

EDP 371 – Introduction to Statistics

Fall 2012 -Unique Number: 10220	TTh: 11:00-12:30	CPE 2.206
Fall 2012 -Unique Number: 10225	TTh: 2:00 – 3:30	UTC 3.110

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Course Description:

This course is designed to help students learn the introductory descriptive and inferential statistical procedures that are used in behavioral and social science research studies. Students will learn the assumptions underlying, the hypotheses being tested by, and the inferences that can be made with the use of the procedures. These skills will provide the student with a basis to conduct their own such analyses and to evaluate critically others' uses of statistics.

Quantitative Reasoning:

This course carries the Quantitative Reasoning flag. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should therefore expect a substantial portion of tests to assess your use of quantitative skills to analyze real-world problems.

Pre-requisites

Mathematical skills: While this course is not completely mathematical, it is founded upon the use of mathematical tools. Thus some fundamental mathematical skills are essential for successful mastery of the material. Students are expected to have basic algebra skills including the ability to solve single variable equations. Students should have a basic understanding of exponents and square roots, as well as the order of operations, proportions, fractions, decimals, percentage, and negative numbers.

Calculator: Students are required to bring to class a scientific calculator that can be used to sum, multiply, take the square root and square of numbers. Calculators are recommended for use with class assignments and tests as well as during class time. During in-class exams, you must use a calculator that does not have the capacity to connect to email (use of cell phones is completely **forbidden** during exams).

Course Materials and Resources

Required: The class text is: *Basic Statistics for Business and Economics* (Eighth Edition). This textbook is available at the Co-op. It is an excellent text with many interesting problems to solve for your deeper learning. It also presents the material in a slightly different way than the instructor presents the material during class time.

Optional: Class notes discussed in class will be available on Blackboard

Exams

There will be three exams. The exams will focus on the material covered during the most recent class segment. These exams provide students with an incentive to synthesize the material being covered and an opportunity to practice the skills being learned. More detail will be provided about the material assessed by each exam closer in time to the actual exams. It should be noted that most of the statistical skills acquired during this class are constantly building upon earlier learning. This means that even though each exam will focus on the preceding section of the course, students might need to recall skills learned in earlier sections.

Format: Exams will consist of short, essay-type questions and problem solving including both conceptual and computational problems. Students will be given one class period to complete the exam.

Materials: Students will be given a formula sheet and necessary tables for each exam. Students should bring a calculator.

Proportion of final grade: Exams are weighted equally.

Class Quizzes

There will be 5 - 10 class quizzes each worth a total of 50 points given randomly throughout the semester. The questions will be taken from the exercises in your text that are listed in the syllabus. There are no make-ups for these quizzes. They are worth $1/7^{\text{th}}$ (~14%) of your final grade and also serve as our attendance check. If you do not turn in a quiz during class you will be considered absent for that class and you will lose the option of taking a make-up exam.

Makeups

Each student with perfect attendance will have the opportunity to re-take one exam of his or her choice with no penalty. Also students who miss an exam (with a valid excuse) will be able to re-take the exam that they missed. All make-ups will be taken on the date of the scheduled final exam. The room, date, and time of this exam will be determined later.

The only exception to the above make-up policy will be for those students who miss class without a valid excuse (a doctor's note). These students will not be allowed to take make up exams unless the reason for the make -up is illness or some other validated emergency on the day of the exam.

Attendance Policy

Attendance at all classes is required. Attendance will be taken on a random basis (using random quizzes and random questioning of students during class) and those students who are not in class on those occasions will lose the opportunity to take a make-up exam.

Homework

The “Schedule of Topics Table “below lists exercises for each chapter. We encourage you to solve these exercises because this will reinforce the knowledge and skill learning that occurred in class. However, these exercises are strictly optional. You are not required to do them. If you complete them and send them to us, we will give you feedback on how well you did. We will also randomly select several of these exercises to be included in the three stat exams. You will have one week to turn in these assignments, but they are not graded. They simply are an opportunity for you to check how well you have learned these important skills that will be evaluated on the three class exams.

Grading system

Grades are assigned based on the percentage of accumulated points out of a total of 350 points:

<i>Overall Course Percent</i>	<i>Grade</i>
93% - 100%	A
90% - 92%	A-
86% - 89%	B+
83% - 85%	B
80% - 82%	B-
76% - 79%	C+
73% - 75%	C
70% - 72%	C-
66% - 69%	D+
63% - 65%	D
60% - 62%	D-
Below 60%	F

Scholastic dishonesty policy

The University defines academic dishonesty as cheating, plagiarism, unauthorized collaboration, falsifying academic records, and any act designed to avoid participating honestly in the learning process. Scholastic dishonesty also includes, but is not limited to, providing false or misleading information to receive a postponement or an extension on a test or other class assignments, and submission of essentially the same written assignment for two courses without the prior permission of faculty members.

