

## **OPRE 6301-006 – Statistics and Data Analysis**

**Professor: Dr. Avanti Sethi**

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Office Hours: Mon 2:30 pm – 3:45 pm, Wed 5:00 – 6:30 pm, or by appointment

TA: Please check class website on eLearning

**Text:** Statistics for Management and Economics, Gerald Keller, 11th edition, Cengage Publishing

**Prerequisites:** MATH 5304

**Computer Requirement:** You do not need a laptop for the class. There will be Excel HW assignments / on-line quizzes but you can work on them on any computer (Mac or Windows) including at JSOM lab. The on-line tests will be taken at the testing center.

**Course Description:** This course is an introduction to statistical and probabilistic methods that are applicable to general decision problems faced by managers in this increasing complex world of business. The basic theme is to develop concepts and methods that will help managers convert complex data into information. Topics covered include: data presentation and summarization, basic probability theory and random variables, introductory decision analysis, estimation, confidence intervals, hypothesis testing, one-way analysis of variance, regression analysis, and goodness-of-fit tests. The aim of the course is for students to develop skills on problem formulation, identification of statistical techniques, computer implementation in Excel, and interpretation of results.

### **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 and 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, T, and Binomial Distributions to solve business problems;
- 6) Simulate data from the Normal, and Binomial;
- 7) Identify significant changes in averages and proportions via Hypothesis testing
- 8) Determine if two populations have the same mean; and
- 9) Determine if several populations have the same mean.
- 10) Perform Chi-square tests

**eLearning / Blackboard:** Your course [eLearning site](#) will be used in several important ways throughout the semester including emailing, notification, and posting grades.

## OPRE 6301- 006 ::: Tentative Class Schedule

1	Tue, Aug 21	Introduction (Ch 1)	
		Graphical Techniques (Ch 2 & Ch 3)	
2	Tue, Aug 28	Numerical Descriptive Techniques (Ch 4)	
		Numerical Descriptive Techniques (Ch 4)	
3	Tue, Sep 04	Basic Probability Theory (Ch 6)	
		Basic Probability Theory (Ch 6)	
4	Tue, Sep 11	Discrete Distribution (Ch 7)	
		Discrete Distribution (Ch 7)	
5	Tue, Sep 18	Simple Linear Regression (Ch 16)	
		Multiple Linear Regression (Ch 17)	
6	Tue, Sep 25	Data Collection & Sampling (Ch 5)	
		Continuous Distribution (Ch 8)	
7	Tue, Oct 02	No Class	Test 1 at Testing Center
		No Class	Tue 10/2 - Thu 10/4
8	Tue, Oct 09	Continuous Distribution (Ch 8)	
		Sampling Distribution(Ch 9)	
9	Tue, Oct 16	Sampling Distribution(Ch 9)	
		Introduction to Estimation ( Ch 10)	
10	Tue, Oct 23	Introduction to Estimation ( Ch 10)	
		Hypothesis Testing ( Ch 11)	
11	Tue, Oct 30	Hypothesis Testing ( Ch 11)	Test 2 at Testing Center
		Hypothesis Testing ( Ch 11)	11/2 - 11/3
12	Tue, Nov 06	Inferences on Single Population (Ch 12)	
		Inferences on Single Population (Ch 12)	
13	Tue, Nov 13	Inferences on two Population (Ch 13)	
		Inferences on two Populations (Ch 13)	
14	Tue, Nov 20	Thanksgiving	
		Thanksgiving	
15	Tue, Nov 27	Analysis of Variance (Ch 14)	
		Analysis of Variance (Ch 14)	
16	Tue, Dec 04	Chi-squared Tests (Ch 15)	
		Review Test 3	
17	Fri, Dec 07	Test 3 at Testing Center	Test 3 at Testing Center
			12/7 - 12/8

**Homework / Exam:** There will be quizzes, Excel-based HW assignments, and tests. You must score a minimum (aggregate) 75% on the HW assignments. Please see the tables below for more details.

