

## **Introduction to Statistics - Syllabus**

**Summer 2015 - First Session**

**EDP 371**

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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 acquire statistical literacy, become skilled at graphic production, learn the basics of making inferences from samples to populations, and recognize the statistics used with different types of data. 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.

## Prerequisites

**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: EDP 371 Course Packet.** The title of the class packet is: "*Stat Sense: Thinking Clearly About Data*". You can order this online at:

<http://www.sentiapublishing.com/math/edp-371-introduction-to-statistics-digital-course-pack-martin-tombari/>

or purchase it at the COOP.

***The packet includes important tables and charts and other material that are needed during exams. It also contains research articles over which questions will be asked on all exams. It is important that you bring the packet to class everyday because many class activities, including class quizzes, will require that you have it with you.***

**Optional:** The optional class text is: "Statistics for the Behavioral Sciences" by Frederick J Gravetter and Larry B Wallnau. This textbook is available at the Co-op and other on-line outlets. 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.

Also, optional, is "Introduction to Statistics: Online Edition" by David M. Lane which we will post on Blackboard for you to download. The course packet will recommend specific pages to read in this online text that reinforce packet material.

## Course Requirements

### 1. Exams

There will be **4 exams** during the First Summer Session. The exams, except the final exam, will focus on the material covered during the most recent class segment. The first three exams each will contain 30 multiple choice questions and be worth a total of 90 points. The 4th exam will be held on finals day, contain 40 multiple choice questions, and be worth 80 points to your final grade. The final exam will contain questions from the beginning of the course.

**This exam will be two hours long.**

***You must take all exams. If you miss an exam without an excuse (e.g. illness, family mishap), you will receive a grade of zero for that exam.***

***If you are more than 15 minutes late for an exam (with no legitimate and validated excuse) you will not be allowed to take the exam, nor will a make-up be given. You will receive a grade of zero.***

***A legitimate excuse involves personal illness or family emergency only...not traffic, car, bus or any other type of transportation problem.***

### 2. Classwork

There will be short class assignments to help you practice, learn, and better understand statistical skills. These projects will be graded. You will earn a total of 30 points towards your final grade.

### 3. Attendance Policy

Attendance at all classes is required. Attendance will be taken during class on a random basis.

## How Grades Will Be Assigned

Grades are assigned based on the percentage of exam and classwork points that you earn.

<i>Overall Course Percent</i>	<i>Grade</i>
90% of total points you had the opportunity to earn	A
80% - 89%...	B

70% - 79%...	C
60% - 69%...	D
Below 60% of the total points you had the opportunity to earn	F

You may take ***one make-up exam*** to improve your score on any of the **first three exams** under the following conditions

1. You have no absences.
2. You score no lower than 60% on any of the first three exams.
3. You take every exam

The make-up exams will be given at the time of the final exam. Contact us if you want to take a make-up and to find out if you are eligible.

### **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>

([Links to an external site.](#))

## 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 Canvas course site regularly for class work, announcements, and copies of the lecture notes. As with all computer systems, there are occasionally scheduled downtimes as well as unanticipated disruptions. Notification of these disruptions will be posted on Canvas. 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.

***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 TAs and me.

***Email II:*** Use email to schedule appointments ***NOT*** to ask conceptual or computational questions.

***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.

### Schedule of Topics/Readings/Exams

Date:	Topic:	Reading
Thu 6/4	Variables/Statistics/Scales/Percentiles  Describing Data: Tables and Charts <ul style="list-style-type: none"> <li>• Interpreting Data Tables</li> <li>• Charts and Rules</li> <li>• Interpreting Charts</li> <li>• Truth In Charts</li> </ul>	Units 1-2
Tu 6/9	Describing Data: Averages <ul style="list-style-type: none"> <li>• Mean</li> <li>• Weighted Mean</li> <li>• Median</li> <li>• Mode</li> <li>• So where is the middle?</li> </ul>	Unit 3
Wed 6/10	Variability <ul style="list-style-type: none"> <li>• Range</li> <li>• Variance</li> <li>• Standard Deviation</li> <li>• Interquartile Rang</li> <li>• Choosing the right statistic</li> </ul>	Unit 4
Thu 6/11	<b>Exam # 1 (First half of Class)</b>  z-scores <ul style="list-style-type: none"> <li>• Standardization</li> <li>• Percentile Scores</li> <li>• z-scores</li> </ul>	<b>Units 1-4</b>  Unit 5

Tu 6/16	The Standard Normal Distribution <ul style="list-style-type: none"> <li>• Simple probability</li> <li>• Computing Probabilities for z-Scores</li> </ul>	Unit 6
Wed 6/17	The Central Limit Theorem <ul style="list-style-type: none"> <li>• Sampling Procedures</li> <li>• The Distribution of Sample Means</li> <li>• The Standard Error of the Mean</li> </ul>	Unit 7
Thu 6/18	Confidence Intervals	Unit 8
Tu 6/23	<b>Exam 2 (First Half of Class)</b> Hypothesis Testing <ul style="list-style-type: none"> <li>• Null and Alternative Hypotheses</li> <li>• One and Two Tail Tests</li> <li>• Type I and Type II Errors</li> </ul> Hypothesis Tests using the z-test statistic	<b>Units 5-8</b> Unit 9
Wed 6/24	Inferences Involving Average <ul style="list-style-type: none"> <li>• Inferences Involving Averages of One Sample</li> </ul>	Unit 10
Thu 6/25	<ul style="list-style-type: none"> <li>• Inferences Involving Averages of Two Samples</li> </ul>	Unit 10
Tu 6/30	<ul style="list-style-type: none"> <li>• Inferences Involving Averages</li> </ul>	Unit 10
Wed 7/1	<ul style="list-style-type: none"> <li>• Inferences Involving Averages</li> <li>• ANOVA</li> </ul>	Unit 10
Thu 7/2	<b>Exam 3 (First Half of Class)</b> Correlation <ul style="list-style-type: none"> <li>• Pearson</li> <li>• Scale</li> <li>• Interpretation</li> <li>• What affects magnitude?</li> </ul>	<b>Units 9 and 10</b> Unit 11

Tu 7/7	Predictions <ul style="list-style-type: none"> <li>• Least Squares</li> <li>• Slope</li> <li>• Y intercept</li> <li>• Coefficient of Determination</li> </ul>	Unit 11
Wed 7/8	Inferences About Associations: <ul style="list-style-type: none"> <li>• Goodness of Fit</li> <li>• Contingency Analysis</li> </ul>	Unit 12
Thu 7/9	<ul style="list-style-type: none"> <li>• Inferences About Proportions</li> <li>• Polling</li> </ul>	Unit 13
7/10	<b>Final Exam/Make-up Exams</b>	<b>Unit 9-13</b>