

**COURSE ANNOUNCEMENT**  
**OPERATIONS RESEARCH I**  
**LINEAR PROGRAMMING AND EXTENSIONS**  
**MATH 751**

Fall Semester 2008  
T,TH 1:00-2:15  
206 Ansari Business Bldg

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*A linear programming problem* is a problem in which one is to optimize a linear function (of  $n$  variables) subject to linear constraints. It is perhaps the most widely applied model in all of optimization theory.

We define an algorithm for solving linear programming problems, called the simplex algorithm, and show that it converges. We investigate the theory of duality and that of sensitivity analysis. We extend the simplex algorithm so as to be able to solve integer programming problems and fractional programming problems. Finally, we cover topics in nonlinear programming, such as the linear complementarity problem and Kuhn-Tucker theory.

Note: The focus of this course is on theory, not applications. For the "applications" side of things, enroll in Math 487/687.

**Text:** None. Xeroxes of readings will be available at small cost.

**Prerequisites:** Linear Algebra (Math 330), or consent of instructor. No background in linear programming will be assumed.

Coming Spring 2009:

MATH 485/685 Combinatorics and Graph Theory

MATH 752 Operations Research II – Stochastic Models