

# **Introductory Statistics (EDP F371)**

74750 MTWTh 10:00-12:00, UTC 1.144

Summer 2011

## **Instructor**

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Hours: M-Th 12:00-1:00 and by appointment

The goal of the course is to introduce principles and procedures for working with descriptive and inferential statistics that support research in the behavioral and social sciences. Topics include measures of central tendency and variability, development and testing of hypotheses, and parametric and non-parametric tests. Knowledge of and facility in applying statistical methods supports conducting your own research, evaluating the research of others, and employing the principles of systematic and objective inquiry essential in science and valuable in everyday life.

## **Prerequisite**

Fundamental mathematical skills are essential, including algebraic competencies such as solving single variable equations, understanding exponents and square roots, observing order of operations, and working with proportions, fractions, decimals, percentage, and negative numbers. Appendix A in the textbook contains a review of basic math skills needed for the course.

## **Required Materials**

- Textbook: *Statistics for the Behavioral Sciences* (eighth edition), Frederick J. Gravetter and Larry B. Wallnau, available at the University Co-op.
- Calculator: During class a scientific calculator is essential for summing and multiplying integer and decimal values and for working with exponents and square roots. A calculator is also essential for completing examinations and homework activities.

## **Learning Objectives**

Your work in this course should help you gain knowledge, skills, and self-awareness associated with understanding basic statistical principles and practices.

### Summary Knowledge Goals

- recognize and understand statistical terms, vocabulary, and principles
- differentiate among statistical procedures and understand the assumptions upon which they depend

### Summary Skill Goals

- be able to perform fundamental computations as a means for conceptualizing how a procedure works and why it is appropriate in particular contexts
- choose an appropriate procedure for a given research context
- conduct an appropriate statistical procedure for a research task
- read research literature with critical understanding of the statistical procedures used
- collaborate as a member of a team

### Summary Self-Awareness Goals

- achieve confidence in using basic statistical procedures
- achieve confidence in critically reading research articles
- foster curiosity to pursue new knowledge in professional field by reading others' research and pursuing one's own research
- encourage integration in one's professional culture

### Class Policies

In any productive workspace, professionals know to honor policies—sometimes unwritten—that support harmony, creativity, and productivity. So too should we in our workspace in UTC 1.144.

- Put away and silence your electronic devices, including the notebooks/laptops/netbooks, smart phones, iPods, and the rest. You should be too busy anyway during class time to be surfing, texting, tweeting, or listening in.
- Come to class on time and prepared, with reading or homework complete and with the textbook and course materials. Arriving late affects your class participation and costs you the opportunity to earn quiz credit. Leaving early disrupts class and cuts short work that supports lecture, reading, and homework. A third and subsequent absences may affect the final grade. Be ready to be a productive member of your team.
- Complete exams during class time on the dates scheduled. The only electronic device that should be visible or accessible is a scientific calculator.
- Be scrupulous about academic integrity by fulfilling all the responsibilities listed in the UT Austin Policies for Academic Integrity.
- UT Austin policy directs that you must notify each instructor prior to classes scheduled on a date when you will observe a religious holy day. If you have to miss an exam due to a religious holy day, it is your responsibility to re-schedule another time to take the exam.

### Subject Pool Requirement

To receive credit for this class, students are required by the department to participate in the educational psychology subject pool. An alternative assignment will be offered by those in charge of the subject pool for students not willing to participate. Read the handouts for further details.

## Academic Integrity

If you haven't already, take a moment to view the UT Austin Web site for elaboration on the university honor code: <http://www.utexas.edu/about-ut/mission-core-purpose-honor-code>.

*The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.*

I expect every student in this course to abide by the University of Texas Honor Code, which means among other things that any work you submit for academic credit will be your own or your team's own. I encourage you to study together and to discuss information and concepts covered in readings, lectures, and activities. Such cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in previous semesters or during this one.

Should copying occur, both the student who copied work from another student and the student who gave material to be copied will receive a zero for the assignment. And the penalty for violation of the code may also include failure of the course and university disciplinary action.

During examinations, you must do your own work, without talking, comparing papers, copying from others, using any electronic device except a scientific calculator, or collaborating in any way. Such proscribed collaborative behavior during the examinations will result in failure of the exam, and it may lead to failure of the course and university disciplinary action.

UT Austin 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 assignment, 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 adhere to guidelines for ethical academic conduct. This means that work that you hand in for a grade must be your own and that you may not use or review the assignments or exams of students of this class from previous semesters.

Violation of this agreement and of any UT Austin rules concerning scholastic dishonesty must result in a 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, review the Student Judicial Services Web site at <http://www.utexas.edu/depts/dos/sjs/>.

## Disability Accommodation

If you require special accommodations, you must obtain 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). Present the letter to each instructor at the beginning of the semester and discuss at that time the accommodations you need. Five business days before an exam, you should remind the instructor of any testing accommodations that will be needed. For more information, see <http://deanofstudents.utexas.edu/ssd/providing.php>.

## Communication

You are responsible for checking the Blackboard course site regularly for class work, announcements, and resources. As with all computer systems, there are occasional scheduled downtimes as well as unanticipated disruptions. Blackboard is available at <http://courses.utexas.edu>. Support is provided by the ITS Help Desk at 475-9400 Monday through Friday 8 a.m. to 6 p.m., so plan accordingly.

