Professor	Paul Damien
Office	CBA 5.242
Office Hours	**Mon/Wed** 11:30 a.m. to 1:00
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Course Web Page	Blackboard
Teaching Assistants	Will Announce in Class
TA Office Hours	**Tue/Thu** 2:00 to 3:30

Course Objectives

This course introduces the concepts of mathematics and statistics with an emphasis on applying them to business problems. By the end of the term you will learn to make rational decisions in a variety of business contexts using quantitative notions.

Leadership and this Course

A noteworthy quality of leadership is the ability to ratiocinate quantitatively and qualitatively. This course targets this aspect of leadership.

Materials

Text: Data Analysis and Decision Making with Microsoft Excel, by Albright, Winston, Zappe. *Custom Edition for UT-Austin* ISBN: 9781133437604

***Data*:** All the data files needed for the class will be posted on BB. In the event there's an omission, you should be able to access the file using the instructions in your textbook. Please note that the file names which appear on the PPT slides are not links; that is, you cannot access the data files from the PPT slides.

***Blackboard*:** All the files will be posted under Course Documents, where separate folders have been created based on file type.

***Software*:** The Decision Tools Suite: Make sure to have this installed. The link where you can access the software can be found here:
http://www.mccombs.utexas.edu/Tech/Computer-Services/COE.aspx

Do NOT install software before Sep 1, since the software expires on August 31.

SWAT (Students With Advanced Technology) Shop

Hours: M–F 8:00am–5:00pm when classes are in session
Location: CBA 1.324
Contact: SwatShop@mccombs.utexas.edu, 232-6616

Course Requirements and Grading

Assignments: Two individual assignments; two team assignments. I will assign teams using a randomized scheme. Due Dates will be announced at least two weeks before they are due.

Tests: There will be two in-class Tests. (**October 17 and December 5**). There is no final exam.

Grade Breakdown: Tests = 30%; Team Assignments = 40%; Individual Assignments = 30%.

The standard McCombs grading policy for courses will be used to determine your final grades. Please note that there is no way I can guess at what your final grade will be until the final assignment has been graded. The overall grade for the course will be determined when I curve the total of all the components that comprise the grade.

NO make-up Tests or Assignments will be entertained. You MUST take the tests in the section in which you are enrolled. NO EXCEPTIONS!!

IN-CLASS QUIZ There will be anywhere from 4 to 6 quizzes throughout the term. You will not be graded on these. They are mainly to ensure that you're following the material in class.

Schedule

PART I: PRELIMINARIES

The topics listed below are ideas you covered in the prerequisite to this course. We will review *some* of these preliminaries. Additionally, you are required to know the material from the prerequisite course, and that are not listed below.

At the end of each chapter, the textbook details functions or options in Excel (or STATTOOLS) you need to know. Additionally, on *Blackboard*, I will post details of certain Excel options as and when needed to help you gain a more solid understanding of the use of the software. In this regard, an Excel Tutorial file has been posted. Please make sure that you practice with commands that you don't know. In particular, practice with the DATA TABLES and IF-THEN illustrations. I will not go over them in class since you are expected to know Excel for the course.

Practice Problems: I have posted practice problems with solutions on BB. Additionally, you should try to work out those examples in the book that we don't cover in class. This will be helpful since you have access to detailed solutions to these examples.

I have also posted a math tutorial file on Logarithms and Exponentials. Please read carefully.

Chapter 2: Sections 2.2 through 2.4: No practice problems

Chapter 3: Section 3.4 No practice problems

Chapter 5: Sections 5.2, 5.3, 5.4 and 5.5

Practice Problems: Example 5.5; 2, 7, 9, 11, 19, 23, 37, 51, 60

Logarithms/Exponentials Math Review Session

PART II: REGRESSION

Chapters 10 will be covered in its entirety.
Chapter 11: Only Section 11.4. The examples in these chapters are the strong point. But the order of presentation might be confusing to some students. Hence, please follow my lecture synopses and you will do just fine.
Practice Problems from Chapter 10: 16, 18, 26, 27, 36, 45, 50
Practice Problems from Chapter 11: 55, 60, 63

