

**TENTATIVE SYLLABUS - BA 578**  
**Business and Economics Statistics**  
**Business Administration and MIS Department**  
**Fall 2012**

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**REQUIRED TEXT:** Statistics Classnotes by Business Administration and MIS Department (Available in the university bookstores).

**Recommended but NOT REQUIRED Text:**

Anderson, Sweeney & Williams, Statistics for Business and Economics. Seventh or higher edition, ISBN: 0-538-87593-3, South-Western College Publishing.

**IMPORTANT NOTICE**

**\*\*\*Net Profit from the sales of classnotes is used to fund the department's scholarships. Since 1994 we have given over 159 scholarships from that fund.**

**\*\*\* Note that this is a tentative syllabus meaning that I can change (a) certain dates for the exams and (b) certain topics to be covered.**

**\*\*\* Since this is a graduate statistics course, I will constantly assume that students have mastered undergraduate statistics work. My classnote covers the most relevant material, so a student may refer to other texts. However, I believe that a student can make an "A" using only the classnote book.**

**\*\*\* If you have not taken any statistics course in the last two years, my suggestion is that you borrow a statistics book from the nearest library to aid your understanding of my classnotes. However, I will focus on the classnotes in teaching the class.**

**\*\*\* Also, note that I do not return your graded paper, but upon request I will be able to tell you what you missed on a test via e-mail. (Request period is 3 days after receiving exam grade)**

**\*\*\* Although you have your classnote book as well as other books, available in the library, you are not permitted to copy from your textbook due to copyright protection for author and publisher.**

**Course Description:** A course dealing with statistical concepts including measures of central tendency and dispersion, probability distributions, the Central Limit Theorem, sampling, estimation, hypothesis testing, analysis of variance, correlation and regression analysis.

**Course Prerequisite:** GBUS 501 or acceptable undergraduate course in statistics.

**Course Objectives:** The objective of this course is to provide a foundation for the graduate business student on basic principles of statistics to include measurements of location and dispersion, probability, probability distributions, sampling, estimation, hypothesis testing, regression and correlation analysis, and multiple regression. The following are specific objectives for the course that the student will:

1. know the definition of the variance and the standard deviation.
2. be able to use the binomial distribution tables to solve a problem.
3. be able to use the normal distribution table to solve a problem.
4. know the central limit theorem.
5. be able to test a hypothesis as well as calculate confidence intervals for a population parameter.
6. be able to test a statistical hypothesis using  $Z$  and  $p$ -value.
7. know how to test difference between two sample means.
8. know how to compute and interpret the results of a one-way ANOVA.
9. know how to compute and interpret the results of a Chi-Square test for independence as well as a test for homogeneity.
10. know how to calculate and interpret the results of regression and correlation.
11. be able to determine from an Excel print out, the analytical factors for a multiple regression problem analysis.
12. understand how to forecast for time series using stationary methods, trend methods, and seasonal methods.

**HomeWork:** Homework problems will be recommended on a regular basis.

**Research Paper:** Each student will be expected to produce an empirical research study on a topic selected in consultation with the instructor.

**Exams:** For each exam you should have one 8 ½ x 11 sheet of paper containing formulas (not solutions of problems). Call this your cheat sheet. All exams will be closed book.  
*Surprise quizzes may be given and no make-ups are allowed.*

**Attendance Policy:** Attendance is mandatory. Anticipated absences for work related reasons should be explained to instructor in advance.

**Class participation:** Your contribution is important. Articulating your understanding is an important part of your learning process. Don't hesitate to ask questions in class. Usually another student has the same question. So by asking in class everyone can benefit from the question.

**Services for Students with Disabilities:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Disability Resources and Services  
Texas A&M University-Commerce  
Halladay Student Services Building  
Room 303 A/D  
Telephone: (903) 886-5150 or (903) 886-5835  
FAX: (903) 468-8148

<b><u>Grade Component</u></b>	<b><u>Points</u></b>
a. Exams 1, 2 (100 points each)	200
b. Journal Article & Project	100
c. Final	200

**Grading Policy:**

<b><u>Grade Component</u></b>	
Exam 1, 2	30%
Final	50%
Journal Article & Project	20%

<u>Average Range</u>	<u>Grade</u>
90%-100%	A
80%-89%	B
70%-79%	C
60%-69%	D
Below 60%	F

**Classroom Demeanor:** “All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment.” See Student’s Guide Book.

**Academic Integrity:** Academic integrity is the pursuit of scholarly free from fraud and deception and is an educational objective of this institution. Academic dishonesty included, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Students involved in academic dishonesty will fail the course.

