OR 541: Deterministic Models
Spring 2012
Online Course (Blackboard)
Tuesdays 7:20pm to 10:00pm

Instructor: David J. Newton
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(I check these emails more frequently)
Office Hours: I will try to be online by 6:20, or by appointment. I will also typically be available after 6pm.
Prerequisite: Linear Algebra

Textbook: Operations Research Applications and Algorithms, Wayne L. Winston (4th edition)

Software: MPL, available from www.maximal-usa.com

Other equipment: You will need a microphone and a way to scan and email documents (tests and homeworks).

Purpose of the Course: This course will lay the basic foundations for Deterministic Operations Research and will act as preparation for more sophisticated modeling techniques. We will work with some real life problems, find solutions and learn how to understand and interpret those solutions. We will also learn how to use modeling software for applying the simplex method.

Homework: Homework will be assigned and graded. You will be expected to send me scans of the homework assignments by the beginning of the class in which they are due.
Project: There will be a project that will require the formulation and solution of an optimization problem using MPL.

Grades:
Homework: 15%
Project 25%
Midterm: 25%
Final: 35%

Tentative Couse Schedule (Schedule may change, changes will be posted and announced)

1/24 Introduction; Linear Programming 1, 3.1-3.2
1/31 Linear Programming 3.3-3.9
2/7   The Simplex Method 4.1-4.5
2/14 The Simplex Method 4.6-4.8, 4.12-4.13
2/21 Sensitivity Analysis & Duality 6.1-6.3
2/28 Sensitivity Analysis & Duality 6.5-6.10, 6.12
3/6 Midterm take home due by regular end of class (10pm) on 3/6.
3/13 No class (Spring Break)
3/20 MPL formulations and Use of Indices, Loops, etc.
3/27 Transportation Problem 7.1, Intro to Networks 8.1-8.3
4/3 Network Simplex Method 8.6-8.7
4/10 Integer Programming 9.1-9.5
4/17 Integer Programming 9.7
4/24 Nonlinear Programming 11.1-11.4, 11.6
5/1 Nonlinear Programming 11.8-10
5/8   Reading Period
5/15 Final Exam: Take Home Exam due by regular end of class (10pm) on 5/15.