By accepting this syllabus and participating in this course, you have agreed to these guidelines and must adhere to them. This means (specifically for this class) that any work that you hand in for a grade ***MUST*** be your own work. This also means that you may ***NOT*** use or review the exams of students of this class from previous semesters.

Violation of this agreement and of any of the University rules on scholastic dishonesty will result in the student being awarded an ***F for the final course grade***, being referred to the appropriate university officials, and may result in suspension or expulsion from the University. For more information on scholastic dishonesty, students may review the Student Judicial Services web site: <http://www.utexas.edu/depts/dos/sjs/>.

Disability Accommodation

Students with disabilities who require special accommodations need to get a letter that documents the disability from the Services for Students with Disabilities area of the Office of the Dean of Students (471-6259 voice or 471-4641 TTY for users who are deaf or hard of hearing). This letter should be presented to the instructor in each course at the beginning of the semester and

accommodations needed should be discussed at that time. Five business days before an exam, the student should remind the instructor of any testing accommodations that will be needed. See the following website for more information: <http://deanofstudents.utexas.edu/ssd/providing.php>

Communication

In this course **e-mail** will be used as a means of communication with students. You will be responsible for checking your e-mail regularly for class work, deadlines, changes and announcements.

You will also be responsible for checking the Blackboard course site regularly for class work, announcements, and copies of the lecture notes. As with all computer systems, there are occasional scheduled downtimes as well as unanticipated disruptions. Notification of these disruptions will be posted on the Blackboard login page. Blackboard is available at <http://courses.utexas.edu>. Support is provided by the ITS Help Desk at 475-9400 Monday through Friday 8 am to 6 pm, so plan accordingly.

Hints for success

Practice: Practice will facilitate successful mastery of the skills to be learned from this class. During class periods, guided practice will be offered in the form of sample problems. The homework exercise assignments will also provide opportunities for practice. It is hoped that studying for and completion of exams will provide additional such opportunities.

Textbook: You are responsible for whatever topics are covered in class. We do not necessarily cover all the material in the textbook. The terminology in the textbook sometimes differs from what we use in class. Use the terminology I use in class.

Study groups: It is highly recommended that you form study groups to master the material in this class. If you understand a concept, teaching it to your fellow students will help you solidify that learning. If you do not understand a concept, it might help to have it presented to you by someone who has more recently mastered it than the TA or instructor. It can help to have a concept presented by several people in different ways.

Office hours: Use them – our job is to help you learn! If you cannot make our office hours, ask us after class or via email to schedule another time to meet with the TA or me.

Email I: Check your email messages from the TA and me.

Email II: Use email to schedule appointments **NOT** to ask conceptual or computational questions. We will not answer those questions online because hand-feeding you the answer(s) does not help your learning as much as our prompting **you** (face-to-face) to come up with the answer.

Email III: (and most important) If you email one of us (professor or TA), please copy **both** of us on the email. That ensures a speedier response.

Class notes: If a student misses class, it is his/her responsibility to obtain any missed information from a classmate – **not** from the instructor, **nor** from the TA.

Keep up: The skills to be mastered for statistical analyses keep building upon themselves. If you fall behind, it will not only affect the topic in which you are behind but will affect your learning of a later topic.

Introduction to Statistics, Fall 2012
EDP 371
Tentative Schedule of Topics

<u>Date:</u>	<u>Topic</u>	<u>Reading</u>	<u>Homework</u>
Thu 8/30	Syllabus, course requirements, course content, etc. Introduction: <ul style="list-style-type: none"> ▪ Types of Statistics ▪ Types of Variables ▪ Levels of Measurement 	Chapter 1	Chapter Exercises : 2, 4, 5 – 8, 10
Tu 9/4	Describing Data: <ul style="list-style-type: none"> • Frequency Tables • Frequency Distributions • Graphic Presentations 	Chapter 2:pgs 21-42	Chapter Exercises: 3, 7-10, 12, 13, 15, 20, 31,50
Thu 9/6	Describing Data (cont'd)	Chapter 2 (cont'd)	
Tu 9/11	Measures of central tendency <ul style="list-style-type: none"> • Mean • Weighted Mean • Median • Mode • Relative Positions of M, M &M 	Chapter 3 pgs.59-96	Chapter Exercises: 7-10, 13, 15, 25, 38, 39, 46, 48, 60
Thu 9/13	Measures of variability: <ul style="list-style-type: none"> • Range • Variance ▪ Standard Deviation 	Chapter 3 (cont'd)	
Tu 9/18	Describing Data: Displaying and Exploring Data <ul style="list-style-type: none"> • Measures of relative position • Box Plots • Skewness 	Ch.4: pgs. 101-115	Chapter Exercises 3, 5, 8, 10, 15, 17, 22, 31

