

**MGMT 339**  
*Management Science*  
**Spring 2006.**

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OFFICE HOURS: Tuesday 1:45-3:30pm and Thursday 4:45pm-6:00pm.  
TEXTBOOK: *Introduction to Management Science, 2nd ed.*  
by F.S. Hillier and Mark S. Hillier  
McGraw-Hill, 2003.  
ISBN: 0-07-249368-2, 0-07-119554-8 (International), and 0-07-123810-7.

**INTRODUCTORY STATEMENT.**

This is a course in the techniques of management science and operations research. It is a survey course in quantitative models and methods. The scope is broad and it is intended as an introduction for business students to management science.

**Course Web Page.**

We will be using Blackboard for the course web page. I will post announcements, notes, handouts, updates to the syllabus, HW solutions, etc. I will assume you check this site frequently.

**GRADING.**

The grade for the course will be determined by the score on the following three items:

1. Homework Problems (Total 0 points). Homework problems from the end of the chapters will be assigned but not graded or collected. The homework problems will serve as the basis for the examinations.
2. Case Studies (Total 50 points). Approximately one every two weeks. Case studies should be prepared by the student such that all questions are fully answered and the written presentation is professional. Note: Submissions are “late” after the time the class when they are due has started. Late projects will receive 50% credit and will only be accepted until when the next project is due. See file “InstructionsCaseStudies.pdf” in course web page:
3. Examinations (Total 50 points). There will be three examinations. Each examination lasts two and a half hours and will be given during class in a computer lab (see “Instruction for testing using the computer lab” (file “InstructionsTests.pdf” in course web page) on the following dates:
  - Examination 1. Thursday, February 23.
  - Examination 2. Thursday, April 6.
  - Examination 3. Thursday, May 11 (Date for Final Examination).

Grades will be assigned using the following scale:

A	85 or more points
B	70 or more but less than 85 points
C	60 or more but less than 70 points
D	50 or more but less than 60 points
F	Less than 50 points

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*CLASS SYLLABUS*

Our objective is to try to follow the following schedule. This plan is tentative and we can expect some deviations and adjustments. Use this syllabus for general guidelines regarding the course.

Week 1 Thursday January 19.

- Administrative announcements.
- Historical notes about MS.
- Chapter 1: *Introduction*. Introduction to the course: Examples of some problems modeled and solved using O.R. techniques.
- Chapter 2: *Linear Programming: Basic Concepts*. Formulation and solution of linear programs in two variables: The “Product Mix” problem.

**Read:** Chapters 1 and 2

**HW:** 2.8, 2.13, 2.16, 2.21, 2.25, 2.29, 2.40.

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Week 2 Thursday January 26.

- Chapter 2, cont’d.
- Assign Case Study 1.

**Read:** Chapters 3 and 4

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Week 3 Thursday February 2.

- Chapter 3: *The Art of Modelling with Spreadsheets*
- Discuss Case Study 1.

**Read:** Chapter 4.

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Week 4 Thursday February 9.

- Chapter 4, *Linear Programming: Formulation and Applications*.
- Case Study 1 is due.
- Assign Case Study 2.

**Read:** Prepare for Chapter 5.

**HW:** Chapter 4: 4.2, 4.5, 4.10, 4.15, 4.17, 4.20.

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Week 5 Thursday February 16.

- Chapter 5: *What-if Analysis for Linear Programming*.
- Discuss Case Study 2.

**HW:** Chapter 5: 5.1, 5.4 (except part g), 5.8, 5.12.

**Read:** Chapter 6 and study for the midterm next week.

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Week 6 Thursday February 23 (Midterm 1).

- Read document: InstructionsTests
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Week 7 Thursday March 2.

- Chapter 7: *Network Optimization Problems*
- Case Study 2 is due.
- Assign Case Study 3.

**Read:** Chapter 8 Sections 8.1, 8.2, and 8.3.

**HW:** Chapter 7: 7.1, 7.4, 7.7, 7.12.

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Week 8 Thursday March 9.

- Chapter 8 *Project Management with PERT/CPM* (We will cover Critical Path Methods only: Sections 8.1, 8.2, and 8.3).
- Discuss Case Study 3.

**Read:** Chapter 9.

**HW:** Ch 8: 8.2, 8.5, 8.8.

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Week 9 Thursday March 23.

- Chapter 9 *Integer Programming*
- Case Study 3 is due.
- Assign Case Study 4.

**Read:**

**HW:** Ch 9: 9.3, 9.5, 9.9, 9.13, 9.14, 9.19.

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Week 10 Thursday March 30.

- Chapter 9 *Integer Programming*
- Discuss Case Study 4.

**Read:** Chapter 15 and study for the midterm next week.

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Week 11 Thursday April 6 (Midterm 2).

- Read document: InstructionsTests
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Week 12 Thursday April 13.

- Chapter 15 Computer Simulation: Basic Concepts
- “The Game Show Host Problem” in-class simulation.
- Puzzler from Car Talk: <http://cartalk.cars.com/About/Numbers-Game/>. Perform Monte-Carlo simulation to compare the “naive” versus” the “smart” strategy by calculating probabilities of winning maximum payoff.
- The VLOOKUP function in Excel.
- Case Study 4 is due.
- Assign Case Study 5.

**Read:** Chapter 15

**HW:** 15.1, 15.5.

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Week 13 Thursday April 20.

- Chapter 15 *Computer Simulation*: Generating random numbers from probability distributions (pp. 732-735).
- The inverse transformation method for generating random numbers.
- Introduction to VBA for Excel
- Discuss Case Study 5.

**Read:** “Spreadsheets as a tool for teaching simulation,” James R. Evans, *INFORMS Transactions on Education*, Vol. 1, pp. 27-37.

**HW:** 15.7, 15.9, 15.12.

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Week 14 Thursday April 27.

- The “Newsboy” decision inventory problem with uncertain demand. Reference: “Spreadsheets as a tool for teaching simulation,” James R. Evans, *INFORMS Transactions on Education*, Vol. 1, pp. 27-37.
- Case Study 5 is due.

**Read:** Study for the midterm next week.

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Week 15 Thursday May 4.

- Chapter 15 *Computer Simulation*, cont’d.
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Week 16 Thursday May 11 (Final).

- Read document: [InstructionsTests](#)
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