

ECO 339-001 — Applied Statistical Analysis

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and by appointment

Course Description and Objectives

The application of statistical and quantitative methods. Topics that we will address include: hypothesis testing, analysis of variance (ANOVA) and linear regression. Students successfully completing this course should be able to:

1. Use quantitative, abstract, and logical reasoning;
2. Obtain basic knowledge in mathematics and statistics;
3. Acquire skills in the use of contemporary information resources and technology;
4. Utilize analytical thinking, critical analysis, logic, creativity, and integrative problem solving;
5. Work with descriptive statistics in a sampling situation;
6. Perform a variety of statistical tests and make inferences;
7. Compute and interpret regression equations using raw data;
8. Use standard tables for the normal distribution, f-distribution and chi-square distribution.

You may have heard from your friends that Statistics is boring and difficult. Your friends are right, but that doesn't mean that you can't have fun learning this very important subject.

Prerequisites

MTH 220

Class Meetings

Mondays and Wednesdays, 1:00-2:15 in BU 483.

Text and Other Materials

The textbook we will use is *Introduction to Business Statistics*, 7th Edition by R.M. Weiers, 2011, South-Western, Cengage Learning.

We will also use Excel rather extensively, so you should make sure you are familiar with its basic functions. This syllabus along with other class materials is available on [myCourses](#) and can be **printed** out from there at any time.

Grading

Your course grade will be computed as follows:

Without Optional Project		With Optional Project	
Four Exams (20% each)	80%	Three Exams (20% each)	60%
Blackboard Quizzes	15	Blackboard Quizzes	15
Attendance and Class Participation	5	Attendance and Class Participation	5
		Optional Project (replaces lowest exam grade)	20
Total	100%		100%

Letter grades will be assigned according to the following scale:

90%-100%	A
80% - 89%	B
70% - 79%	C
60% - 69%	D
< 60%	F

Your overall course average will be rounded up to the nearest integer, **but no other curving will be done**. In other words, a 88.3 average will be rounded up to a 89 and correspond to a B.

Exams

The Exams will be held in class on pre-determined dates (see [schedule](#) below). The dates will not be changed under any circumstances, short of a natural disaster, an act of God, or the University canceling classes that day. While the exams are not cumulative, everything in Statistics is comprehensive in nature, so to do well on the last exam – which only covers the last portion of the course, you will need to have mastered the earlier material as well.

Makeup exams will only be given in extraordinary circumstances and only if you notify me **prior** to missing an exam. I reserve the right to determine whether your excuse for missing it warrants a makeup.

Blackboard Quizzes

Quizzes are to be completed on Blackboard (i.e., myCourses). They are the single best way to prepare for the exams. You will have three attempts to complete each quiz, and your highest score will be recorded. The questions on the quiz are randomly chosen from a large database of questions, so repeated attempts will **not** show the same questions necessarily.

Optional Project

For the optional project, I want you to come up with a topic or question that you would like to investigate or answer, collect or find data on whatever variables you decide are important, and conduct your analysis using regression techniques (we will cover this topic during the last four weeks or so of the semester.)

The topic should be something of interest to you (and the rest of us since you will be presenting your results to us) and it should also be “doable” — i.e., don’t pick something for which no data are available.

The project will consist of two parts:

1. a brief report (3-4 pages) of your topic, the work you did and the results, and
2. a short presentation to the class (~ 5-10 minutes) of what you did.

You will be graded on the basis of both the paper and the presentation by me; you will also be evaluated by your classmates with respect to how clearly you convey what you did for your project (more on this later).

The grade on this project will replace your lowest exam grade. You **cannot** use the project to avoid taking the last exam (Exam 4, Final Exam or whatever you want to call it) or replace your Quiz average. . . but good try to those of you who were thinking it.

Dates

What you need to do	When you need to do it by
Decide on whether you are doing the project and let me know (by email)	Monday, November 21, 11:59 pm
Let me know the topic and the data you have found	Monday, November 28
Turn in the paper	by Monday December 12
Make the presentation	Dead week, December 5 and 7

The deadlines above are firm – if you miss one, you don’t get to do the project. Also, if you decide to do the project, you are committing to go through with it. If you decide to back out later, your last exam grade will be lowered by 10 points.

The timing of when the presentations occur will depend on how many of you choose to do the project — that’s why I need to know rather soon if you plan to do it.

House Rules

1. No cell phones! Turn yours off for an hour.
2. Ask questions, even the ones you think are dumb. Do it when you have them; don't wait until the end of the term to figure out an issue addressed weeks before.
3. No reading, sleeping, or texting in class!
4. No loud food (e.g., crunchy stuff) during class!
5. Don't ask me when the next exam is or what your grade is in the class so far — the schedule is easily accessible and calculating your average is not that hard.
6. Don't hesitate to ask for help – that's why I provide my contact information and office hours. Email is the best way to contact me; I will respond within 24 hours and usually much sooner than that.

Other Policies

Attendance only contributes a small amount to your final grade, but you will not be able to do well in this class if you do not attend regularly. Attendance will be taken every class. So, don't miss class and be on time.

There is no extra credit of any kind, so don't ask. Exams and Quizzes are your major chances to show me what you've learned, so take them seriously.

Class Schedule

The exams will be held as follows:

- Exam 1 Wednesday, 9/21/11
- Exam 2 Wednesday, 10/19/11
- Exam 3 Wednesday, 11/16/11
- Exam 4 Monday, 12/12/11 1:00–3:00

Introduction and Review

Week 1: Normal Distribution (W Sec. 7.1-7.3)

Week 2: Sampling Distribution of \bar{X} (W Sec. 8.1-8.3)

Hypothesis Testing (one sample)

Weeks 3-4: The Hypotheses, the Errors, and the two approaches to testing (W Sec. 10.1-10.5)

Hypothesis Testing (two samples)

Week 5: Pooled variances and unequal variances t -tests, and z -tests for independent samples (W Sec. 11.1-11.4)

Analysis of Variance Tests

Week 6: One-way ANOVA (W Sec. 12.1-12.3)

Weeks 7-8: Two-way ANOVA (W Sec. 12.5)

Linear Regression

Weeks 9-10: Simple Linear Regression and Correlation (W Ch. 15)

Week 11: Multiple Regression and Correlation (W Ch. 16)

Week 12-13: Additional issues: Dummy Variables, Multicollinearity (W Ch. 16)

Model Building

Week 14: Polynomials, logs, etc. (W Sec. 17.1-17.6)

Additional Topics or Project Presentations

Week 15: The χ^2 distribution, Tests for independence (W Sec. 13.1-13.2, 13.4)

Rusche College of Business Syllabus Addendum

Program Learning Outcomes:

Program learning outcomes define the knowledge, skills, and abilities students are expected to demonstrate upon completion of an academic program. These learning outcomes are regularly assessed to determine student learning and to evaluate overall program effectiveness. You may access the program learning outcomes for your major and particular courses at <http://cobweb.sfasu.edu/plo.html>.

General Student Policies:

Academic Integrity (A-9.1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty:

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit. Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp.

Withheld Grades Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to <http://www.sfasu.edu/disabilityservices/>.

Acceptable Student Behavior

Classroom behavior should not interfere with the instructor's ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic, or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.