Logistic Regression: this chapter appears in the textbook at the end after the Index pages.
Practice Problems with solutions are posted on BB

Detailed computer analysis will be provided in class and/or via *Blackboard.*

PART III: DECISION ANALYSIS AND BASIC SIMULATION MODELS

Class notes will be provided for Decision Analysis
Practice Problems from the PDF file on BB: 37, 38, 79, 82
Chapter 15 will be covered entirely.
No Practice Problems instead we will solve problems in class. That's the best way to learn this material since it is computer intensive.

McCombs Classroom Professionalism Policy

The highest professional standards are expected of all members of the McCombs community. The collective class reputation and the value of the Texas BBA experience hinges on this.

The Texas BBA classroom experience is enhanced when:

- **Students arrive on time.** On time arrival ensures that classes are able to start and finish at the scheduled time. On time arrival shows respect for both fellow students and faculty and it enhances learning by reducing avoidable distractions.
- **Students display their name cards.** This permits fellow students and faculty to learn names.
- **Students attend the class section to which they are registered.** Learning is enhanced when class sizes are optimized. Limits are set to ensure a quality experience. When section hopping takes place some classes become too large and it becomes difficult to contribute. When they are too small, the breadth of experience and opinion suffers.
- **Students respect the views and opinions of their colleagues.** Disagreement and debate are encouraged. Intolerance for the views of others is unacceptable.
- **Laptops use.** ZERO tolerance for web surfing, emailing, etc, during class hours.
- **Phones and wireless devices are turned off.** **ZERO** tolerance for these devices in class. After the 2nd warning, you will lose 15 points off of your test scores. Usually that translates to a drop in the final letter grade.

Academic Dishonesty

Zero tolerance for acts of academic dishonesty. Such acts damage the reputation of the school and the degree and demean the honest efforts of the majority of students. The minimum penalty for an act of academic dishonesty will be a zero for that assignment or exam.

Students with Disabilities

Upon request, the University of Texas at Austin provides appropriate academic accommodations for qualified students with disabilities. Services for Students with Disabilities (SSD) is housed in the Office of the Dean of Students, located on the fourth floor of the Student Services Building. Information on how to register, downloadable forms, including guidelines for documentation, accommodation request letters, and releases of information are available online at http://deanofstudents.utexas.edu/ssd/index.php. Please do not hesitate to contact SSD at (512) 471-6259, VP: (512) 232-2937 or via e-mail if you have any questions.

LECTURES

Even though I have included weeks in the following, note that it is impossible to anticipate where each lecture would end. Hence sometimes the topics in a given week might wind up being covered earlier or later, as the case may be. But the sequence of the topics given below will be followed faithfully and should therefore help you read ahead of the lecture.

Week 1 Chapter 2.2 through 2.4; Chapter 3.4

- Five features of Decision-Making; Types of Data, Types of Graphs, Measures of Central Tendency; Variability; Relative Standing; Covariance and Correlation
- DATA SET on BB: Movie Star Salaries
- STATTOOLS: Create a stattools data set and learn to use it to produce graphs and statistical summaries.

Week 2 Chapter 5.2 and 5.3

- Normal Distribution; Z-score; Finding area (or probability) and finding percentile.
- Examples in class: Examples 5.2, 5.3, and 5.5
- EXCEL FUNCTIONS: NORMDIST(x, mean, SD, 1) gives the probability up to and including the point x.
- NORMINV(probability; mean, SD) gives the value of the percentile corresponding to the "probability" that you specify.
- QUIZ 1

Week 3 Chapters 5.4 and 5.5

- Binomial Distribution; finding probabilities and finding percentiles
- Examples in class: Example 5.7, 5.9, 5.10
- EXCEL FUNCTIONS: Binomdist(x=k successes, NTrials, Psuccess, 0) ; Binomdist(x <= k successes, NTrials, Psuccess, 1)
- CRITBINOM(NTrials, PSuccess, probability) gives you the percentile value corresponding to the "probability" you specify.
- Language: "No more than", "Less than or equal to", "At most" all mean the same.
- "No less than", "Greater than or equal to", "At least" all mean the same.
- Between X1 (inclusive) and X2 (inclusive) means X1 <= k successes <= X2. In English, you have at least X1 successes and at most X2 successes.

