

SUPPLY CHAIN MODELING AND OPTIMIZATION

OM 337 (# 03870)

Spring 2007

TTH 11:00 a.m. - 12:30 p.m. UTC 4.122

Instructor: Dr. John J. Rousseau
Office: CBA 3.418
Mailbox: CBA 5.202 IROM Department Office
Office Hours: TTH 2:00-5:00 and by appointment
Phone: 232-6943
E-mail: john.rousseau@mcombs.utexas.edu

Course Description

A supply chain consists of the set of organizations that interact with one another to bring a product or service to market. Elements of supply chain management include many of the real value-added activities of organizations including product and process design, production, service delivery, and customer order management. They also include many supporting value-added functions such as process improvement, resource planning and control, capacity planning, facility location, distribution, inventory management, quality control, and purchasing. This course investigates how the efficiency and effectiveness of various supply chain activities might be improved through the use of forecasting and modeling techniques, mathematical optimization and decision analysis.

Optimization is a broad class of mathematical techniques to assist in decision-making under circumstances characterized by limited resources, conflicting objectives, uncertainty, novel conditions, complex organizations, short response time, etc. Of general interest are the topics of linear programming, network flow programming, integer programming, nonlinear programming, and decision analysis. The use of discrete event simulation models, probability models and queueing analysis will also be explored as time permits.

The emphasis in this course will be on:

- Formulating models of decision-making situations
- The appropriate use of some of these quantitative techniques rather than the mathematics that underlie them
- Finding solutions to the models that optimize objective measures of merit using readily available computer software, and
- Implementing the solutions in an attempt to solve the problems

Instructional Methods and Materials

The class sessions are a combination of lectures and discussions. There is no required textbook for this course. Most of the materials for this class will be available on the course website powered by Blackboard (<http://www.utexas.edu/cc/blackboard>).

Blackboard features include:

- Class syllabus, documents, announcements, and web links
- Class lecture notes, homework assignments, handouts, and additional course materials
- Instructor/TA information
- Communication tools
- Group tools
- Online grades, quizzes and surveys
- ACITS Help Desk: 475-9400
- FAQs: <http://www.utexas.edu/cc/blackboard>
- Student manual: <http://www.utexas.edu/cc/cit/courseware/Bbstudent/index.html>

The detailed class schedule available at the course website shows the topics for each class and lists the lecture materials and any required readings. You are responsible for accessing this material prior to coming to class.

Textbook

There is no required text for this course. A required course packet of cases and readings will be available from University Duplicating Services.

Examinations

There will be two individual in-class examinations that are closed book and closed notes. These exams are intended to test your understanding of basic concepts that will be introduced throughout the course. You will need a calculator during exams. There will also be a comprehensive take-home final exam to be answered in groups of three to four students. A single final exam report, with all relevant materials, should be turned in and each group member shall receive the group grade. The final exam is designed primarily to assess your ability to apply the analytical tools discussed in class.

Group Assignments

There are three to four case study assignments due at class time on the dates specified in the syllabus. These assignments are to be done in groups of three to four students. Each assignment should be prepared in Word and/or Excel as appropriate, and all relevant materials should be turned in. A single assignment report should be turned in and each group member shall receive the group grade. Handwritten assignments will **not** be accepted. Late assignments will **not** be accepted. There will also be in-class case discussions, but no written analyses will be turned in.

Homework

Analytical problem sets will be posted to the class web site periodically throughout the semester. These problem sets will not be collected or graded; however, they are representative of exam questions and are intended to provide you with experience in applying the techniques presented in class. Solutions to the problems will also be posted to the web site.

Quality of Work

All work must be prepared neatly for grading. Credit might be reduced for unprofessional work.

Participation

An important part of the classroom learning experience involves thoughtful critique of the materials to be discussed in class. Consequently, you should come to class fully prepared to contribute actively.

Grading

Your course grade will be determined in the following way:

First Exam (Individual)	15%
Second Exam (Individual)	15%
Final Exam (Group)	30%
Group Assignments	<u>40%</u>
	100%

Final course letter grades are assigned to numerical scores on the following basis:

A = 90 and above
B = 80 – 89
C = 70 – 79
D = 60 – 69
F = 59 and below

Policy on Scholastic Dishonesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.

Class Web sites and Student Privacy

Web-based, password-protected class sites are available for all accredited courses taught at The University. Syllabi, handouts, assignments, and other resources are types of information that may be available within these sites. Site activities could include exchanging e-mail, engaging in class discussions and chats, and exchanging files. In addition, class e-mail rosters will be a component of the sites. Students who do not want their names included in these electronic class rosters must restrict their directory information in the Office of the Registrar, Main Building, Room 1. For information on restricting directory information see:

<http://www.utexas.edu/student/registrar/catalogs/gi0001/app/appc09.html>.

Students with Disabilities

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.