

Texas A & M University - Texarkana
MGT 575 Management Science
Course Syllabus
Summer 2010

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Office Hours: Monday 1:00 – 3:30 pm
Wednesday 9:00 – 11:00 a.m.

Classroom Location and Meeting Times: Red River Army Depot, Wednesday 5:30 – 9:30 p.m.

Catalog Description: This course will introduce a variety of quantitative techniques for management decision-making problems. The emphasis will be placed on how to formulate a real world problem into an appropriate mathematical model, and how to derive a solution to the established model. The course focuses on linear deterministic models and requires hands-on use of some computer software packages.

Textbook: *Spreadsheet Modeling and Decision Analysis: A Practical Introduction to Management Science, 5th Edition*, Cliff Ragsdale, Thomson South-Western, 2007, ISBN: 0-324-65664-5. Retail price: \$228.95. You can purchase the textbook chapters covered this term on line at <http://www.cengagebrain.com/t1/en/US/storefront/US?cmd=catProductDetail&ISBN=978-0-324-65663-3>. Each chapter costs \$11.49 and can be downloaded at any time during the course.

Purpose of Course: Decision-makers operate in an uncertain world in that they must make a decision and then observe the outcome of that decision. A model—a simplified representation of a situation—helps a decision-maker analyze a problem and develop a plan for solving it. Once a decision is made, a favorable outcome depends on circumstances that usually lie beyond the decision-maker’s control.

The primary purpose of this course is to introduce you to mathematical models that give insight into solving practical business problems. These models include linear programming models, integer programming models, network models, waiting lines, simulation, time series forecasts, and decision analysis. Examples are chosen from various business areas such as production and operations management, inventory control, employee scheduling, capital budgeting, waiting lines, and transportation. The emphasis is on model formulation in a spreadsheet environment (Microsoft Excel) and the interpretation of results rather than on the mathematical algorithms used to solve these models.

The types of models available to a decision-maker depend on how he decides to handle the uncertainty inherent in every decision situation. The first part of this course covers deterministic models in which uncertainty is temporarily ignored to facilitate solving the models. Once the decision-maker is satisfied that a model adequately captures his decision situation, he manipulates the model’s parameters by carrying out “what if” or scenario analyses. Topics covered in this part of the course include linear programming, network modeling, and integer linear programming.

The second part of the course covers probabilistic models in which uncertainty is characterized by probability distributions. The decision-maker will apply a model to determine

the most likely outcome of a decision. Topics covered in this part of the course include simulation, queuing theory, and decision analysis.

Course Objectives: The learning objectives of this course are to develop quantitative skills needed to perform analyses of business situations. At the end of this course, you should be able to:

- a. Solve real world optimization problems using spreadsheets, and then explore the effects that changes to the input parameters have on the solutions prescribed by the models.
- b. Construct decision trees and simulation models in spreadsheets, and then analyze the risks inherent in the modeled business situation.
- c. Determine which models are appropriate to use in a given business situation.
- d. Create spreadsheet models that are accurate, easy to use, simple to understand, and suitable for others to use.

Graduate Degree Program Goals:

MBA Program Goals

Learning Goal 1: Our graduates will be competent in the broad business disciplines that underlie the MBA degree.

Learning Goal 2: Our graduates will demonstrate critical thinking skills.

Learning Goal 3: Our graduates will be able to communicate effectively in writing and in front of a group.

Learning Goal 4: Our graduates will be competent in the use of analytical tools via business software tools.

Learning Goal 5: Our graduates will be able to properly integrate business disciplines in developing holistic, multi-functional solutions.

Learning Goal 6: Our graduates will be able to correctly analyze financial statements.

MSBA Program Goals

Learning Goal 1: Our graduates will be competent in the broad business disciplines that underlie the BBA degree.

Learning Goal 2: Our graduates will demonstrate critical thinking skills.

Learning Goal 3: Our graduates will be able to communicate effectively in writing and in front of a group.

Learning Goal 4: Our graduates will be competent in the use of analytical tools via business software tools.

Learning Goal 5: Our graduates will be able to properly integrate business disciplines in developing holistic, multi-functional solutions.

Evaluation:

Homework. The majority of the homework assignments require the use of Microsoft Excel. These homework assignments give you hands-on practice building spreadsheet models. Homework problems cannot be turned in late but will be accepted early. If you don't attend class, you are required to submit your own homework; the homework must be your own work and not copied from someone else.

Examinations. There will be three in-class exams with the last exam given the final week. Usually, two hours will be available for each. These may not be taken early or late.

A student's final course grade will depend upon her or his performance on the following required items.

Homework Assignments	30%
2 Exams	70%

Letter grades for the class will be assigned based on the overall final average. The following scale will be used

Average	Course Grade
90 or greater	A
80 or greater	B
70 or greater	C
60 or greater	D
less than 60	F

*These letter grades may be altered upward (i.e., **grades raised**) at the end of the term. This revision will be based on a consideration of the average separating a low "A" from a high "B", a low "B" from a high "C", and so on.*

Grades on the required items will be used to determine the final grade for the course. No additional work or repeated work for *extra credit or grade improvement* will be considered.

Tentative Schedule:

Week	Date	Assignment
1	6/2/2010	Excel Review
2	6/9/2010	Ch 1 & 2
3	6/16/2010	Ch 3 Part 1
4	6/23/2010	Ch 3 Part 2
5	6/30/2010	Ch 4
6	7/7/2010	Exam 1
7	7/14/2010	Ch 9
8	7/21/2010	Ch 9 /Ch12
9	7/28/2010	Ch 12
10	8/4/2010	Exam 2

Academic Integrity: Academic honesty is expected of students enrolled in this course. Cheating on examinations, unauthorized collaboration, falsification of research data, plagiarism, and undocumented use of materials from any source, constitute academic dishonesty, and may be grounds for a grade of "F" in the course and/or disciplinary actions." For additional information see the university policy manual.

Disability Accommodations: Students with disabilities may request reasonable accommodations through the A&M-Texarkana Disability Services Office by calling 903-223-3062.