## Components of the Final Course Grade

	Points
Exam 1 (chapters 1-9)	150
Exam 2 (chapters 10-13)	150
Exam 3 (chapters 16-18)	150
Portfolio of Research Questions	20
Daily Quizzes	15
Class Participation	15
<b>Total Possible</b>	<b>500</b>

The final course grade will be assigned based on percentages as follows:

<i>A</i>	above 92.9	<i>B</i>	83-86.9	<i>C</i>	73-76.9	<i>D</i>	63-66.9
<i>A-</i>	90-92.9	<i>B-</i>	80-82.9	<i>C-</i>	70-72.9	<i>D-</i>	60-62.9
<i>B+</i>	87-89.9	<i>C+</i>	77-79.9	<i>D+</i>	67-69.9	<i>F</i>	below 60

## Important University Notices and Policies

### Behavior Concerns Advice Line (BCAL)

If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss by phone your concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit <http://www.utexas.edu/safety/bcal>.

## Emergency Evacuation Policy

Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of policies regarding evacuation:

- Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building.
- If you require assistance to evacuate, inform me in writing during the first week of class.
- In the event of an evacuation, follow my instructions or those of class instructors.
- Do not re-enter a building unless you're given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.

## Tentative Course Schedule

The syllabus reflects present plans, but as we go through the course those plans may need to change to maximize learning opportunities for the class and to respond to your feedback. I'll communicate changes as early and clearly as I can, so continue to check your e-mail frequently and the course site on Blackboard. And of course, be in class every meeting.

Day	Topic	Homework for the Next Class
Thu 6/2	Syllabus, Policies, Context	Read: chaps 1&2. Work: chapter problems.
Mon 6/6 Tue 6/7 Wed 6/8 Thu 6/9	Ch 1 Intro to Stat, Ch 2 Frequency Distributions Ch 3 Central Tendency, Ch 4 Variability Ch 5 z-Scores, Ch 6 Probability Ch 7 Distribution of Sample Means	Read: chaps 3 & 4. Work: chapter problems. Read: chaps 5 & 6. Work: chapter problems. Read: chap 7. Work: chapter problems. Read: chaps 8 & 9. Work: chapter problems.
Mon 6/13 Tue 6/14 Wed 6/15 Thu 6/16	Ch 8 Introduction to H Testing, Ch 9 t Statistic Summary/Review, Chapters 1-9 Exam 1 Ch 12 Confidence Intervals	Read: chap 12. Work: chapter problems Read: chap 10. Work: chapter problems
Mon 6/20 Tue 6/21 Wed 6/22 Thu 6/23	Ch 10 t Test for Two Independent Samples Ch 11 t Test for Two Related Samples Ch 13 Introduction to ANOVA Ch 16 Correlation	Read: chap 11. Work: chapter problems Read: chap 13. Work: chapter problems Read: chap 16. Work: chapter problems
Mon 6/27 Tue 6/28 Wed 6/29 Thu 6/30	Summary/Review, Chapters 10-13 Exam 2 Ch 17 Regression Ch 18 Chi-Square Goodness of Fit/Independence	Read: chap 17. Work: chapter problems Read: chap 18. Work: chapter problems Work: chapter problems
Mon 7/4 Tue 7/5 Wed 7/6 Thu 7/7	University Holiday: No Class Summary/Review, Chapters 16-18 Exam 3 Summary, Post Mortem, CIS, Review	Read: Handout Articles

## Tips for Success

The homework, portfolio, and in-class activities provide opportunities for hands-on practice in working with statistics—practice that complement watching an instructor work examples that

might appear simple. That is, you will be doing the kinds of tasks that you'll be asked to do on exams. After all, preparing for something important should include multiple opportunities to practice that important thing, including the opportunity to make mistakes that serve to be instructive rather than punitive.

Novices in any area of interest often have low thresholds for judging their “understanding” of something new and being “ready” to do it on their own, based on their ability to follow along during someone else’s instructions for solving a problem. A teacher’s presentation disguises the sometimes messy wrestling with new ideas that it takes to learn something. Behind the smooth, well-reasoned, and straightforward presentation by a teacher are experience, insight, and confidence a novice wouldn’t be expected to possess. When an exam presents a situation in which it is no longer possible to observe someone else’s thinking or think about ideas in a familiar context, it’s important to have had hands-on practice in attacking the problem yourself.

On exams—and in the real world—no instructor will be at your side to help you work out problems.

The homework problems provide extensive computational practice, even though statistical software does the heavy computational work these days. The reason for initially performing computations is to facilitate your conceptual grasp of the rationale, power, and assumptions related to the field of inferential statistics generally and to various procedures specifically. Instead of breezing through computations, give thought to why the questions might ask you to compare outcomes. What factor is being manipulated and what is the impact of the manipulation?

Take advantage of study groups to master material. If you understand a concept, teaching it to your classmate will help you understand it better. If you do not understand a concept, it might help to hear about it from someone who has very recently wrestled with and mastered it, like you. And it can help to have a concept presented by several people in different ways.

If you must be absent from a class, obtain missed information from a classmate in your group. The skills you’re mastering for statistical analyses build upon themselves, so it is easy to fall behind very quickly, particularly with the rapid pace of a summer session.