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McCOMBS SCHOOL OF BUSINESS
WHERE LEADERSHIP IS EARNED™

# STA 309 Elementary Business Statistics (04375)
# Syllabus – Fall 2010


Instructor: Tianyang Wang
Class Time: T, Th 12:30-2:00 pm
Classroom: UTC 4.122
Office: CBA 3.332F
Office Hours: T, Th 2:00-4:00 pm
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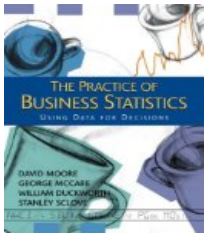
**Course Description:**

**Statistics is the science of data.** This class is the introductory course in statistics. It will provide you the fundamental training in the use of data to gain insight into business problems. Throughout this class, we will learn the science of **describing data** (distributions, relationships, and regression); **collecting data** (experiments, sample design, and sampling distribution); and **interpreting data** (probability, inference and hypothesis testing).

We will concentrate on the practice of statistics as a tool for learning about the real business world. Upon completion of the course the students will learn how to think critically about data, use graphical and numerical summaries, apply standard statistical inference procedures and draw conclusions from data analysis.

**Textbook:**




The Practice of Business Statistics, Using Data for Decisions,
Second Edition, by Moore, McCabe, Duckworth, and Alwan,
W.H. Freeman and Company, 2009.

Alternatively, online access to *StatsPortal for The Practice of Business Statistics* can be purchased at http://portals.bfwpub.com/pbs2e.php. The StatsPortal include access to the eBook, StatTutor, podcast chapter summaries, and detailed solutions to odd-numbered exercises.

**Webpage:**

http://courses.utexas.edu

This course will use a password-protected class web site. Syllabi, notes, assignments, and other resources will be available within this site. Login to the course website using your UT EID. You should be able to use the website on computers running Windows, Internet Explorer, Excel and the Adobe Acrobat Reader. If you have difficulty, you may be able to get help from the ACITS Help Desk (475-9400). Alternatively, you may need to work in the CBA labs.

**Grading:**

| | |
|---|---|
| Class participation | 5% |
| Homework | 10% |
| Applied Finance Assignments | 10% |
| Test 1 | 25% |
| Test 2 | 25% |
| Test 3 | 25% |

The grade on one test may be replaced with your Test 3 grade. Grades of 90 or above will earn an A, 80 or above will earn a B or better, etc. Plus/Minus grading applies to this course.

**Homework:**

Statistics is a cumulative subject that requires frequent practice. If one topic is confusing, the next is likely to be more so. To address this, it is necessary for you to practice statistics on a frequent basis. The homework assignments are designed to keep you current in the course. The assignments are available online on the course web page. It is recommended that students work on assignments independently.

Working the assigned problems is not sufficient to guarantee an A in the course. Your proficiency with statistics will improve with active practice; i.e., working problems and explaining your results. The textbook has about 100 problems per chapter for additional practice. Answers to all odd numbered problems are given in the back of the textbook.

**Applied Finance Assignments:**

There will be three applied finance assignments to be completed for this class. The assignments are examples of real problems from the field of finance. The assignments are designed to give you practical experience analyzing real-world data that you will obtain yourself. You will apply statistical concepts that you learn in this class. Applied Finance Assignments are due by midnight on their due date. The first (1) is worth 4% of your grade, the second (2a) is worth 4%, and the third (2b) is worth 2%, for a total of 10% of your grade.

**Tests:**

Tests for this class will be given in the ModLab East (CBA 5.325) during class time. You will access the test through Blackboard and have Excel available. You may bring a calculator to the tests. You may bring one 8.5" by 11" page (both sides) of notes to the first test, two pages to the second test, and three pages to the third test. Necessary distributional tables will be handed out; no formulas will be provided. You must bring a picture ID to each test. The third test will be cumulative.

There will be no make-up tests. Your third test grade can replace one lower test grade. You must inform the professor in advance if you are going to miss a test due to observance of a religious holiday or an official university activity.

**Computing:**

The practice of statistics requires a fair amount of numerical calculations. We will use Microsoft Excel for statistical computations and graphics. It is also useful to have a calculator that does "two-variable statistics," that is, which calculates not only mean and standard deviation, but also the correlation and the least-squares regression line from keyed-in data. Two-variable calculators are available for $25 or less. A graphing calculator is not required for this course.

The McCombs School of Business has 2 computer labs with Dell computers: CBA 5.304/5.325(MOD Lab) and CBA 5.322(Millennium Lab). Lab hours are extensive both in the CBA labs and the SMF. You must have an ITS computer account to use the labs. The datasets to individual homework assignments are available as you work.

**Videos:**

As a part of this course, you may find it helpful to watch videos from the series *Against All Odds: Inside Statistics*, which was prepared with funding from the Annenberg Corporation for Public Broadcasting. Each program contains segments illustrating different applications of statistics. At http://www.learner.org/resources/resource.html?uid=65, you can see a description of each of the 26 programs and, if you have a broadband connection, view them over the web. The UT Learning Center also has a set of the videos available for viewing.

**Getting help:**

Your instructor is eager to help you during office hours or by appointment. If you prefer a private tutor, the UT Learning Center (phone 471-3614) in Jester A332A can arrange one for you for a reasonable charge. The UT Learning Center also has specific statistics

resources including a copy of the video tape series, *Against All Odds: Inside Statistics*, to help you with material in this class.

