
UNIVERSITY OF TEXAS AT SAN ANTONIO – COLLEGE OF BUSINESS
MBA Program Course Syllabus

MS 5023: Decision Analysis and Production Management
Fall, 2002

Instructor: Dr. Kefeng Xu, Assistant Professor
Dept. of Management Science & Statistics
Time/Room: Section 901 (Sat 11:30AM-2:15PM) FS 2.508
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Office Hrs.: M/W 2:30PM-3:30PM and Sat. 2:15-3:00PM (by appointment).

REQUIRED TEXTBOOK

Introduction to Management Science, 7th ed., by Bernard W. Taylor, III (Upper Saddle River, NJ: Prentice Hall, Inc., 2002), packaged with the POM/QM for Windows software. ISBN: (0-13-071756-8)

COURSE OVERVIEW AND OBJECTIVES:

Managers are constantly confronted with operational, tactical and strategic decision making challenges. Management science as a discipline has always attempted to address these challenges in a scientific approach. This means that business problems are typically captured and solved using various mathematical models and techniques. The objective of this course is to provide an overview of quantitative modeling techniques in solving decision-making problems in business. It is designed to lead students through the field of management science and its applications in contemporary business operations, with an emphasis on problem modeling and business interpretations.

The focus of this course would be on understanding the principles of modeling techniques and its use in real life problems. In this course, we study the most important modeling techniques commonly utilized in management science discipline. This includes linear and integer programming, network models, project management, probabilistic and statistical analysis, forecasting, decision and queuing analysis and simulation. These modeling techniques are being applied to a wide variety of challenges in marketing and sales, finance, production planning and inventory management, operation scheduling, order management and distribution, quality assurance and control, etc. The bulk of the time will be spent on the quantitative modeling methods and its solution approach.

Specific learning objectives in this course include:

- a. Develop the students' capabilities and skills in approaching and solving contemporary business issues with quantitative techniques.
- b. Familiarize business students with computer-based management science techniques most often used by managers. A problem/case applications approach will be used to present these techniques and to demonstrate their usefulness. The primary focus of the problems and cases will be in marketing, finance, production, distribution, and inventory components of business. Applications in other business functions will also be included.
- c. Develop and broaden the students' perspective of general decision making concepts. Improve the students' ability to analyze and solve managerial problems.

COURSE REQUIREMENTS:

1. **Overall.** During the semester, there will be three formal examinations, three cases, and several out-of-class homework assignments given.
2. **Make-Up Exams.** They are given only in cases of illnesses or other emergencies, only when written documentation is provided prior to the exam (if possible), and only if taken before the regular test is handed back in class (which is usually the next class session following the taking of exam). A doctor's excuse is necessary for a make-up exam. **Make-up exams are not scheduled for non-approved absences.**
3. **Contents Required.** Students are responsible for all materials presented in class and outside assignments. Homeworks (except the case reports) are assigned for students to practice but *typically* will **not** be collected and graded for class credit. Solutions to these problems will be posted on my course webpage during the semester. However, it is to your advantage to fully understand how to solve these problems. ***Moreover, when deemed necessary to ensure students' progress, homework problems may be collected and graded.*** The value of these assignments and cases lies in their motivational effects, helping students moving along the semester on pace with each other. Their emphasis will be on encouraging a thorough understanding of the course materials, readings, and lectures, not on memorizing specific problems. Students are strongly urged to read management science application boxes, master solved problems, and attempt end of chapter problems and cases to aid the learning process, to better prepare for tests /case analysis, and to maximize their grades!
4. **Study Group.** Working on homework problems / cases with a friend is allowed, and even encouraged if it contributes to each student's understanding of the techniques because: (1) You cannot learn the quantitative methods without solving the problems, (2) You will see similar problems in the examinations; and (3) You might be asked in class to explain how you worked a particular problem. For those students who are willing to test their own solutions of these problems, an electronic

version of the homeworks will be provided on the net for self-testing. In other words, after a student solves all the problems for each homework on paper, the students will use the solutions to answer appropriate questions posted on my WebPages.

5. **Case Reports.** Three short cases will be assigned, **collected and graded.** For each case, students are expected to form groups of 2 persons to complete the case. Each group needs to write a report which includes a short description of the case, a formulation of the model used, a short description of key assumptions used in the model, a summary of the results found (and conclusions and recommendations if relevant). Computer printouts, if relevant, should be attached to the report as appendices. The report should be typed.
6. **Class Participation and Attendance.** The course builds up concepts one upon another, making it essential that a student attends and **contributes** effectively each and every class, keeps up with the readings and takes good class notes. There are several mini-exercises that will be completed **during regular classes.** Therefore, attendance is required and will be taken randomly throughout the semester. Student's active in-class participation and attendance will count towards the course "Participation" points. It will help you understand the lecture if you read the materials before coming to class. If you have to miss a class, make sure to make it up by copying and reviewing the class notes from your classmates, studying the material and reading the relevant parts of the book before coming to the next class.
7. **Emails.** Each student should own an email account to facilitate the communications in this class. Some class announcements or questions/answers would be distributed through emails. Please check your emails regularly. **Once you obtain such an account, send an email to me (kefeng@lonestar.utsa.edu) immediately,** stating your email address and that you are in my MS5023 class.
8. **Class Webpage.** The MS5023 class homepage accessible from <http://business.utsa.edu/faculty/kxu> protected with a **Class ID and a Class Password** is the source of your lecture notes, homework information, and miscellaneous announcements. The Class ID and Class Password will be announced in the first day of class. Each of you will also get an **individual ID** and a **PW** for online homework SELF-TEST (not counting towards class credits, as noted above). Detailed instructions will be provided and demonstrated in classes as the course progresses.
9. **Students with disabilities** who believe that they may need accommodations in this class are encouraged to contact the University's Office of Disability Services (MS 2.03.18, tel. 458-4157) or see me immediately after class, as soon as possible, to better ensure that such accommodations are implemented in a timely fashion.

