



## Executive Education, Project Management

*Online Business Core 2007 – 2008*



### **OPRE 6301 Quantitative Introduction to Risk and Uncertainty**

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**Course Duration** February 12 – May 11

### **I. Course Description**

The purpose of this course is not to make you a statistician. Rather it is to make you sufficiently knowledgeable about the basics of statistics so that you are not intimidated by statistical analysis. However, statistics is very much a subject that you learn by doing so that you will be required to actually perform analysis. The choices of subject areas are those that almost all managers will encounter at some point in their careers.

### **II. Resources**

**Text:**

Statistics for Management and Economics, 7<sup>th</sup> Edition, by G. Keller and B. Thomson  
Brooks/Cole. 2005.



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You need access to a Statistical Package on a Computer. e.g. Microsoft Data Analysis toolpak (Add-in supplied with EXCEL) of MINITAB, SAS, SPSS, etc.) The instructor will illustrate with EXCEL.

An optional course CD with lecture contents is provided.

### III. Grading basis

Your grade will be based solely on three take-home examinations (33% each) given when you finish each module. The exams should be written in report form with graphs, computer output, etc. used to support your answer to the questions. They may be submitted electronically if they are self-contained and readable sequentially. The release dates and due dates for the exams will be posted. All exams must be submitted before the last day of class.

### GRADE EQUIVALENTS

#### Scaled Score Letter Equivalent

94-100	—————→	A
87-93	—————→	B
75-86	—————→	C

### IV. COURSE OUTLINE

You are responsible for the material covered in the sessions, a portion of which is not in the textbook.

#### MODULE 1: Descriptive Statistics

Chapter 1; Appendix 1B  
Chapter 5  
Chapter 2  
Chapter 3  
Chapter 4 [Add "t" and "z"]  
Chapter 17; 17.1 – 17.7  
Chapter 18; 18.1 – 18.3  
Chapter 19



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### **MODULE 2: Probability and Random Variables**

Chapter 6 [Add Bayes Theorem; Basic Portfolio Analysis]  
Chapter 7 [Add Poisson Approximation to the Binomial]  
Chapter 8: 8.2 – 8.3 [Add Normal Approximation to the Poisson]  
[Add simulation of random variables using the computer]  
Chapter 23 [Add Risk Criteria; Decision Simulation]

### **MODULE 3: Statistical Inference**

Textbook Chapters:

Chapter 9  
Chapter 11: 11.1 – 11.3  
Chapter 10  
Chapter 12: 12.1, 12.3 – 12.5  
Chapter 13: 13.1 – 13.3  
Chapter 15: 15.1, 15.6  
Chapter 16: 16.1 – 16.3

#### V. Course Objectives

- 1) **Be able to organize and summarize raw data**
- 2) **Be able to build and evaluate a regression model from raw data**
- 3) **Be able to apply the basic rules of Probability Theory**
- 4) **Be able to apply the concept of a random variable to solve business problems**
- 5) **Be able to apply the Normal, Poisson, and Binomial Distributions to solve business Problems**
- 6) **Be able to simulate data from the Normal, Poisson, and Binomial Distributions**
- 7) **Be able to identify significant changes in averages and proportions**
- 8) **Be able to determine if two populations have the same mean or the same proportion**
- 9) **Be able to determine if several populations have the same mean**



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### CLASS SCHEDULE

SESSION	DATE	ACTIVITY/ASSIGNMENT
1	Feb 12	Lecture 1 and 2
	Feb 19	Lecture 3
	Feb 26	Lecture 4, Part 1
	March 5	Lecture 4 Part 2
	March 5	Exam 1 – Released.
	March 12, Monday	<b>Teleconference</b>
2	March 12	Lecture 1
	March 18	<b>Exam 1 Due.</b>
	March 19	Lecture 2
	March 26	Lecture 3
	April 2	Lecture 4
	April 2	Exam 2 – Released
	April 9, Monday	<b>Teleconference</b>
3	April 9	Lecture 1
	April 15	<b>Exam 2 Due</b>
	April 16	Lecture 2
	April 23	Lecture 3
	April 30	Lecture 4
	April 30	Exam 3 – Released
	May 7, Monday	<b>Teleconference</b>
	May 14	<b>Exam 3 - Due</b>



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### Teleconference Schedule

Date	Time	Meeting ID	To Discuss
March 12, Monday	5:30 – 6:30 PM	7622	Module 1
April 9, Monday	5:30 – 6:30 PM	7622	Module 2
May 7, Monday	5:30 – 6:30 PM	7622	Module 3

### UTD Policy on Cheating

Students are expected to be above reproach in all scholastic activities. Students who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the university. "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." Regents' Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22.