THE UNIVERSITY OF TEXAS AT AUSTIN
TEXAS EXECUTIVE MBA – DALLAS

BA 386T **Fall 2009**

COURSE INFORMATION FOR THE DECISION ANALYSIS PORTION OF THE COURSE

Instructor

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Overview

This course will focus on the tools and methods that may be used to support risky decision making. This material divides naturally into two areas: statistics and decision analysis. Professor Damian was primarily responsible for the class sessions on statistics, which covered such topics as the basic concepts of probability, linear regression models and forecasting. Professor Dyer will be primarily responsible for the class sessions on decision analysis, which will cover such topics as Monte Carlo simulation and the use of decision trees to choose among alternatives in a risky environment.

Required Materials:

Data Analysis & Decision Making with Microsoft Excel by Albright, Winston and Zappe
Course notebook that includes relevant cases, summary notes, class notes and old exams

Class Web Page for Jim Dyer:

https://courses.utexas.edu/webapps/login/?action=portal_direct_entry which is also known as Blackboard and sign in with your UT identification information

Grading:	Homework for Jim Dyer's portion of the class	20%
	Jim Dyer's exam	30%

1. Homework

   (a) You will receive homework assignments throughout the semester, and some will be individual assignments while others will be study group assignments. When preparing an individual assignment you may discuss the homework problems and solutions among yourselves, but every student is expected to hand in a set of solutions that he or she alone has prepared.

   (b) You must show a complete solution (all steps and calculations) to receive credit for a homework problem. Only relevant and clearly labeled computer output should be handed in.

2. Exams: Jim Dyer's exam will be given on the weekend of December 4-5.

3. Helpful Hints: You are responsible for material covered in class, whether or not it is in the text.

4. Honor Code

   (a) We have no tolerance for acts of scholastic dishonesty. The responsibilities for both students and faculty with regard to the Honor System are described in the Texas Executive MBA Student Handbook. By teaching this course, we observe the entire faculty responsibilities described in the Student Handbook. By enrolling in this class, you have agreed to observe all the student responsibilities described in that document. If the application of the Honor System to this class and its assignments is unclear in any way, it is your responsibility to ask us for clarification.

   (b) You may not use the homework answers of students in previous classes in any way to assist you in completing the homework questions this year. It is a violation of the honor code in this class to use such assistance.

Objectives and topics

Objectives

The decision analysis portion of the course is designed for manager-users of modeling tools that support risky decision making rather than the technical specialist. Therefore, the emphasis throughout the course will be model formulation, solution methods, and managerial interpretation of the results, rather than on the mathematical algorithms.

Instructional Methods

The materials for the decision analysis portion of the course are a combination of text readings together with accompanying problems and short cases. In class, there will be some lectures, a lot of discussion for clarification, and case discussions. Study groups should be used for effective preparation for all sessions, but particularly for case preparation. However, each student should turn in his or her own solution for the individual assignments.

Topics and Reading Assignments

10/16-10/17 Session: Monte Carlo simulation

Time: (4 hours)

Learning Outcomes:

- Understand the basic concepts of Monte Carlo simulation using computer programs, including the ideas of random number generation

Topics/Agenda:

1. Simulation as a means of evaluating risk
2. Introduction to @Risk software

Required reading:

- Albright, Winston, and Zappe, Data Analysis and Decision Making, Ch. 16, Sections 16.5 and 16.6

Recommended practice problems:

1. Albright, Winston, and Zappe, Ch. 16: 19, 20, 29, 32

Assignment(s) due:

1. Install the @Risk add-in that accompanies the text. See the file INSTALL.HTM on the CD-ROM for instructions.

10/30-10/31 Session: Assessing risks with simulation models

Time: (4 hours)

Learning Outcomes:

- Develop the ability to use an add-in simulation software program to evaluate risks in the context of EXCEL spreadsheets
- Develop an understanding of the use simulation as tool to evaluate the risks associated with real-world projects

Topics/Agenda:

1. Developing spreadsheet simulation models using @RISK

Required reading:

- Albright, Winston, and Zappe, Data Analysis and Decision Making, Ch. 17, Sections 17.1, 17.2, 17.3, 17.4
- Case to be determined. *A hardcopy of this material is provided to you*.

Recommended practice problems:

1. Albright, Winston, and Zappe, Ch. 17: 31, 34, 38, 39

Assignment:

1. Case Study. *Individual assignment to be turned in for a grade.*

11/13-11/14 Session: Introduction to risk analysis and decision trees

Time: (4 hours)

Learning Outcomes:

- Develop a skill in decomposing and structuring risky problems
- Provide an understanding of the use of decision and risk analysis for the evaluation of real world projects and opportunities
- Develop a skill in using PrecisionTree for evaluating risky decisions

Topics/Agenda:

1. Decision trees as a means of structuring risky problems
2. Applications of decision trees to real world problems

Required reading & preparation:

- Albright, Winston, and Zappe, Data Analysis and Decision Making, Ch. 7, Sections 7.1-7.3
- Freemark Abbey Winery. *A hardcopy of this material is provided to you.*
- GPC's New Product Decision. *A hardcopy of this material is provided to you.*
- Case study to be determined. *A hardcopy of this material is provided to you.*

Recommended practice problems:

1. Albright, Winston, and Zappe, Ch. 7: 35, 37, 38, 64

Assignment(s) due:

1. Freemark Abbey Winery: Read the case prior to class. Be prepared to discuss your recommendations to Mr. Jaeger. Develop a simple decision tree to support your analysis, either by hand or with the use of PrecisionTree.

2. GPC's New Product Decision. Develop a decision tree analysis of the three alternative products that could be selected for development by GPC, either by hand or with the use of PrecisionTree. Be prepared to discuss your analysis and your recommendations in class.
3. Install the PrecisionTree add-in that accompanies the text. See the file INSTALL.HTM on the CD-ROM for instructions.
4. Birch Resources (A): *Group assignment to be turned in for a grade.*

11/20-11/21 Session: Perfect and imperfect information
Time: (4 hours)

Learning Outcomes:
- Ability to determine when it is worthwhile to obtain information, and how much that information is worth
- An understanding of the concept of subjective probabilities, and the methods that are useful in assessing them

Topics/Agenda:
1. The value of perfect information
2. The value of imperfect information

Required reading:
- Albright, Winston, and Zappe, Data Analysis and Decision Making, Ch. 7, Sections 7.4 and 7.5
- Integrated Siting Systems, Inc.. *A hardcopy of this material is provided to you.*
- Case study to be determined. *A hardcopy of this material is provided to you.*

Recommended practice problems:
1. Albright, Winston and Zappe, Ch. 7: 49, 50, 52, 56, 79

Assignment(s) due:
1. Case study. *Individual assignment to be turned in for a grade.*
2. Integrated Siting Systems, Inc. Prepare an analysis of the alternative ways that ISSI can implement a system to meet their contract obligations, and make a recommendation. What is the value of the information that is provided by the test that is available? You might consider performing some sensitivity analysis on some of the key problem parameters.

12/12-12/13 Session: Review and final examination
Time: (4 hours)

Learning Outcomes:
- Review of materials covered in class and final examination

Topics/Agenda:
1. *Final examination.*

Assignment(s) due: Case study to be determined: *Group assignment to be turned in for a grade.*