Thu 9/20	Describing Data (Cont'd) <ul style="list-style-type: none"> Relationship between two variables 		
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Tu 9/25	First Exam		
Thu 9/27	A Survey of Probability Concepts <ul style="list-style-type: none"> Approaches to assigning probabilities Some basic probability rules 	Chapter 5: pgs. 126-144	Chapter Exercises: 2, 3, 4, 5, 8, 11, 45
Tu 10/2	Continuous Probability Distributions <ul style="list-style-type: none"> The Standard Normal Probability Distribution The Empirical Rule Finding areas under the normal distribution 	Chapter 7:pgs196-222	Chapter Exercises: 9, 10, 11, 12, 13, 15, 17, 21, 25, 27, 37, 39, 41, 43, 53
Thu 10/4	Continuous Probability Distributions (cont'd)		
Tu 10/9	Sampling Distributions and the Central Limit Theorem <ul style="list-style-type: none"> Sampling Sampling Distributions The Sampling Distribution of the Mean 	Chapter 8: pgs. 223-255	Chapter Exercises; 6, 8, 15, 18, 22, 33, 35, 39, 45

Thu 10/11	Sampling Distributions (cont'd)	Chapter 8 (cont'd)	
Tu 10/16	Estimation and Confidence Intervals <ul style="list-style-type: none"> • Point Estimates • Confidence Intervals for Means • Confidence Intervals for Proportions 	Chapter 9: pgs. 256-288	Chapter Exercises: 3, 5, 7, 9, 11, 12, 15, 16, 17, 20, 23, 29, 31, 32, 34, 39, 49, 55
Thu 10/18	Estimation and Confidence Intervals (Cont'd) <ul style="list-style-type: none"> • Choosing sample size 	Chapter 9 (cont'd)	
Tu 10/23	One Sample Tests of Hypotheses <ul style="list-style-type: none"> • Stating a hypothesis • Steps for Testing a Hypothesis • One-and two-tailed hypothesis tests 	Chapter 10: pgs.289-324	Chapter Exercises: 1, 2, 5, 7, 12, 13, 21, 23, 25, 29, 34, 46, 47
Thu 10/25	One Sample Tests of Hypotheses (cont'd) <ul style="list-style-type: none"> • The z test • The 't' test 	Chapter 10 (cont'd)	
Tu 10/30	Exam 2		
Thu 11/1	One Sample Tests of Hypotheses (cont'd) <ul style="list-style-type: none"> • Testing of Proportions 	Chapter 10 (cont'd)	
Tu 11/6	Two Sample Tests of Hypotheses <ul style="list-style-type: none"> • Independent Samples • Proportions 	Chapter 11:pgs. 325-359	Chapter Exercises: 1, 2, 3, 5, 7, 9, 11, 13, 16, 29, 31, 38, 39, 40

Thu 11/8	Two Sample Tests of Hypotheses <ul style="list-style-type: none"> Dependent Samples 	Chapter 11 (cont'd)	
Tu 11/13	Analysis of Variance	Chapter 12	
Thu 11/15	Correlation and Regression	Chapter 13: pgs. 390-401; 405-412; 415-419	Chapter Exercises: 1, 2, 3, 5, 13, 14, 17, 40, 41, 43, 59
Tu 11/20	Correlation and Regression	Chapter 13 (cont'd)	
Tu 11/27	Non-Parametric Methods <ul style="list-style-type: none"> Goodness of Fit 	Chapter 15:pgs. 496-508	Chapter Exercises: 1, 3, 5, 7, 9, 11, 17, 19, 24, 28, 33, 35, 37
Thu 11/29	Non-Parametric Methods <ul style="list-style-type: none"> Contingency Table Analysis 	Chapter 15 (cont'd)	
Tu 12/4	Course Review		
Thu 12/6	Exam 3		