OPRE 6301: QUANTITATIVE INTRODUCTION TO RISK AND UNCERTAINTY IN BUSINESS

DR. CAROL FLANNERY, Senior Lecturer

Spring 2011

SECTIONS	501 – Friday –	7 to 9:45 pm	SOM 2.117	- Begins Jan 14, 2011
	502 – Tues -	7 to 9:45 pm	SOM 2.115	- Begins Jan 11, 2011
	504 – T & R –	5:30 to 6:45 pm	SOM 2.722	- Begins Jan 11, 2011

REQUIRES EACH STUDENT TO HAVE A LAPTOP

AND ONLINE ACCESS FOR EACH CLASS AND TESTS

** EXCEL 2007 WILL BE UTILIZED IN THIS CLASS **

PLEASE HAVE NECESSARY DATA FILES AND MACROS INSTALLED BY FIRST DAY

ABOUT YOUR PROFESSOR

Dr. Flannery began her association with UT-Dallas in 1995. She has 33 years experience in colleges and universities teaching mathematics and statistics. Her expertise includes curriculum design, developing on-site courses for area business and industry, production of instructional video, and the development of online courses, such as the Math Refresher online course at UT-Dallas. Dr. Flannery is a graduate of Texas A & M at Commerce.

OFFICE

SOM 2.409 Hours: 6 TO 6:45 PM (FRI), and 4:15 TO 5:15PM (TUES & THURS), Phone: 972-883-4833 however it **is only answered during office hours**. Email: <u>flannery@utdallas.edu</u>

Please note, students enrolled in Dr. Flannery's classes are required to send emails via their class eLearning website.

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 to **each class meeting:**

- Text: <u>STATISTICS FOR MANAGEMENT AND ECONOMICS</u>, 8th EDITION, by G. KELLER, South-Western, 2008. (ISBN 10 digit 0-324-56949-1; ISBN 13 digit 978-0-324-56949-0)
 Please have this edition of the text. <u>Other editions have different topics in some chapters</u>. <u>The international editions have been known to have different problems than the non-international edition</u>. So please have the required text edition as stated.
- (2) Laptop with Excel 2007 (because the text utilizes this version). 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; Excel data sets, Excel Workbooks, 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), "Data Analysis Plus" is installed from the textbook CD.
- (4) Newer MACS do not have the scripting ability necessary to run Data Analysis Plus; if you are using a MAC, it is suggested to install a Windows Virtual machine, such as "parallel desktop", which will then allow the use of ordinary Office within the Mac OS. Students with MACS in past semesters have done this with no problems.

- (5) Students <u>must not</u> share textbooks, calculators or laptops during lecturers and/or tests.
- (6) Cell phones are to be turned to silent during class and tests. Use of cell phones within the classroom is not permitted at any time. Please step outside of the classroom to use cell phone, this includes during breaks.

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

WE **MAY** DO ONLINE TESTING! You must have online access in order to obtain your test questions, via eLearning. We will have a dry run before the first test so that you can familiarize yourself with the testing procedure.

Tests will be in class, to begin at your regular class time and day. Tests are timed. Tests are not returned to students. There are no "retakes" of tests. Please note, test grades are not "curved".

TEST #1 - Modules 1 and 2 (worth 35% of your course grade)

In-class, closed book/closed notes. No Laptop. A small (non programmable) calculator is permitted. <u>Time</u>: 75 minutes

Content: Cumulative focusing on Chapters 1 thru 6.

All multiple- choice and/or a combination of multiple-choice and written problems. Definitions, terms, concepts, problems. You <u>may be asked to provide written answers and/or</u> *explanations to accompany your testing.*

TEST #2 - Module 3 (worth 35% of your course grade)

In-class, open textbook/open notes. Laptop.

No other textbooks and/or manuals permitted <u>Time:</u> 75 minutes

<u>Content</u>: Cumulative, focusing on Chapters 7, 8, 9.

All multiple-choice and/or a combination of multiple-choice and written problems.

Wireless access on laptops and other supplemental books not permitted, unless it is an online test. Calculators, cell phones and working with other students **not** permitted.

You <u>may</u> be asked to provide written answers and/or explanations to accompany your online testing.

TEST #3 – Module 4 (worth 30% of your course grade) →THE FINAL EXAM

In-class, laptop, possibly online. Textbook, class notes, completed homework problems permitted. No other texts, for example the Student Solutions manual, NOT permitted. <u>Time</u>: 2 hours

<u>Content</u>: Cumulative, focusing on Chapters 10, 11, 12, 13, 14, 16, 17, 18 All multiple-choice.

You <u>may</u> be asked to provide written answers and/or explanations to accompany your Excel findings, to include working inference problems manually.

Please note:

Professor reserves the right to change from online testing to hardcopy for any test and/or a combination of online and hardcopy.

How to Prepare for Tests

By reading the chapters.....studying your class notes.... and working assigned homework problems. Study groups are an excellent way to prepare for tests. There may be <u>challenge problems</u> on the test in order to test your critical thinking skills in statistics.

The Questioning of Test Grades:

If you would like to see what problems you missed and why, you need to meet with our class Teaching Assistant at posted times. There is a window of time permitted for students to discuss with the TA what problems were missed and why. After the window of time has expired, there will be no more discussing of test problems.

