ORIE 6300 Mathematical Programming I

Course Information

August 28, 2007

1 Instructor Information

Instructor:	Prof. David Williamson
Office:	236 Rhodes Hall
Office hours:	Mondays 11-12, Thursdays 1:30-2:30 and by appointment.
Email:	`dpw@cs.cornell.edu`
Phone:	(607) 255-4883
Teaching assistant:	Maurice Cheung
Office:	Rhodes 291
Office hours:	Wednesdays 4:30-5:30, Thursdays 4:30-5
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Course web site:	`www.orie.cornell.edu/~dpw/orie6300/`

2 Lectures

Lectures will be Tuesday/Thursday 10:10-11:25AM in Hollister 320. Recitation section will be Wednesdays 3:30-4:30PM in Hollister 401.

3 Prerequisites

You should know multivariate calculus and elementary linear algebra.

4 Textbooks

There is no required textbook. Because there is no required text, we will use a system to which I was subjected to in graduate school and which worked reasonably well. Each week an official "scribe" will be appointed to take notes for that day's class. The scribe will then get to me a clearly written version of the notes (preferably in LaTeX) by within six days, so that I can hand out copies of these notes within a week. Producing scribe notes will be a requirement of the course. In many cases, scribing will not require much more than editing a version of the notes from a prior semester.

Pointers to lecture notes from previous semesters will be available on the course webpage.

I will also be occasionally drawing on the following two books, which are on reserve at the Engineering Library:

- Dimitris Bertsimas and John N. Tsitsiklis, *Introduction to Linear Optimization*, Athena Scientific, 1997.
- Vašek Chvátal, *Linear Programming*, W. H. Freeman, 1983.

5 Requirements

There will be weekly problem sets, a takehome midterm, and an inclass final exam.

The breakdown of grading is as follows: problem sets (40%), midterm (15%), final (30%), scribing for two lectures (10%), lecture-recitation participation and filling out course evaluation form (5%).

6 Collaboration

Cornell's Code of Academic Integrity can be found at `cuinfo.cornell.edu/Academic/AIC.html`.

Your work on problem sets and exams should be your own. You may discuss approaches to problems with other students, but as a general guideline, such discussions may not involve taking notes. You must write up solutions on your own independently, and acknowledge anyone with whom you discussed the problem. If you use papers or books or other sources (e.g. material from the web) to help obtain your solution, you must cite those sources. You may not discuss exam problems with other students.

7 Course topics

This course gives a rigorous treatment of the theory and computational techniques of linear programming and its extensions, including formulation, duality theory, algorithms, sensitivity analysis, network flow problems and algorithms, theory of polyhedral convex sets, systems of linear equations and inequalities, Farkas' lemma, and exploiting special structure in the simplex method and computational implementation. Topics covered will include the ellipsoid method, interior-point methods, and computational complexity issues related to optimization problems.

8 Your information

Please fill out the information below and return it by the end of the lecture.

Name _____

Email address _____

Major _____ Year _____

Are you taking this class for credit? _____