

Syllabus: Combinatorial Optimization

MCS 521, Fall 2017
LCD-grad 38317,
TR 4–5:15 PM, Lincoln Hall 201
Instructor: Shmuel Friedland
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OFFICE HOURS: TR 10:30-11:30, or by appointment

TEXT:

1. W.J. Cook, W.H. Cunningham, W.R. Pulleyblank, A.Schrijver, Combinatorial Optimization, Wiley, 1998.
2. Notes for quadratic programming will be supplied .

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

1 Course description

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, quadratic 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

Linear and quadratic programming, spanning trees, flows, matchings, travelling sale problems, matroids and approximation algorithms.

This course is represented in the combinatorial prelim.

3 GRADING: Homework

4 Problem Set Collaboration Policy

Students may discuss problem sets with one another, but they should afterward write the solutions on their own. Collaborators, people you discussed with about the assignment, must be named at the top of the assignment.

5 Late Work Policy

In general late work will not be accepted. Problems sets are to be returned in the class or in my mail box, (on the 3rd floor of SEO), not later than 5PM the assigned day. Any exception will be handled on a case-by-case basis.

6 Disability Policy

Students with disabilities who require accommodations for access and participation in this course must be registered with the Office of Disability Services (ODS). Please contact ODS 312-413-2183 (voice) or 312-413-0123 (TTY).