There will be no discussion of student tests and/or grades by email. After the scheduled discussion time/date for your test grade has passed, no more appointments will be available to discuss that particular test.

Regarding your Final Exam (Test 3) grade: every attempt will be made (as with all tests) to make certain there are no errors in grading and/or errors such as a typo within a test problem. *There will be no discussion of Final Exams.* If you have a question about your final exam grade, scoring will be double-checked, but that is all.

<u>Please Note:</u> Emails to your professor, after each test and/or after the semester is completed, such as, for example, asking for extra credit work, or to bump up your grade more than what you actually earned <u>will not be answered</u>. These types of questions are presumptuous and may contain unethical and/or illegal requests and are subject to possibly being forwarded to the appropriate academic deans.

THERE ARE NO MAKEUP TESTS

No makeup tests. No Late work accepted. No extra credit available.

If you miss one of the first two tests, *for whatever reason*, the following will apply (with no exceptions):

If you do miss <u>one</u> of the first two tests, your final exam score will count for that particular missed test.

For example, if you have the following grades:

Test 1 = Missed test, Test 2 = 80, Final Exam = 78,

then your course grades would be:

Test 1 = **78**, Test 2 = 80, Final Exam = **78**.

INCENTIVE TO DO WELL ON FINAL EXAM

Your lowest test grade (from first two tests) can be replaced by your Final Exam grade, **IF** you score higher on the Final Exam than that one previous low score. For example, if you had the following grades:

Test 1 = 70, Test 2 = 58, Final Exam = **75**,

then your course average would be based upon:

Test 1 = 70, Test 2 = **75**, Final Exam = **75**.

IF YOU MISS THE FINAL EXAM

If you have taken the first two tests, but miss the final exam, you <u>may</u> be eligible for an **Incomplete.** Otherwise, there are no makeups for the Final Exam.

Before an incomplete can be **considered**, your absence must be proved it was <u>unavoidable and</u> <u>verification (documentation) may be requested.</u>

For information regarding incomplete grades, **see** <u>Incomplete</u> **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. The following letter grades apply in my sections beginning Fall 2010 and not retroactive to other semesters.

Α	89.5 - 100	B+	87.5 - 89.4	C+	77.5 - 79.4	F	69.44 & below
		В	79.5 - 87.4	С	69.5 - 77.4		

There are no "A+" or "D" grades in graduate school. Decimal cut-offs will be strictly adhered to.

ELEARNING WEBSITE FOR YOUR CLASS SECTION

It is required for students to utilize the class eLearning 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 eLearning only. This means you must be logged into eLearning.**

Emails sent to me from other domains than your UT-Dallas address may not be answered.

Avoid <u>trivial</u> 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.

INCLEMENT WEATHER

If class is *officially cancelled by the university* due to bad weather, *please check your class eLearning website for further information*, 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 <u>accumulated</u> three absences or more.

Lecture notes and Power Points are not posted on the web. Attend class.

STUDY GROUPS

It is strongly suggested to form study groups! However, even on eLearning, 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 posted on first week of class. Not to be turned in.

MODULES: COURSE CHAPTERS AND TOPICS (subject to change by the Professor)

MODULE 1:

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)

MODULE 2:

Basic Probability Theory (**Chapter 6**)

MODULE 3:

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**)

MODULE 4:

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/or EVENT	SECTION	DATE
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First Class Day for OPRE 6301	504(Tues & Thurs)	January 11, 2011
	502 (Tues)	January 11, 2011
	501 (Friday)	January 14, 2011
TEST 1 (In-class)	504 (Tues & Thursday)	February 24, 2011
	502 (Tues)	February 22, 2011
	501 (Friday)	February 25, 2011
Spring Break	March 14 – 19, 2011	
TEST 2 (in class)	504 (Tues & Thurs)	April 7, 2011
	502 (Tues)	April 5, 2011
	501 (Friday)	April 8, 2011

TESTS and OTHER IMPORTANT DATES

LAST LECTURE DAY	504 (Tues & Thurs)	April 28, 2011
	502 (Tues)	April 26, 2011
	501 (Friday)	April 29, 2011
YOUR FINAL EXAM WILL BE:		
TEST 3 (in class)	504 (Tues & Thurs)	Thursday May 5, 2011 ****5 pm*****
TEST 3 (in class)	504 (Tues & Thurs) 502 (Tues)	Thursday May 5, 2011 ****5 pm***** Tuesday May 10, 2011 7 pm
TEST 3 (in class)	504 (Tues & Thurs) 502 (Tues) 501 (Friday)	Thursday May 5, 2011 ****5 pm***** Tuesday May 10, 2011 7 pm Friday May 6, 2011 7 pm

<u>Please Note:</u>

Test Dates and Chapter Topics <u>may</u> be subject to change at the discretion of the Professor. Students must take tests with the section in which you are enrolled.

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: <u>assist@utdallas.edu</u> 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. <u>In other words, I cannot drop or withdraw any</u> 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 deal 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 assist students in interpreting the rules and regulations.

Incomplete Grade Policy

As per university policy, incomplete grades will be granted only for work <u>unavoidably missed</u> <u>at the semester's end</u> and **only if 70% of the course work** <u>has been completed</u>. 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)

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 eLearning.

Calculation of Letter Grades stated within this syllabus applies to the current semester .