

CS 6973, SS-CS Network Optimization and Algorithms

Summer 2004

Class Web Page

<http://www.cs.utsa.edu/~korkmaz/teaching/cs6973>

Time and Location

MW 4:00 pm - 5:50 pm
HSS 3.02.30
Jun 01, 2004 - Aug 06, 2004

Instructor

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Topic:

CHAPTER 1. INTRODUCTION
CHAPTER 2. PATHS, TREES AND CYCLES
CHAPTER 3. ALGORITHM DESIGN AND ANALYSIS
CHAPTER 4. SHORTEST PATHS: LABEL SETTING ALGORITHMS
CHAPTER 5. SHORTEST PATHS: LABEL CORRECTING ALGORITHMS
CHAPTER 6. MAXIMUM FLOWS : BASIC IDEAS
CHAPTER 7. MAXIMUM FLOWS : POLYNOMIAL ALGORITHMS
CHAPTER 9. MINIMUM COST FLOWS : BASIC ALGORITHMS
CHAPTER 10. MINIMUM COST FLOWS : POLYNOMIAL ALGORITHMS
CHAPTER 16. LAGRANGIAN RELAXATION AND NETWORK
OPTIMIZATION
CHAPTER 17. MULTICOMMODITY FLOWS

Office Hours

MW 3:00-4:00pm (or by appointment)

Class Materials

- **Textbook:** R.K. Ahuja, T.L. Magnanti, J.B. Orlin, *Network Flows: Theory, Algorithms and Applications*, Prentice Hall, 1993
- Also instructor's notes and technical papers.

Prerequisite

Programming experience, algorithms (CS5633 or equivalent)

Course Description and Objectives

Many real-life problems, particularly computer networking problems, are formulated and solved using network (or graph) structures and algorithms. The objective of this course is to provide knowledge and skills to students so that they can comfortably use network structures and algorithms in their research or workplace.

Grading

- Midterm: 20% (EXAM DATE: TBA)
- Final Exam: 30% (EXAM DATE: TBA)
- Assignments: 35% (paper-based problem solving and at least 3 programming)
- Term Project: 15% (Pick a problem and develop a network model and algorithm for it, and implement the algorithm. Due date:TBA)

Make-up examinations will be given if you have an officially acceptable excuse.