

# OPRE 6301 QUANTITATIVE INTRODUCTION TO RISK AND UNCERTAINTY IN BUSINESS

DR. CAROL FLANNERY

FALL 2008

**SECTIONS** 503 – Thursday – 7 to 9:45 pm SOM 1.217 - Begins August 21, 2008

001 – Tuesday – 4 to 6:45 pm SOM 2.106 - Begins August 26, 2008

**OFFICE** SOM 2.409 Hours: 3 to 3:45 pm Tuesdays and 6 to 6:45 pm Thursdays

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

## **COURSE DESCRIPTION**

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, random variables, introductory decision analysis, estimation, confidence intervals, hypothesis testing, and One-Way Anova.

**PREREQUISITE** Math 5304, or equivalent

## **STUDENT OBJECTIVES**

Students are expected to develop skills on problem formulation, identification of appropriate statistical techniques, computer implementations in Excel, manual calculations on some Topics, such as Chapter 6, and interpretation of empirical results of the following:

- 1) Be able to 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) To identify significant changes in averages and proportions
- 8) To determine if two populations have the same mean or the same proportion
- 9) Determine if several populations have the same mean

## **REQUIRED MATERIALS**

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

- (1) **Text:** Statistics for Management and Economics, by Gerald Keller, **8th Edition**. South-Western, 2008.
- (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. Student ID and completion of form will be required.
- (3) Your laptop must have the **Textbook CD-Rom** installed; data sets, etc. We will be utilizing Excel in statistical problem-solving as well as written calculations in some chapters.

## TEACHING ASSISTANTS

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

## WEBCT

It is required for students to utilize the class WEBCT site. Check the site often for any updates, class assignments, test dates, announcements, possible changes in schedule. 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, and reiteration of lectures.

## INCLEMENT WEATHER

If class is 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.

## TESTING

**Midterm**      **Chapters 1 – 6: In-class, closed book/closed notes/closed laptop**      **Time:** 2 hours

Chapters 1 – 5: Conceptual questions, multiple-choice, **bring Scantron 882-E**      **20%**

Chapter 6: Written problems (paper will be provided to you)      **20%**

**Take-Home Test**      **Chapters 1 – 18, 22: Cumulative, but focusing on Chapters 7 – 18 and 22**      **30%**

To be distributed via WEBCT email *approximately* one week before the final exam date.

**Turn in** as an Excel Workbook in hard-copy, in the format required (to be shown in class with further instructions) **on the final exam date**. This work **is to be done** without collaboration between students.

**Final Exam**      **Chapters 1 – 18: Cumulative, but focusing on Chapters 7 – 18, 22**      **30%**

**Time: 2 hours** Multiple-choice, on your scheduled final exam date and time.

**Bring Scantron 882-E.**

Includes questions *similar* to take-home test, but utilizing different data. Your take-home test also serves as a preparation for the in-class test. Laptops will be utilized. You will be asked to perform certain statistical procedures in Excel and obtain results. For example, **this may include, but is not limited to:** changing a hypothesis or increasing/decreasing sample sizes, all via Excel, and note any changes, if any. Also, to interpret charts that you will be asked to draw utilizing Excel. Open book, open notes, and you can reference your Take Home Test, **but NO wireless laptop access, no other manuals or student solutions manuals, and students cannot help each other during the in-class final exam.**

Tests and Take-Home Tests are not returned. Test Grades, when available, will be posted on WEBCT. If you have a question about missed questions/problems, you will have a **one-week window of time** to schedule an appointment immediately with the Teaching Assistant and/or Professor. You must meet in the office of the Teaching Assistant and/or Professor. There will be no discussion of student test grades within the classroom. After one-week, it

will be assumed that you have no questions regarding your test and no more appointments will be available for that particular test grade. **Course grades will not be posted on WEBCT.**

## **MAKEUP TESTS?**

No makeup tests. No Late work accepted. No extra credit available. Missing a test date is not taken lightly. If in a *rare circumstance* a makeup test is permitted, there will be a substantial point deduction from the test grade. For information regarding incomplete grades, **see Incomplete Grade Policy** within this syllabus.

## **GRADES**

Numerical scores are converted to the following letter course grades:

89.5 – 100 A    79.5 – 89.4 B    69.5 – 79.4 C    69.4 and below F

Undergraduates taking graduate courses are subject to the same grading policy as graduate students. Meaning, there are no D grades, and there are no “plus” or “minus” grades.

## **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.

## **HOMEWORK ASSIGNMENTS**

Not to be turned in. Assignments to 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 and 22**)

    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 DATES

TEST	SECTION	DATE
Midterm (In-class)	503	October 2, 2008
	001	October 7, 2008
Take-Home Test Distributed	503	December 4 (due December 11)
	001	December 9 (due December 16)
Final Exam (In-class)	503	December 11, 2008
	001	December 16, 2008

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

### Technical Requirements

In addition to a confident 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 class or during office hours.

### **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))

***These descriptions and timelines 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 WEBCT.**