

# OPRE 6301: QUANTITATIVE INTRODUCTION TO RISK AND UNCERTAINTY IN BUSINESS

**DR. CAROL FLANNERY**

**SUMMER 2009**

**SECTION** 5U1 – Monday – 6 to 10 pm SOM 2.722 - Begins Monday, June 1, 2009

\*(Although Classes at the University, in general for Summer 2009, begin Tuesday -May 26)\*

**REQUIRES A LAPTOP FOR EACH CLASS MEETING AND TESTING**

**MY OFFICE** SOM 2.409 Hours: 5 to 5:45 pm on Monday only

Phone: 972-883-4833 however it **is only answered during my office hours.**

## **COURSE DESCRIPTION**

OPRE 6301 Quantitative Introduction to Risk and Uncertainty in Business (3 semester hours)  
Introduction to statistical and probabilistic methods and theory applicable to situations faced by managers. Topics include: data presentation and summarization, regression analysis, fundamental probability theory and random variables, introductory decision analysis, estimation, confidence intervals, hypothesis testing, and One Way ANOVA (Some sections of this class may require a laptop computer). Prerequisite: MATH 5304 or equivalent. (3-0) S

## **STUDENT LEARNING OBJECTIVES**

Students are expected to develop skills on problem formulation, identification of appropriate statistical techniques, computer implementations in Excel and/or manual calculations and written explanations, and interpretation of empirical results of the following --

### **BE ABLE TO:**

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

## REQUIRED MATERIALS

Students must bring the following (with no exceptions) to **each class meeting**:

- (1) Text: **STATISTICS FOR MANAGEMENT AND ECONOMICS**, 8th EDITION, by G. KELLER, DUXBURY PRESS, 2008. (ISBN 10 digit 0-324-56949-1 ; ISBN 13 digit 978-0-324-56949-0)  
Please have this edition of the text. Other editions have different topics in some chapters.
- (2) Laptop with Excel 2007.  
If you need to **update to 2007**, you can purchase the **Office 2007 CD** in the university tech store for \$29 (price subject to change). Student ID and completion of form will be required.
- (3) Your laptop must have the **Textbook CD-Rom** installed **by the first class day**; data sets, etc. Install everything, except the other software formats such as minitab, etc. We will be utilizing Excel in statistical problem-solving as well as written calculations in some chapters. Although "Data Analysis" tools are available as an "add in" with your Excel software (you usually must add it in manually), you must also install "Data Analysis Plus" **from the textbook CD**.
- (4) **Please note the announcement on WebCT about new MACS and their not having scripting ability for Data Analysis Plus.**
- (5) **Students cannot share textbooks on tests.**

## TEACHING ASSISTANTS

To be announced. Please make appointments with the class Teaching Assistant to discuss problems on assignments and/or help with group tutorials.

## TESTING

Tests are not returned. Test Grades, not Course grades, will be posted on the class WEBCT.

### Midterm (30%)

In-class, closed book/closed notes/closed laptop

**Content:**

**Cumulative but focusing on Chapters 1 thru 6.**

All and/or a combination of multiple-choice, fill in the blank, or other written portion; definitions, terms, concepts, and manual calculations. A small calculator (not on your cell phone) would be helpful, but you cannot use your laptop on this test.

Cell phones and working with other students **not** permitted

**Time: 2 hours**

### Statistical Inference Test #1 (40%)

In-class, laptop, textbook, class notes and completed homework problems permitted.

No other texts, for example the Student Solutions manual, especially, are NOT permitted.

**Content:**

**Cumulative, but focusing on Chapters 7, 8, 9, 10, 11, 12**

\*\*\*\*\*continued on next page\*\*\*\*\*

All and/or a combination of multiple-choice, fill in the blank, or other written portion required.

You will be utilizing Excel for statistical inference. Test may also include Excel print-outs and/or charts for students to interpret. ***However, you may be asked to provide written answers and/or explanations to accompany your Excel findings, to include working inference problems manually.***

Wireless access on laptops and other supplemental books not permitted.

Calculators, cell phones and working with other students **not** permitted.