**NOTE THE FOLLOWING**

1. This syllabus is tentative for the semester. It is meant to be a guide. Certain topics may be stressed more or less than indicated in the class note books and, depending on class progress, certain topics may be omitted.
2. Homework problems will be recommended on a regular basis.
3. Missed examination: A missed examination will be considered as ‘F’

<b>Exams</b>	<b>Exams Uploaded on</b>	<b>Due Date</b>	<b>Chapters Covered</b>
Exam 1	Sep 21, 2012	Sep 24, 2012	2, 3, 4, 5, 6, 7
Exam 2	Oct 19, 2012	Oct 22, 2012	6, 7, 8, 9, 10
Final Exam	Dec 7, 2012	Dec 10, 2012	Comprehensive

**BA 578 Fall 2012**

<b><u>Text Assignment</u></b>	<b><u>Suggested Problems</u></b>	<b><u>Objective</u></b>
<p align="center"><b>Chapter 1</b> <b>A First Look at Statistics</b></p>		<ul style="list-style-type: none"> <li>✓ Define descriptive and inferential statistics.</li> <li>✓ Differentiate between a quantitative and a qualitative variable.</li> <li>✓ Differentiate between a discrete and a continuous variable.</li> <li>✓ Know the four levels of measurement – nominal, ordinal, interval, and ratio.</li> </ul>
<p align="center"><b>Chapter 2</b> <b>Ungrouped Data</b></p>	<p>2-7(2), 2-8(3), 2-9(4), 2-11(8), 2-16(2), 2-20(3), 2-22(2), 2-24(3), 2-26(5)</p>	<ul style="list-style-type: none"> <li>✓ Construct a frequency distribution and define mean, mode and median.</li> <li>✓ Define and calculate percentile and percentile Rank.</li> <li>✓ Measure variability for ungrouped data.</li> </ul>

<p align="center"><b>Chapter 3</b> <b>Grouped Data</b></p>	<p>3-6(3), 3-7(1), 3-16(1), 3-20(5), 3-24(2), 3-29(1), 3-30(2), 3-39(2), 3-40(3)</p>	<ul style="list-style-type: none"> <li>✓ Construct a frequency distribution.</li> <li>✓ Determine and compute relative frequencies, and distribution cumulative frequencies of a frequency.</li> <li>✓ Differentiate between GAP in class and Non-GAP in class of a frequency distribution.</li> <li>✓ Measure central tendency.</li> <li>✓ Measure variability for grouped data.</li> <li>✓ Define and calculate percentile and percentile Rank.</li> <li>✓ Understand and calculate Chebychef theorem.</li> <li>✓</li> </ul>
<p align="center"><b>Chapter 4</b> <b>The Statistical Sampling Study</b> <b>(Simple Regression)</b></p>	<p>4-9(4, 5)</p>	<ul style="list-style-type: none"> <li>✓ Understand why we use sample instead of population</li> <li>✓ Understand, interpret and calculate regression analysis.</li> </ul>
<p align="center"><b>Chapter 5</b> <b>Probability</b></p>	<p>5-8(6), 5-9(14), 5-11(23),5-12(27), 5-15(36)</p>	<ul style="list-style-type: none"> <li>✓ Define probability.</li> <li>✓ Define marginal, conditional, and joint probabilities.</li> <li>✓ Use the special and general rules of multiplication and addition in probability computation.</li> <li>✓ Calculate marginal, conditional, and joint probabilities.</li> </ul>
<p align="center"><b>Chapter 6</b> <b>Discrete Probability Distribution</b></p>	<p>6-10(1), 6-12(4), 6-22(1)</p>	<ul style="list-style-type: none"> <li>✓ Describe the characteristics and compute probabilities using the binomial probability distribution both use of binomial Formula and use of tables.</li> </ul>