**Grading Policy:** Your final grade will be based on the following tables.

Assessment	Tests	Quizzes	Homework	Total
Weight	80%	10%	10%	100%

Letter Grade	A	B+	B	C+	C	F
Percentage	90%	85%	80%	75%	70%	< 70%

#### HW / Quiz / Test guidelines (available on eLearning class page)

**Quiz:** You are encouraged to work with fellow students on the quizzes. The emphasis here is on learning the material and be ready for the tests. Typical class median for the quizzes is 95%.

You are allowed **unlimited** attempts on each quiz. Your final score will be the best of all your attempts.

You can work on the quizzes on and off (save each time), however, you must submit before the due date. You'll be able to see your answers **and the correct answers** only after the due date.

**Test:** Tests will be online and will be given at the testing center. You must finish them in 150 minutes in one sitting. You are allowed a 5x8 cheat-card (written both sides). Calculator, Scratch paper, and Probability distribution tables will be provided at the testing center.

You are allowed to take your own calculator only if it is 1. TA-30Xa or 2. TI-30X IIS.

You need to reserve your spot online by visiting the [testing center website](http://www.utdallas.edu/studentsuccess/testing-center/)  
<http://www.utdallas.edu/studentsuccess/testing-center/>.

**Important:** If there is any problem at the testing center that can't be resolved, please ask them to **contact me by phone right away**. Do not just walk out and email me later.

**No Cell Phone, jacket, or food is allowed at the testing center. A photo ID will be required.**

**HW:** No late HW will be accepted. You must submit them before the deadline via eLearning only. You must work individually and independently without any collaboration with fellow students. All HW related questions should be directed to the TA. **Aggregate HW average must be 75% or higher for you to pass the class.** Typical class median for Homework is 95%.

**Make-up Test:** If you are unable to take a test during the scheduled window due to business or medical-related emergency, you must inform me at the earliest possible time to have the test rescheduled. Proper documentation maybe required.

Points	Weight	Event	Time	Available		Finish by		Chapters
100	26.00%	Test 1	150 Min	Tue 10-02	9:00 AM	Thu 10-04	9:30 PM	Ch 1-4, 6, 7, 16-17
100	26.00%	Test 2	150 Min	Fri 11-02	9:00 AM	Sat 11-03	1:00 PM	Ch 5, 8, 9, 10
100	26.00%	Test 3	150 Min	Fri 12-07	9:00 AM	Sat 12-08	6:00 PM	Ch 11-15
36	3.96%	Quiz Set 1	No Limit	Mon 08-27	1:00 PM	Tue 09-25	8:00 AM	Ch 4, 6, 7
36	3.96%	Quiz Set 2	No Limit	Mon 09-24	1:00 PM	Mon 10-29	8:00 AM	Ch 5, 8, 9, 10
28	3.08%	Quiz Set 3	No Limit	Mon 10-29	1:00 PM	Mon 12-03	8:00 AM	Ch 11, 12, 14, 15
20	2.20%	HW 1	No Limit	Mon 08-27	1:00 PM	Tue 09-11	11:59 PM	Ch 2-4
25	2.75%	HW 2	No Limit	Mon 09-03	1:00 PM	Tue 09-25	11:59 PM	Ch 7, 16-17
25	2.75%	HW 3	No Limit	Mon 10-01	1:00 PM	Tue 10-30	11:59 PM	Ch 8-10
30	3.30%	HW 4	No Limit	Mon 11-05	1:00 PM	Tue 12-04	11:59 PM	Ch 13, 14, 15

**Special Assistance:** For help with test anxiety or time management, the following resources are available: your academic advisor, the Learning Resource Center (MC2.402), the Counseling Center (SU1.608), the New Student Programs Office (SU1.610), your instructor.

**Expectation:** University guidelines recommend that you study 2-3 hours per week for every credit hour in which you are enrolled. That is, University expectations suggest you spend 4-9 hours outside of class every week on OPRE6301 homework and studying.

**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.

**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.

**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.

**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.; Tue 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 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.