C&O 466/666
Course Title: Continuous Optimization

NOTE This page is available over WWW with URL
ftp://orion.uwaterloo.ca/pub/henry/teaching/w95/666.w95/readme.html.

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Course Times: TR 8:30-10:00 at MC 4039

Text (Recommended only):
AUTHOR: Minoux, Michel.
TITLE: Mathematical programming : theory and algorithms
IMPRINT: Chichester [W. Sussex] ; Toronto : Wiley, c1986.
Location EMSRES
Loan Type : 3DAY
Call Number: QA402.5.M5613 1986 On Reserve

Prerequisites (for 466): **1** C&O 350 (Linear Programming)

2 C&O 367 (Nonlinear Programming) or C&O 355 (Mathematical Optimization)

Grading: 25 percent assignments; 25 percent midterm; 50 percent final.

Assignments: There will be between 5 and 6 assignments. These will cover the basic theory of optimization. Some problems will be challenging but most will be standard. There will also be a small amount of computer related problems which will be based on using the optimization packages available with matlab.

The emphasis will be on understanding the theory and on problem solving. The assignments will not only provide practice for the theory covered in class, but will also provide introductory material for new material not yet covered.

Tests: The tests will cover the basic theory covered in the lectures. These tests should help prepare for the comprehensive exams.

Expectations: Good students who do the assignments and prepare for the exam should expect an A in the course. Undergraduates taking the course (466) will get special consideration in the marking scheme.

Course Rationale: This course deals with the theory and with algorithms for optimization problems. The first aim of this course is to understand the basic principles and theory of continuous optimization. A second objective is to obtain facility with effective, practical, implementation of existing optimization methods.

A basic knowledge of calculus and linear algebra will be assumed.

Additional References:

1. Practical Optimization, P.E. Gill, W. Murray, M.H. Wright.
2. Numerical Methods for Unconstrained Optimization and Nonlinear Equations, J.E. Dennis and R.B. Schnabel
3. Nonlinear Programming, M.S. Bazaraa, C.M. Shetty
4. Linear and Nonlinear Programming, D.G. Luenberger, Second Edition
5. Practical Methods of Optimization, R. Fletcher
6. Mathematical Programming Methods, G, Zoutendijk
7. Nonlinear Programming, G.P. McCormick
8. Optimization by Vector Space Methods, D.G. Luenberger
9. Convex Analysis, R.T. Rockafellar
10. Nonlinear Prgramming, Peressini, Sullivan, Uhl
11. Theory of Extremal Problems, A.D. Ioffe and V.M. Tihomirov

Miscellaneous: A MATLAB Primer is available by anonymous ftp at orion.uwaterloo.ca as the file pub/henry/matlab/primer41.ps.Z. You can also get this primer using MOSAIC with URL
ftp://orion.uwaterloo.ca/pub/henry/matlab/primer41.ps.Z.
Miscellaneous information files are available using MOSAIC with URL
ftp://orion.uwaterloo.ca/pub/henry/teaching/w95/666.w95.

The newsgroup uw.co.co666 is for questions and discussions on non-linear programming.
Please contact the instructor for a meeting time, if you cannot meet during the designated office hour.