**Scholastic Dishonesty:**

The McCombs School of Business has no tolerance for acts of scholastic dishonesty. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the Policy Statement on Scholastic Dishonesty for the McCombs School of Business.

By teaching this course, I have agreed to observe the entire faculty responsibilities described in that document. By enrolling in this class, you have agreed to observe the entire student responsibilities described in that document. If the application of that Policy Statement to this class and its assignments is unclear in any way, it is your responsibility to ask me for clarification. Policy on Scholastic Dishonesty: Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. You should refer to the Student Judicial Services website or the General Information Catalog to access the official University policies and procedures on scholastic dishonesty as well as further elaboration on what constitutes scholastic dishonesty.

Scholastic dishonesty in this course includes copying or collaborating during an exam, discussing or divulging the contents of an exam with another student who will take the test, and use of homework solutions from another student or semester.

**Students with Disabilities:**

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. This includes students with learning disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.

**Course Schedule:**

| Topic and Lecture Date* | Videos | Textbook | Assignment Due Date |
|---|---|---|---|
| Introduction 8/26 | 1 | | |
| Displaying and Describing Distributions 8/31<br>The Normal Distribution, 9/2 | 2, 3, 6<br>4, 5 | 1.1, 1.2<br>1.3 | HW #1 – Sept 6 |
| Using Excel 9/7<br>Scatterplots and Correlation 9/9 | <br>8, 9 | <br>2.1, 2.2 | HW #2 – Sept 13 |
| Regression 9/14<br>Relations in Categorical Data 9/16 | 7<br>11 | 2.3, 2.4<br>2.5 | HW #3 – Sept 20 |
| Review 9/21<br>**Test #1** | | | **Sept 23, MOD Lab** |
| **Applied Finance Assignment #1** | | | **Oct 4** |
| Sample Design 9/28<br>Experiments 9/30<br>Randomness and Sampling Variability 10/5 | 13, 14<br>12 | 3.1<br>3.2<br>3.3, 4.1 | HW #4 – Oct 11 |
| Probability 10/7<br>Random Variables 10/12<br>Sampling Distributions 10/14 | 15<br>16<br>18 | 4.2<br>4.3<br>4.4 | HW #5 – Oct 18 |
| Control Charts 10/19<br>Binomial Distributions 10/21 | <br>17 | 12.1, 12.2<br>5.2 | HW #6 – Oct 25 |
| Review 10/26<br>**Test #2** | | | **Oct 28, MOD Lab** |
| **Applied Finance Assignment 2a** | | | **Nov 1** |
| Confidence Intervals 11/2<br>Hypothesis Testing 11/4 | 19<br>20 | 6.1<br>6.2 | HW #7 – Nov 8 |
| Using Hypothesis Tests 11/9, 11/11 | 21<br>23 | 6.3, 6.4<br>7.1, 8.1 | HW #8 – Nov 15 |
| Inference for Comparisons 11/16, 11/18<br>Inference for Two-Way Tables 11/23 | 22<br>24 | 7.2, 8.2<br>9.1 | HW #9, – Nov 29 |
| Review 11/30<br>**Test #3** | | | **Dec 2, MOD Lab** |
| **Applied Finance Assignment 2b** | | | **Dec 3** |

*Lecture dates may vary slightly through the semester.

**Course Important Date:**

| Week | Class Date | Tuesday | Class Date | Thursday | Due Date | HW & Assignment |
|---|---|---|---|---|---|---|
| 1 | | | Aug 26 | Welcome | | |
| 2 | Aug 31 | Displaying and Describing Distributions | Sep 02 | The Normal Distribution | | |
| 3 | Sep 07 | Using Excel | Sep 09 | Correlation/Scatterplots | Sep 06 | HW 1 |
| 4 | Sep 14 | Regression | Sep 16 | Categorical Relationships | Sep 13 | HW 2 |
| 5 | Sep 21 | **Review 1** | Sep 23 | **Test 1** | Sep 20 | HW 3 |
| 6 | Sep 28 | Sampling Design | Sep 30 | Experimental Design | | |
| 7 | Oct 05 | Randomness | Oct 07 | Probability | Oct 04 | **Assignment 1** |
| 8 | Oct 12 | Random Variables | Oct 14 | Sampling Distributions | Oct 11 | HW 4 |
| 9 | Oct 19 | Control Charts | Oct 21 | Binomial Distributions | Oct 18 | HW 5 |
| 10 | Oct 26 | **Review 2** | Oct 28 | **Test 2** | Oct 25 | HW 6 |
| 11 | Nov 02 | Confidence Intervals | Nov 04 | Hypothesis Testing | Nov 01 | **Assignment 2a** |
| 12 | Nov 09 | Using Hypothesis Tests | Nov 11 | Using Hypothesis Test 2 | Nov 08 | HW 7 |
| 13 | Nov 16 | Inference for Comparisons | Nov 18 | Inference for Comparisons 2 | Nov 15 | HW 8 |
| 14 | Nov 23 | Inference for Two-Way Tables | Nov 25 | Thanksgiving (No Class) | Nov 29 | HW 9 |
| 15 | Nov 30 | **Review 3** | Dec 02 | **Test 3** | Dec 03 | **Assignment 2b** |