10. **Learning Environment.** All students are expected to exercise self-discipline and a respect for the rights of other at all times. To assure all students have the opportunity to gain from time spent in class, students are prohibited from engaging in any form of distraction. **Please turn off your beepers and cellular phones in class!**

11. Behavioral disruptions that interfere with the business of the classroom or with an individual's ability to learn may be referred to the Office of Student Judicial Affairs in accordance with Section 202 of the *Student Code of Conduct*.

TENTATIVE COURSE GRADING*:

Cases, & Mini-Exercises	15%
Exam 1	20%
Exam 2	25%
Final Exam	35%
Class Participation & Attendance; Discretion	5%

Total:	100%
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*Note: The instructor reserves the right to modify the above grading procedure.

Grading Scale: The following table shows the approximate minimum percentage/points for each grade. The instructor reserves the right to adjust these percentages downward as dictated by the class.

Grade	Minimum %	Minimum points
A	90%	900
B	80%	800
C	70%	700
D	60%	600
F	Below 60%	Less than 600

TENTATIVE COURSE SCHEDULE:**

Week	Date	Topic	Pre-class Readings	Homework Problems
1	8/31	Introduction & course overview LP - Formulation & Graphical Solution	Ch.1 Ch.2	Ch1: 1-4, 8-10, 15
2	9/07	LP - Graphical Solution LP - Computer Solution	Ch.2 Ch.3	Ch2: 11, 18, 20, 22, 28, 29, 50-52
3	9/14	LP: Computer Solution & Interpretation	Ch.3	Ch3: 8-28
4	9/21	LP: Formulation and Application	Ch.4	Ch4: 7, 8, 10-12, 19, 20
5	9/28	LP: Formulation and Application (Cont'd)	Ch.4	Ch4: 21, 23, 26, 28, 32, 34, 43
		(Tentatively) Exam 1		(Chapters 1, 2, 3 and 4)
6	10/05	Integer Programming (IP)	Ch.5	Ch5: 1, 2, 4-6, 10, 15, 18, 20-22, 25, 28
7	10/12	Transportation, Transshipment, & Assignment Problems	Ch.6	Ch6: 4, 7, 9, 10, 27, 35-36, 41-43, 46, 47, Case 1 Due on 10/12 (Spring Garden Tools case on pp. 170-171)
8	10/19	Project Mgmt.: PERT/CPM	Ch.8	Ch8: 2, 3, 6, 8, 10, 12, 16-18, 22-25, 29
9	10/26	Decision Analysis	Ch.12	Ch12: 8-10, 16, 18, 25, 35, 37, 39, 41, 42, 47, 48
10	11/02	Queuing Simulation in Business	Ch.13 Ch.14	Ch13: 8, 10, 12, 14 Case 2 Due on 11/02 (The Bloodless Coup Concert case on pp. 688-689)
11	11/09	Simulation in Business	Ch.14	Ch14: 2, 3, 6, 7, 9-11, 18-22, 25, 26 (Chapters 4, 5, 6, 8 and 12)
		(Tentatively) Exam 2		
12	11/16	Forecasting	Ch.15	Ch15: 2, 3, 6, 11-13, 22, 23, 30
13	11/23	Inventory Management	Ch.16	Ch16: 3-5, 8, 9, 11, 12, 20-22, 26-30 Case 3 Due on 11/23 (TBA)
14	11/30	Thanksgiving Holiday – Classes do not meet.	Ch.16	
15	12/07	Final Exam: 10:30am-01:15pm, Sat. 12/07	20% on LP, PERT/CPM	80% on IP, Decision Analysis, Queuing, Simulation, Forecasting, Inventory Models.

**Note: The instructor reserves the right to change this schedule.

Instructions: How to Obtain Lecture Notes on Campus Labs+

1. In the MS5023 class webpage (<http://business.utsa.edu/faculty/kxu/ms5023/student5023>), you will be able to download all the lecture notes ZIP files.
2. Click on and download the ZIP files of interest in the campus computer labs to a temporary directory in the hard disk.
3. Use WinZip program on the computer (click on Start→Programs→WinZip) to open the downloaded ZIP files. EXTRACT (“Unzip”) the POWERPOINT lecture notes of concern to the temporary directory. Some ZIP files contain other EXCEL example files in addition to the POWERPOINT lecture notes.
4. Start Microsoft Powerpoint application to open the EXTRACTED (“unzipped”) lecture notes files.
5. You are ready to print the lecture notes. Make sure you select “3 or 6 Handouts Per Page” in “**Print What**” window before you hit the Print button.

+You follow the same procedure if you have an Internet access at home or work, and have the free WinZip program loaded on your computer.

How to Use “QM for Windows” Program (Version 2) in Campus Labs*

Click on “Start” button → “Programs” → “QM for Windows 2”.

*Please note that if you purchase the Textbook+CDROM bundle for this class, the “QM for Windows 2” software is included in the CDROM. You could simply install it on your own PC and use it at your own convenience.