- QUIZ 2

Week 4 Chapter10: REGRESSION

- The textbook covers the topic somewhat differently than the way I like to teach it. So to read ahead of class, please find the following topics in Chapter 10 and read those sections. Be sure to download the following data sets and have them on your laptops.
- DATA SETS on BB: Overhead Costs; Bank Salaries; Cost of Power; Car Sales; Case 10.2
- STATTOOLS: Regression Module
- SUMMARY: See Regression Checklist Word file that provides a quick summary of all the key ideas from Chapters 10 and 11.4.
- Topics: Scatterplots; Correlation; Dependent versus Independent Variables; Simple Linear Regression; Intercept versus Slope; Multiple-R; R-Squared; Standard Error of Regression (aka Standard Error of Estimate); Multiple Regression; p-value; confidence interval; predictions

Week 5 Chapter 10

- Week 4 topics continued + Dummy Variables + Interaction Variables
- CASE 10.2
- QUIZ 3

Week 6 Chapter 10

- Week 5 topics + Log regressions
- QUIZ 4

Week 7 EXAM WEEK

- Review Session + EXAM 1

Week 8 Chapter 10 and 11.4

- Log Regressions
- Multicollinearity

Week 9 Logistic Regressions

- For this topic, please see the very end of the book where I have created a special chapter. Also use the power point slides for this chapter.
- DATA SETS on BB: Diabetes; Forbes; Lasagna; Epidemic
- STATTOOLS Module: Logistic Regression
- Topics: Odds ratios; p-values; prediction; classification matrix
- Practice Problems: See File on BB that has practice problems with solutions.

Week 10 Logistic Regressions

- Week 9 topics continued
- QUIZ 5

Lecture Topics for Decision Analysis

DECISION ANALYSIS FOLDER on BB

- **IMPORTANT**: There is a PDF file for this chapter + a PPT file. In the PDF file, you only have to focus on pages 290 to 300 + the problems that we will discuss in class. See below.
- SOFTWARE: Be sure to have Precision Tree software, which is part of the Decision Suite you downloaded for Stattools. All the Excel files are on BB. Please bring your laptop. It will make it a lot easier to follow the lectures using the software in class.

Week 11

- SCITOOLS DATA + PRECISION TREE DETAILS. Please bring the PDF file (pages 290 to 300) since it contains all the screen shots you need to do Decision Analysis.

- Problem 38 and 82 from the PDF file. Be sure to have the corresponding Excel files from BB. We will carefully replicate Problem 38.

Week 12

- Problem 79 from the PDF file.
- Also, we will use PPT file.

Lecture Topics for Simulation
SIMULATION FOLDER on BB

- See Simulation Handout on BB for all the examples we will do and a summary of the key points from Chapter 15.
- **Please bring your TEXTBOOK for the remaining of the semester** since we will work with problems from it. Make sure you have @RISK software installed which is part of the Decision Suite you have already downloaded. Please see Simulation Folder for lectures and files**.**
- **It would be really helpful to have laptops in class.** Indeed, for Mac Users, see if you can check out a laptop from Media Services that has @RISK on it. Since the last assignment is a team project, you could sit in class next to your teammates, and even if one or two of you have laptops with @RISK you should be able to follow along.

Weeks 13 and 14

- Problems in class: 3, 4, 5, 6, page 938
- We will work through Example 15.3 and Example 15.4.
- Example 15.4 continued and Example 15.5
- Example 15.5 and Example 15.6
- Problem 22 will be solved, page 976. Time permitting we will also do Problem 20, page 968.
- December 3, Review Session for Exam 2

December 5: Exam 2
December 10: Assignment 4 is due in the IROM office no later than 12:00 noon.