INTRODUCTION TO LINEAR PROGRAMMING
Math 340

Linear programming problems, dual problems, the simplex algorithm, solution of primal and dual problems, sensitivity analysis.

The core material for the course is covered in Chapters 1-10 of the textbook. After dealing with it, we can branch out in several directions. Here is this term's plan:

week #1 intro to linear programming; objective function, constraints, feasible solutions, standard form of an LP.
week #2 dictionary; the simplex method; slack variables, (non-)basic variables, pivoting.
week #3 tableau format; pitfalls in the simplex method, the Fundamental Theorem of Linear Programming.
week #4,5 duality; the Duality Theorem, applications.
week #5 Test #1.
week #6 Complementary Slackness, economic significance of dual variables.
week #7 LINDO
week #8 the Revised Simplex Method, matrix description of dictionaries.
week #9 the Duality Theorem, review
week #10 sensitivity analysis, Test #2
week #11+ applications

CALENDAR

Wed, Sept 4	Term starts
Fri, Oct 4	**Midterm 1**
Mon, Oct 14	Thanksgiving Day (university is closed)
Fri, Nov 8	**Midterm 2**
Fri, Nov 29	Last day of classes
TBA	Final Exam

Grading:
The final examination counts for 50% of the course grade. Each midterm counts for 15%, and the homework counts for 20%. (The instructor may scale grades or adjust this formula. If that happens, the same scheme will be applied to each student in the class. Each student's grade will be the maximum of the formula result and the output of the scaling scheme.)

Policies:

- All midterms and the final examination will be strictly closed book: no notes, formula sheets, or calculators will be allowed.
- There is no supplemental examination in this course.
- Late homework assignments receive a grade of 0. Homework copied from another student will produce a grade of 0 for both the original solver and the copyist.
- Missing a midterm normally results in a mark of 0. Exceptions may be granted in two cases: prior consent of the instructor or a medical emergency. In the latter case, the instructor must be notified within 48 hours of the missed test, and presented with a doctor's note immediately upon the student's return to UBC.

Instructor:
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Links
Notes:
http://www2.isye.gatech.edu/~spyros/LP/LP.html
http://www.cs.uiuc.edu/~jeffe/teaching/algorithms/notes/25-lp.pdf
LINDO:
http://www.lindo.com