

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
DEPARTMENT OF MATHEMATICS

COURSE DESCRIPTION - FALL 2011

MATH 484 NONLINEAR PROGRAMMING

Sections D13 and D14: 11:00-11:50 MWF, 141 Altgeld Hall

Instructor: B. Lidicky, 222 Illini Hall, 244-5468, lidicky@illinois.edu

Web page: <http://www.math.uiuc.edu/~lidicky/484/>

Office hours: tentatively 12:00 - 1:00 PM MWF

Final Exam: 8:00 - 11:00 AM, Tuesday, December 13

The aim of this course is to give an introduction to an important field of mathematics, a part of optimization problems. We emphasize techniques, but also present proofs of theorems. Some of the topics covered: Iterative and analytical solutions of constrained and unconstrained problems of optimization; gradient and conjugate gradient solution methods; Newton's method, Lagrange multipliers, duality and the Kuhn-Tucker theorem; and quadratic, convex, and geometric programming. We will follow the textbook.

PREREQUISITES: MATH 241; MATH 347 or MATH 348; or equivalent; MATH 415 or equivalent; or consent of instructor.

TEXT: A. Peressini, F. Sullivan and J. Uhl: The Mathematics of Nonlinear Programming, Undergraduate Text in Mathematics, Springer

REQUIREMENTS: There will be roughly 10 homework assignments, three exams during semester and a final exam. The weighting is homework 20%, evening exams 45% and final 35%. Grades thresholds are 90% for A, 80% for B, 70% for C and 60% for D. Below 60% is F.

4 CREDITS: One has to register (soon!) in the Math Office at Altgeld to take 4 credits, and I will sign it. Additional requirements involve more homework and extra problems on exams (may include proofs).

RESOURCES: Electronic mail is a medium for announcements and questions. Evening collaborative study sessions are offered to aid students in understanding the material and solving problems.