**Time: 2 hours**

**Final Exam (Stat Inference Test #2) (30%)**

**In-class, laptop, textbook, class notes, completed homework problems permitted**

**No other texts, for example the Student Solutions manual, especially, are NOT permitted.**

**Content:**

**Cumulative, but focusing on Chapters 13, 14, 16, 17, 18,**

All and/or a combination of multiple-choice, fill in the blank, or other written portion required. You will be utilizing Excel for statistical inference. Test may also include Excel print-outs and/or charts for students to interpret.

***However, you may be asked to provide written answers and/or explanations to accompany your Excel findings, to include working inference problems manually.***

Wireless access on laptops and other supplemental books not permitted. Calculators, cell phones, and working with other students **not** permitted.

**Time: 2 hours**

**The Questioning of Test Grades:**

**If you have a question about your test grade, you need to discuss this with me at the next office hour session (after posting of test grade) or during the time after lecture (and before the end of class) that I will set aside for discussion of tests. There will be no discussion of student test grades by email. After the scheduled discussion date for your test grade has passed, no more appointments will be available to discuss that particular test grade. **Grades will not be curved in this class. You receive what you earn.****

**Regarding your Final Exam grade:** every attempt will be made (as with all tests) to make certain there are no errors in grading and/or errors resulting from a typo within a test problem. I understand that you are concerned about your grade. Please know that I will be triple-checking your tests in order that you receive the correct grade that “you” earned. **The window of time to discuss with me about your final exam grade will be at a “to be announced” posted scheduled date (after unofficial posting of final exam grades). After that date has passed, there will be no more discussing of grades.**

Discussing of your test does not mean “negotiating “ your test grade. You will be permitted to see your test and know which problems you missed and why.

**Please Note!** Emails to me, after each test and/or after the semester is completed, such as, for example, asking for extra credit work just for “you”, or to bump up your grade more than what you earned (because you are “so close”), or because you “worked hard and deserve an A”, or that “without a higher grade (than what you actually earned) you will not receive a scholarship”, etc., **will not be answered**. These types of questions are presumptuous and contain unethical and/or illegal requests and are subject to possibly being forwarded by me to the appropriate academic deans. If you want to make certain you receive the grade you want, then earn the points required for that grade.

## MAKEUP TESTS

No makeup tests. No Late work accepted. No extra credit available. If in a *rare circumstance* a makeup test is permitted, there may be a deduction in points. Scheduling a room to conduct a 2 hour makeup test as well as arranging for a test monitor is difficult. Therefore, any student who is granted a makeup will have to take the test at the time arranged for you by the Teaching Assistant.

For information regarding incomplete grades, see **Incomplete Grade Policy** within this syllabus.

## GRADES

Undergraduates taking graduate courses are subject to the same grading policy as graduate students. Meaning, there are no D grades. Beginning Spring 2009, my sections will have ‘plus’ and ‘minus’ grades.

<b>A 93.5 - 100</b>	<b>B+ 86.5 - 89.4</b>	<b>C+ 76.5 - 79.4</b>	<b>F 69.44 &amp; below</b>
<b>A - 89.5 – 93.4</b>	<b>B 83.5 - 86.4</b>	<b>C 69.5 - 76.4</b>	
	<b>B - 79.5 - 83.4</b>		

In applying ‘plus’ and ‘minus’ grades, the decimals will be strictly adhered to. There has to be a “cut-off”, therefore, the numerical scores and letter grades will be final. Grades of “A+” or “C-” grades are not permitted in graduate school according to rules.

## WEBCT

It is required for students to utilize the class WEBCT site. Check the site often for any updates, additional class assignments, announcements, or possible changes in schedule and/or chapter topics.

When class begins, a discussion board and chat room will be up in order for students to help each other with homework assignments. Due to confidentiality laws, emails to me are to be sent **via WEBCT only**. This means you must be logged into WEBCT. Emails sent to me from other domains will not be

answered. Avoid **trivial** emails and emails asking for help with problem-solving questions, grade discussions, reiteration of lectures and questions in which you can find the answers within the syllabus. If an email warrants an answer, I will usually answer emails on Mondays (class day). Once I leave campus, the computer is turned “off”.

