



MGS 8150 - Business Modeling Spring 2011 Course Syllabus

Class CRN: 12731, MGS8150, Section: 005

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Classroom: Sparks Hall 300

Meeting time: 7:15 – 9:45PM, Wednesday

Class Website: myRobinson

(Note: E-mail is the best form of contact; please start subject with "MGT 8150")

Course Overview

This course covers the development, implementation, and utilization of business models for managerial decision making. Various techniques for analytical modeling, such as forecasting, optimization, simulation, decision analysis, and classification, are discussed. Students gain mastery in developing complex financial models implemented in decision support systems that cover applications in strategic planning, financial management, operations/project management, and marketing research. These topics are covered in the context of emerging information technology architecture

Prerequisites:

MGS 8020. Business Intelligence

CSP: 1, 2, 3, 4, 5, 6.

You must meet these prerequisites and the course will be taught assuming you have sound background in those topics.

Computer Skills:

Sound skills with Excel Spreadsheet are needed for this class;

You are highly expected to bring a laptop with Excel software installed to each meeting.

Text:

Spreadsheet Modeling and Applications: Essentials of Practical Management Science, 1st Ed., South-Western College Pub, 2004 (ISBN-10: 0534380328, ISBN-13: 978-0534380328)

Cognitive Objectives:

To receive a grade of "A", you should develop theoretical knowledge, modeling know-how, and computer skills and be able to:

- Understand and explain in your own words ways in which model-based support systems are needed and can be utilized in managerial decision processes.

- Explain how and why modeling is used in the support system environment.
- Identify and differentiate different model components.
- Understand and explain the modeling process AND be able to apply it in a variety of different situations.
- Compare and contrast different decision structuring techniques and to use these techniques to analyze various situations.
- Evaluate models applying good modeling and validation techniques.
- Implement model-based DSS using Excel and some other software packages.
- Develop and demonstrate presentation skills and be able to post reports on the web.
- Develop and demonstrate group skills: leadership and group management.
- Use Internet (e.g., Web) and its tools to access necessary information for model development.

General Course Objectives:

To demonstrate the application of models in support of decision making in an enterprise, using some of the most commonly used modeling approaches and principles. Upon completion of the course, the student should:

- Demonstrate competence in analysis/development of some common models analytically
- Demonstrate competence in analysis/development of some common models graphically
- Demonstrate competence in using a spreadsheet for analysis
- Interpret model results in the context of the business situation and explain in plain language

Attendance/Class Participation/Homework:

Your class participation grade will be based on attendance only. All homework assignments will be reviewed in class, but homework will not be collected. You are expected to attend classes. Class attendance will be taken in the beginning of class. If you do miss a class, you are responsible for obtaining notes and remaining current. It is not possible to repeat lectures for students missing class. Two "free" absence is allowed. There are no "excused absences."

Late students are responsible for signing the class roll before leaving. Otherwise, you will be considered absent. Excessively late students and students leaving early will be penalized. If you arrive late, it is **your** responsibility to remember to sign the roll before you leave.

All pagers and cell phones should be turned off or muted during class.

Course Policies:

- All projects and assignments are subject to grade penalty if not turned in at the beginning of class on the due date.
- The internet will be used extensively for communications throughout the semester. You are expected to become proficient using e-mail and web-publishing skills. It will be your responsibility to read your mail on a regular basis. The three-fold purpose is to familiarize you with online capabilities, to facilitate communication with other class members and me, and to reduce paper usage in a green manner.
- Class attendance is expected and a necessary component of class participation.
- Assignments remain due on the designated date regardless of class attendance. This is a project-oriented class using various computer application programs, which require significant time commitment.

Grading

Details will be made available in class and the course site. You are expected to make your reports available on your website on the due date.

Group Projects	20%
Exam 1	20%
Exam 2	20%
Final Project (individual)	30%
Class Participation	10%

The grading scale for this class is as follows: A+: 97-100; A: 94-96; A-: 90-93.9; B+: 86-89.9; B: 82-85.9; B-: 78-81.9; C+: 74-77.9; C: 70-73.9; C-: 66- 69.9; D: 60.0 - 65.9; F:< 60.0

Professional and personal circumstances that preclude you from performing at satisfactory levels will not be considered in the determination of the course grade. The effect of your grade on overall GPA, eligibility for graduation, loss of scholarship, loss of a United States resident card, placement on academic probation, etc., are *not* considered in the determination of your grade. There are no extra credit assignments. Individual requests for alternative ways to improve your course grade will not be considered.

