

21690A - Fall 2005
Methods of Optimization

Instructor: Zhaosong Lu.

Email: zhaolu@andrew.cmu.edu.

Office: Wean Hall 7124.

Phone #: (412) 268-6207.

Office hours: MW 1:30-3:00PM.

Time and Place: MW 3:30-4:50PM, Old Student Center 203 (OSC 203).

Prerequisites: Math 21-257.

Description: In this course we study the theory and algorithms of linear and nonlinear programming with an emphasis on modern computational considerations. Topics to be covered include: 1) optimality conditions for unconstrained and constrained optimization problems; 2) unconstrained optimization algorithms such as gradient methods, conjugate direction methods, Newton method, quasi-Newton methods, and trust region methods; 3) constrained optimization problems and the methods for solving them such as active set methods, penalty and barrier methods, interior point methods and successive quadratic programming methods; 4) linear programming and the methods for solving it such as interior point methods and simplex methods.

Textbook: J. Nocedal and S. Wright, *Numerical Optimization*, Springer, 1999.

Grading policy: There will be a take-home midterm exam (40%) and a take-home final exam (40%). Homeworks (20%) will be assigned every two to three weeks. They will be only partially graded.

Exam dates: midterm exam (Oct 12) and final exam (Dec 5).