Math 320, (first course in Linear Algebra), and MCS 423, (first course in Graph Theory), or their equivalent.

1 Introduction
Combinatorial optimization fuses combinatorics, graph theory and analysis to study optimal problems in computer science, operation research and real life problems. It uses tools from matrix theory as linear programming, flows on graphs, integer programming, and other tools. It also deals with many aspect of algorithms in computer science, and gives practical solutions to NP-complete and NP-hard problems.

2 Topics of the course
1. Optimal Trees and Paths.
2. Linear Programing
4. Optimal Matchings.
5. The Traveling Salesman Problem.
7. Integer Linear Programming.

3 GRADING: Homework