Honor Code:

Plagiarism in any form is not acceptable. While discussion with classmates regarding homework and projects is encouraged, all work submitted must be your own. Evidence of plagiarism on an assignment/exam will result in a failing grade for that assignment/exam.

Examinations:

Tests will be administered in class according to the attached schedule. Tests may be a mixture of multiple choice and calculation problems. Class tests and the common final will test both your understanding of concepts and problem solving ability, and will also include questions about the use of Excel to solve problems in this course.

For in-class exam, you will need to bring a basic calculator (with a square root button!) and *one* 8.5"x11" page of notes (two-sided). Students are required to provide their own pencils and scratch paper. All material needed for the exam will be covered in class. All students are required to take the exam.

Individual Student Projects:

Individual class projects will be discussed in class. These are *not* group projects! Projects are to be submitted on paper by each student by the designated date, including data output and formulas. No diskettes will be accepted, as they are easily misplaced and damaged. *Late projects will be penalized at a rate of 5% per calendar day.* In addition, once the deadline has passed, no further feedback will be given. Use the "fit to one page" option to print your output on 8.5x11" sheets. No report covers, please! Students submitting spreadsheets that are not unique will receive **a zero grade** for the project! You may discuss projects with your classmates, but the work you turn in **must be your own!**

PowerPoint Slides:

Copies of the PowerPoint slides for this course can be found on the website of this course at myRobinson. To minimize note taking, you should print the slides for each class in advance and bring them to class.

**A Tentative Schedule (deviations may be necessary)
Supplementary assignments will be added as the course progresses.**

Date (Tuesday)	Topic	Detailed Outline	Chapter	Notes
1. Jan. 12	Introduction to Modeling	Course introduction and overview; The Seven-Step Modeling Process	Syllabus 1	
2. Jan. 19	Spreadsheet Techniques	Effective use of spreadsheets for modeling; Review of key Excel functions; Ordering with Quantity Discounts and Demand Uncertainty; Decisions Involving the Time Value of Money	2	Group Project is posted
3. Jan. 26	Introduction to Optimization Modeling	Introduction to Optimization; A Two-Variable Model Sensitivity Analysis A Product Mix Model	3	Team is established for group project
4. Feb. 2	Exam 1			Taking Home Exam
5. Feb. 9	Linear Programming Models	Go over Exam; Advertising Models Static Workforce Scheduling Models Aggregate Planning Models Blending Models Production Process Models Financial Models	4	
6. Feb. 16	Network Models	Transportation Models Assignment Models Minimum Cost Network Flow Models Shortest Path Models Project Scheduling Models	5	
7. Feb. 23	Nonlinear Optimization Models	Basic Ideas of Nonlinear Optimization Pricing Models Advertising Response and Selection Models Facility Location Models Models for Rating Sports Teams Portfolio Optimization Models	7	Last day to withdraw Feb. 25
8. Mar. 2	Spring Break	No Class		Spring Break, Feb. 28- Mar. 6
9. Mar. 9	Decision Making Under Uncertainty	Elements of a Decision Analysis The PrecisionTree Add-In Decision making under risk; Expected value;	8	
10. Mar. 16	Decision Making Under Uncertainty	Expected value of perfect information; Multistage Decision Problems Incorporating Attitudes Toward Risk	8	
11. Mar. 23	Introduction to Simulation Modeling	Real Applications of Simulation Probability Distributions for Input Variables Simulation with Built-In Excel Tools The Effects of Input Distributions on Results	9	
12. Mar. 30	Simulation Models	Operations Models Financial Models Marketing Models	10	Appendix: Creating Histograms with Excel Tools
13. Apr. 6	Exam 2			
14. Apr. 13	Regression Models	Go over Exam; Overview of Regression Models Simple Regression Models Multiple Regression Models	12	
15. Apr. 20	Forecasting Models	Overview of Time Series Models Moving Averages Models Exponential Smoothing Models	12	
16. Apr. 27	Final Project	Hep Session on the Project	Time: 7:15-9:30pm	Sparks Hall 300