



Syllabus

IE/MA 4733/6733-Linear Programming

12:30 PM-01:45 PM, TTh, January 8th-April 23th 2009, Simrall 106

Instructor: Dr. Mingzhou Jin

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Office hour: TTh 2:00-3:00 PM or arranged hour by appointment

Online Material: mycourses at mycourses.msstate.edu. For distance students, both live classroom and traditional video will be posted in mycourses.

Description of the Course:

Prerequisite: CS 1213: Computer Programming; MA 3113: Introduction to Linear Algebra

General theory of linear programming and its application; modeling problems with LP; the simplex algorithm; duality and sensitivity analysis; transportation algorithm and LP application; computers tools for Mathematical Programming; introduction to Integer Programming (Same as MA 4733/6733).

Required Textbook:

"Operations Research - Applications and Algorithms", 4th, by Wayne L. Winston. Duxbury Press: Belmont, CA.

Reference books

"Linear Programming: Methods and Applications" 5th by Saul I. Gass, Dover Publishers, 5th edition (December 2, 2003), ISBN# 048643284X. You can even get it from Wal-Mart.

Grading System

Homework	20%
Case Problem	15%
Test 1	20%
Test 2	20%
Test 3	20%
Quizzes	5%

- Homework assignments are given weekly and grouping work is not allowed. All answers will be posted on-line some days later.
- Graduate students are supposed to work more. There will be additional questions in homework and tests for them. I will still deduct points from 100 for these additional ones.
- You are encouraged to be active in the classroom.
- Quizzes are given randomly and based on the homework and lectures
- Exams (You may bring one-sheet for formulation)
- Case Problems (There will be one or two case problems with individual work)

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Tentative Schedule for this Course

- Week 1 Introduction, review on linear algebra (Chapter 1 -2)
- Week 2 Model the problem with linear programs (Chapter 3)
- Week 3 Model the problem with linear programs (Computer tool Lindo and Excel)
- Week 4 Graphic Method (Chapter 3)
- Week 5 Simplex computational Procedure (Chapter 4)
- Week 6 Simplex computational Procedure (Test 1)
- Week 7 Simplex computational Procedure
- Week 8 Sensitivity analysis: an applied approach (Chapter 5)
- Week 9 Sensitivity analysis and duality (Chapter 6)
- Week 10 Sensitivity analysis and duality (Chapter 6) (Test 2)
- Week 11 Transportation and Assignment Problems (Chapter 7)
- Week 12 Transportation and Assignment Problems
- Week 13 Integer programming modeling (Chapter 9)
- Week 14 Integer programming solution method and computer tools (Chapter 9) (Test3)

Computer Software for Mathematical Programming

Lindo, Excel, and Lingo (perhaps) will be used to solve LP and other mathematical programming problems.

DISCLAIMER: This schedule serves as a rough guide for the pacing of materials covered in the course, and will be subject to change as necessary. The handouts will be on-line before the classes and you are supposed to print out them to write down notes.

HONOR CODE

Mississippi State University has an approved Honor Code that applies to all students. The code is as follows:

"As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."