## **INCLEMENT WEATHER**

If class is **officially cancelled by the university** due to bad weather, please check your class WEBCT for further info, especially if a test is scheduled for that day.

## **CLASS ATTENDANCE**

Attendance is required. Students who miss a total of three or more absences will begin to have one point deducted from your course average for each missed class. Your course average will not have points deducted until you have **accumulated** three absences or more. Lectures and Power Points are not posted on the web. Attend class.

## **STUDY GROUPS**

It is strongly suggested to form study groups! However, even on WebCT, please remember not to post your personal information, such as phone number or home address, on any type of discussion board or in a chat room. Choose to meet in the library or study room on campus, first.

## **HOMEWORK ASSIGNMENTS**

**To be announced.** Not to be turned in. Any special, additional assignments, if any, will be posted on WEBCT.

## **COURSE CHAPTERS AND TOPICS**

What is Statistics? (**Chapter 1**)

Descriptive Statistics

    Data Collection and Sampling (**Chapter 5**)

    Graphical and Tabular Summarization of Data (**Chapters 2 and 3**)

    Numerical Summarization of Data (**Chapter 4**)

Probability and Random Variables

    Basic Probability Theory (**Chapter 6**)

    Random Variables and Business Applications (**Chapters 7.1-7.3**)

    Important Probability Distributions (**Chapters 7.4-7.5 and 8.1-8.3**)

    Statistical Inference

Sampling Distributions and Simulation (**Chapter 9**)

    Introduction to Estimation and Hypothesis Testing (**Chapters 10 and 11**)

    Inferences about a Single Population (**Chapter 12.1-12.3**)

    Inferences about Comparing Two Populations (**Chapter 13.1-13.3 and 13.5**)

    Analysis of Variance (**Chapter 14.1-14.2**)

    Least-Squares Linear Regression (**Chapters 16, 17.1-17.3, 18.1-18.2, and 18.5-18.6**)

## TEST and OTHER IMPORTANT DATES

TEST and/or EVENT	SECTION	DATE
First Class Day for OPRE 6301	5U1	June 1, 2009
Midterm (In-class)	5U1	June 29, 2009
Stat Inference Test #1(in class)	5U1	July 20, 2009
Last Class Lecture Day	5U1	Aug 3, 2009
<i>Final Exam is the:</i>		
Stat Inference Test#2(in class)	5U1	Aug 10, 2009

**Note: Test Dates and Chapter Topics may be subject to change at the discretion of the Professor.**

### Technical Requirements

In addition to a competent level of computer and Internet literacy, certain minimum technical requirement must be met to enable a successful learning experience.

If you have any problems with your UTD account or with the UTD WebCT server, you may contact UTD Computer Help Desk: [assist@utdallas.edu](mailto:assist@utdallas.edu) or call the UTD Computer Helpdesk at: 972-883-2911.

### Scholastic Honesty

The University has policies and discipline procedures regarding scholastic dishonesty. Detailed information is available on the [Scholastic Dishonesty](#) web page. All students are expected to maintain a high level of responsibility with respect to academic honesty. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.

### Course Evaluation

As **required** by UTD academic regulations, every student must complete an evaluation for each enrolled course at the end of the semester.

## University Policies

### Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of

recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

### **Academic Integrity**

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

### **Email Use**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

### **Withdrawal from Class**

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog.

Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

### **Student Grievance Procedures**

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

### **Incomplete Grade Policy**

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and **only if 70% of the course work has been completed**. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

### **Disability Services**

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:

The University of Texas at Dallas, SU 22

PO Box 830688

Richardson, Texas 75083-0688

(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

**It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations.**

**Individuals requiring special accommodation should contact the professor immediately after the first class meeting.**

### **Religious Holy Days**

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor ***as soon as possible*** regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

### **Off-Campus Instruction and Course Activities**

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address given below.

Additional information is available from the office of the school dean.

([http://www.utdallas.edu/BusinessAffairs/Travel\\_Risk\\_Activities.htm](http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm))

***Descriptions/ timelines for your class are subject to change at the discretion of the Professor.***

**It is the responsibility of the student to read and understand this syllabus. Any errors and/or omissions found after the posting of this syllabus will be corrected with announcement to class via lecture classroom and/or WEBCT.**