

Texas A & M University - Texarkana
MGT 575 Management Science
Course Syllabus
Fall 2012

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Office Hours: Tuesday 9:00 – 11:30 a.m., 1:00 – 3:30 p.m.
Wednesday 1:00 – 3:30 p.m.
Thursday 9:00 – 11:30 a.m.

Classroom Location and Meeting Times: Thur. 6:00 – 8:45 p.m. University Center room 242

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, 6th Edition*, Cliff Ragsdale, Thomson South-Western, 2011, ISBN-13: 978-0-538-74631-1 or ISBN-10: 0-538-74631-9.

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 a 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: At the completion of your degree TAMU-T graduate students should be proficient in several areas. You can access these goals at: www.tamut.edu/cob.

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	Topic
1	8/30/12	Excel Review	
2	9/6/12	Ch 1 & 2	Linear Programming
3	9/13/12	Ch 3 Part 1	Linear Programming
4	9/20/12	Ch 3 Part 2	Linear Programming
5	9/27/12	Ch 3 Part 3	Linear Programming
6	10/4/12	Ch 4	Linear Programming
7	10/11/12	Exam 1	---
8	10/18/12	Ch 9	Simple Regression
9	10/25/12	Ch 9	Multiple Regression
10	11/1/12	Ch 11	Forecasting
11	11/8/12	Ch 11	Forecasting
12	11/15/12	Ch 12	Simulation
13	11/22/12	Thanksgiving	---
14	11/29/12	Ch 12	Simulation
15	12/6/12	Review	---
16	12/13/12	Exam 2	---

Email Accounts: Upon application to Texas A&M University-Texarkana an individual will be assigned an A&M-Texarkana email account. This email account will be used to deliver official university correspondence. Each individual is responsible for information sent and received via the university email account and is expected to check the official A&M-Texarkana email account on a frequent and consistent basis. Faculty and students are required to utilize the university email account when communicating about coursework.

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.

University Drop Policy: To drop this course after the census date (see [semester calendar](#)), a student must complete the Drop/Withdrawal Request Form, located on the University website

<http://tamut.edu/Registrar/droppingwithdrawing-from-classes.html>) or obtained in the Registrar's Office. The student must submit the signed and completed form to the instructor of each course indicated on the form to be dropped for his/her signature. The signature is not an "approval" to drop, but rather confirmation that the student has discussed the drop/withdrawal with the faculty member. The form must be submitted to the Registrar's office for processing in person, email Registrar@tamut.edu, mail (7101 University Ave., Texarkana, TX 75503) or fax (903-223-3140). Drop/withdraw forms missing any of the required information will not be accepted by the Registrar's Office for processing. It is the student's responsibility to ensure that the form is completed properly before submission. If a student stops participating in class (attending and submitting assignments) but does not complete and submit the drop/withdrawal form, a final grade based on work completed as outlined in the syllabus will be assigned.