MGS 411
Introduction to Management
Science
Dr. Jorge L. Romeu

Hybrid Course
ANGEL Online & On Campus
Tues/Thu. 2:00-4:00 PM
Fall 2012

Course Description:

A broad range of quantitative techniques and their applications in business are included in this course. Microcomputers and SW are used extensively. The topics include cost-volume-profit analysis, linear programming, graphical approach, transportation method, probability concepts and applications, inventory, queues and production models.

Credit Hours: 4

Prerequisites:

MAT 111 (or MAT 112) and STA 100 (Statistical Methods) or equivalents. You must have already finished **both** of these courses **prior to** this semester

Office Hours and Contact Information:

Instructor: Dr. Jorge L. Romeu
Office: Donovan 1265
Office Hours: Tues/Thus: 4 – 5 PM
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Required Text and Materials:

* *Course handouts*
* *Textbook:* Anderson, Sweeney, and Williams. *An Introduction to Management Science - Quantitative Approaches to Decision Making*, West Publishing Company, 12th Edition (2005). ISBN: 0-324-64971-1

Course Objectives and Learning Outcomes:

This course is an introduction to scientific approaches to management decision making based on quantitative analysis. The objective of this course is to acquaint you with mathematical modeling techniques in management planning and problem solving. The course emphasizes application of quantitative modeling to all various functional areas of management. Computer-based exercises and cases are extensively used throughout the course. At the end of the course, students should:

Be able to:	Assessed by:
identify and define Key managerial problems;	Identifying the type of LP problem
determine the set of alternative management solutions;	Implementing the correct LP algorithm
determine criteria that are used to evaluate alternatives;	Identify if maximization/minimization
determine the variables that represent the criteria;	Define the problem decision variables
evaluate alternatives graphically and by computer;	Use graphs or Lingo/Excel Solver SW
use LP models to compare managerial decisions;	Sensitivity analysis and its applications

Methods of Instruction:

This is a HYBRID course, taught as a mix of class lectures, Angel PPTs, and tutorials, interactive problem solving, and computer demonstrations. The problems illustrate real-world applications in diverse areas and provide opportunities for the creative application of decision science to unstructured management problems. Course assignments and examinations emphasize the understanding of concepts and aim to develop proficiency in translating management-oriented problems into the proper scientific modeling format. The computer exercises familiarize students with the types of computational facilities that are available for PC-based management analysis options.

The Role of the Computer:

In this class, we make extensive use of the state-of-the-art facilities provided in the various computer centers on campus. Several workshops which provide students hands-on experience of computer applications will be held in a computer center throughout the course. Course assignments require use of specific software packages covered in the course.

Student's Preparation and Contribution:

Students enrolling for MGS 411 are expected to have successfully completed the prerequisite courses. Each student is expected to be well prepared for class by completing all assigned readings and exercises. Active participation in class discussion is encouraged and is viewed as essential for clarifying difficult concepts. By its nature, proficiencies in management decision-making modeling can be attained only through extensive practice with problems and cases. The assigned problems in class and exercise problems in the textbook are good sources to develop conceptual understanding as well as computational and computer skills. Students are required to work in Groups, assigned by the Instructor.

Examination and Quiz Policy:

There are two examinations – one mid-term exam and one final exam. Furthermore, short in-class quizzes are given periodically throughout the course to ensure the learning quality and provide feedback on how well you have mastered the analytical techniques. Quizzes are not repeated. The worst quiz (or an absence) is dropped.

Grading:

Student evaluation is based on his/her performance of the following:

- participation (10%) –individual and group work
- weekly quizzes (30%) – no quiz make-ups; drop the worst quiz
- mid-term examination (30%) – two part (in class and group Take Home)
- final examination (30%) – two part (in class and group Take Home)

      Total 100%

A minimum of C grade or better is required to fulfill the business core course degree requirement.

Code of Conduct & Course Honor Principle:

Students are expected and encouraged to discuss readings, case materials, and the concepts covered by the course with each other. However, all written work – homework, computer assignments, quizzes, and examinations – must be the work of the individual student submitting it. Academic dishonesty (such as cheating or plagiarism) will not be tolerated. Students who violate this principle will be penalized according to the university regulations.

The final grade for this course will be base upon the following percentages:

Grade	Percent (rounded to the closest integer)
A+	98 and above
A	92-97
A-	90-91
B+	88-89
B	82-87
B-	80-81
C+	78-79
C	72-77
C-	70-71
D+	68-69
D	60-67
F	Below 60

Important Notice – Please note that all core courses in the School of Business require a "C" or better

Tentative Course Schedule and Its Content:

Week	Topic	Date - F-2012
1	Introduction to Management Science: Ch. 1	Aug. 28 - 30
2	Intro to Graphical LP – Ch, 2	Sep. 4 - 6
3	Applications of LP – Ch. 2	Sep. 11 - 13
4	Sensitivity Analysis – Ch. 3	Sep. 18 - 20
5	Applications in Oper. Mgmt.– Ch. 4	Sep. 25 - 27
6	Advanced Case Studies – Ch. 4	Oct. 2 - 4
7	Columbus Break/Take Home Exam	Oct. 9 – 11
8	Review / Midterm Exam	Oct 16 - 18
9	Transportation and Assignment – Ch. 6	Oct. 23 - 25
10	Network Problems – Ch.6	Oct. 30 Nov. 1
11	Integer/Branch&Bound – Ch. 7	Nov. 6 - 8
12	Binary Progr./Goal Progr. Chs. 7&14	Nov. 13 - 15
13	Applic. Goal & Non Linear Progr. Ch. 8	Nov. 20/Thanksgivings
14	Inventory Models – Ch. 10	Nov. 27 - 29
15	Waiting Line Models – Ch. 11	Dec. 4 - 6
16	Final Exam	Dec. 11

Interdisciplinary Skills:

Skills	Required Work Other Than Exams
Oral Communication	Yes
Written Communication	Yes
Critical Thinking	Yes