		<ul style="list-style-type: none"> <li>✓ Define probability distribution and random variable.</li> <li>✓ Calculate the mean, variance, and standard deviation of a discrete distribution.</li> <li>✓ Define and compute Hypergeometric Distribution</li> </ul>
<p style="text-align: center;"><b>Chapter 7</b> <b>The Normal Distribution</b></p>	<p>7-21(6, 7), 7-22(11), 7-23(23), 7-24(31), 7-44(1), 7-45(7), 7-45A (2), 7-45B (8), 7-45C (14), 7-45D(17), 7-45E(26), 7-62(2), 7-63(7)</p>	<ul style="list-style-type: none"> <li>✓ Describe the characteristics and compute standard normal distribution by using formula and normal curve table.</li> <li>✓ Describe the characteristics and compute normal approximation to the Binomial distribution.</li> <li>✓ Differentiate between standard normal distribution and normal approximations to the Binomial distribution.</li> <li>✓ Describe various sampling techniques.</li> <li>✓ Explain the Central Limit Theorem.</li> <li>✓ Describe interval estimate and the confidence level.</li> <li>✓ Define and compute interval estimates of mean.</li> <li>✓ Define and compute estimates of the population proportion</li> <li>✓ Identify Type I and Type II errors.</li> <li>✓ Conduct a test of hypothesis about a population mean and a population proportion.</li> <li>✓ Conduct the test of hypothesis using one and two tail tests.</li> </ul>

		<ul style="list-style-type: none"> <li>✓ Conduct the test of hypothesis regarding one population mean with a small sample.</li> <li>✓ Define and compute hypothesis testing for comparing two means.</li> </ul>
<b>Chapter 8</b> <b>Statistical Estimation</b>	8-10(11)	<ul style="list-style-type: none"> <li>✓ Describe interval estimate and the confidence level.</li> <li>✓ Define and compute interval estimates of mean.</li> <li>✓ Define and compute estimates of the population proportion</li> </ul>
<b>Chapter 9</b> <b>Hypothesis Testing</b>	9-17(3), 9-18(8), 9-19(14)	<ul style="list-style-type: none"> <li>✓ Identify Type I and Type II errors.</li> <li>✓ Conduct a test of hypothesis</li> </ul>

		<p>about a population mean and a population proportion.</p> <ul style="list-style-type: none"> <li>✓ Conduct the test of hypothesis using one and two tail tests.</li> <li>✓ Conduct the test of hypothesis regarding one population mean with a small sample.</li> <li>✓ Define and compute hypothesis testing for comparing two means.</li> </ul>
<p><b>Chapter 10</b> <b>Simple Regression</b></p>	<p>10-17(1), 10-19(3), 10-24(1), 10-27(9), 10-28(11), 10-29(13)</p>	<ul style="list-style-type: none"> <li>✓ Understand the differences between various experiment designs and when to use them.</li> <li>✓ Compute and interpret the results of ANOVA.</li> <li>✓ Compute the growth rate.</li> <li>✓ Define whether the regression equation makes sense.</li> </ul>
<p><b>Chapter 11</b> <b>Multiple Regression</b></p>	<p>11-9(1)</p>	<ul style="list-style-type: none"> <li>✓ Understand linear regression model.</li> <li>✓ Describe the relationship between two or more independent variables and the dependent variable using a multiple regression equation.</li> <li>✓ Compute and interpret the multiple standard error of the estimate and the coefficient of determination.</li> </ul>

<p align="center"><b>Chapter 12</b> <b>Time-Series Forecasting</b></p>		<ul style="list-style-type: none"> <li>✓ Understand the factor influencing time series data.</li> <li>✓ Define and compute the classical multiplicative time-series model.</li> <li>✓ Describe the characteristics and compute the using of smoothing method is forecasting.</li> <li>✓ Define and compute linear trend.</li> <li>✓ Describe the characteristics and compute autoregressive modeling for fitting and forecasting.</li> </ul>
<p align="center"><b>Chapter 13</b> <b>Co integration and Error-Correction Modeling</b></p>		<ul style="list-style-type: none"> <li>✓ Understand the nature of conintegration and be able to derive conintegrating equation through error correction modeling.</li> <li>✓ Differentiate between stationary time series and non-stationary time series.</li> </ul>
<p align="center"><b>Chapter 14</b> <b>Analysis of Variance</b></p>	<p>14-11(1), 14-12(2), 14-13(3)</p>	<ul style="list-style-type: none"> <li>✓ Define and analyze variance.</li> <li>✓ Understand regression approach to ANOVA</li> </ul>
<p align="center"><b>Chapter 15</b> <b>Chi-Square Tests</b></p>	<p>15-8(1) , 15-9(2), 15-10(3)</p>	<ul style="list-style-type: none"> <li>✓ Understand and interpret interaction.</li> <li>✓ Understand the chi-square goodness-of-fit test and how to use it.</li> <li>✓ Analyze data by using the chi-square test of independence.</li> </ul>

<p><b>Chapter 16</b> <b>Proportions</b></p>		<ul style="list-style-type: none"><li>✓ Define and compute test for differences between proportions for large samples sizes.</li><li>✓ Define and compute test for differences between proportions of a multinomial population</li></ul>
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