

Csci 628 (Morton 238, 9-9:50 a.m.)

**LINEAR PROGRAMMING**

Course Syllabus—Fall 2007

**INSTRUCTOR:** Rex K. Kincaid  
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Office Hours—MW 1-3 p.m. or by Appt.

**PREREQUISITES:** Linear algebra, Calculus, and some rudimentary ideas of optimization models and algorithms.

**DESCRIPTION:** Linear Programming is perhaps the most recognized and widely used optimization tool in the world today. It has its origins in planning and operations models from World War II through the seminal work of George Dantzig and his development of the simplex method. Alternatives to the simplex method termed interior point methods have gained popularity in the last fifteen years.

**TOPIC OUTLINE:**

- Part 1. Basic Theory—The Simplex Method and Duality (Ch. 1-12)
- Midterm Exam
- Part 2. Network Type Problems (Chapters 13-14)
- Part 3. Interior Point Methods (Chapters 16-21)

**TEXTS:**

R.J. Vanderbei, Linear Programming: Foundations and Extensions, Kluwer, 2nd edition, 2001.

R. Fourer, D.M. Gay, and B.W. Kernighan, AMPL: A Modeling Language for Mathematical Programming, Brooks/Cole—Thomson Learning, 2nd edition, 2003.

**GRADES:** There will be a midterm exam and a final exam. The midterm exam will count 30% and the final exam 35% of the final course grade. The midterm exam is tentatively scheduled for Friday, October 19. The final exam is scheduled for Tuesday, December 11 from 8:30-1:30 p.m.. Both exams will be “almost closed book,” i.e. students may use one (two for the final) 8.5 by 11 inch sheet of notes. Such notes may be on both sides of the paper, but they should be in original pen or pencil, NOT photo-copies. Homework assignments will be given periodically throughout the semester and together will count 35% of the final course grade. Many of these homework assignments will require the use of a C compiler and/or AMPL.