



BA 302-01W and 04W: Business and Eco Statistics [CRN # 80899 and 82610 (AP Class)]
Course Syllabus (Fall 2012): 8/27/2012 - 12/14/2012

Professor: Dr. Kishor Kumar Guru-Gharana

Office: BA 323

Office Hrs: Virtual Office Hours (24/7 for the whole semester); and
Mon-Tue-Wed 9:30A.M.-11:49 A.M. at BA 323

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Required Text:

D. A. Lind/W. G. Marchal/S. A. Wathen, Statistical Techniques in Business & Economics – McGraw Hill Irwin, 15th edition ISBN- 978-0-07-340180-5 or 14th ed. ISBN- 978-0-07-340176-8 of the same book.

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, correlation and regression analysis.

Course Prerequisites:

Math 141, 175 or equivalent.

Course Objectives: Student Learning Outcomes

The objective of this course is to provide an understanding for the undergraduate business student on statistical concepts to include measurements of location and dispersion, probability, probability distributions, sampling, estimation, hypothesis testing, regression, and correlation analysis, multiple regression and business/economic forecasting. By completing this course the student will learn to perform the following:

- 1) How to calculate and apply measures of location and measures of dispersion.
- 2) How to apply discrete and continuous probability distributions to various business problems.
- 3) To understand the meaning of a null and an alternative hypothesis as well as the meaning of type I and type II error. Further, to perform test of hypothesis as well as calculate confidence interval for a population parameter for a single mean, including use of the t and the z test.
- 4) Compute and interpret the results of Bivariate Regression and Correlation Analysis.
- 5) Be able to interpret regression results generated by a computer software.

Rubric

Criteria (Course Objectives)	1 (Unsatisfactory)	2 (Emerging)	3 (Proficient)	4 (Exemplary)
1. How to calculate and apply measures of location and measures of dispersion.	Student cannot calculate and apply any measures of location and measures of dispersion.	Student can calculate and apply some of the measures of location and measures of dispersion.	Student can calculate and apply most of the measures of location and measures of dispersion.	Student can calculate and apply all of the measures of location and measures of dispersion.
2. How to apply discrete and continuous probability distributions to various business problems.	Student cannot apply discrete and continuous probability distributions to any problems.	Student can apply of discrete and continuous probability distributions to some problems.	Student can apply of discrete and continuous probability distributions to most of the problems.	Student can apply discrete and continuous probability distributions to all the problems.

3. Understand the Hypothesis Testing: Understand the meaning of a null and an alternative hypothesis	3.1 Student doesn't understand the meaning of a null and an alternative hypothesis	3.1 Student understands the meaning of a null and an alternative hypothesis or	3.1 Student understands the meaning of a null and an alternative hypothesis or	3.1 Student understands the meaning of a null and an alternative hypothesis and
	3.2 Student doesn't understand the meaning of type I and type II error.	3.2 Student understands the meaning of type I and type II error. or	3.2 Student understands the meaning of type I and type II error. or	3.2 Student understands the meaning of type I and type II error. and
	3.3 Be able to perform test of hypothesis	3.3 Student cannot perform test of hypothesis	3.3 Student is able to perform some test of hypothesis or	3.3 Student is able to perform some test of hypothesis or
	3.4 Be able to calculate confidence interval for a population parameter for a single mean, including use of the t and the z test.	3.4 Student cannot calculate confidence interval for a population parameter for a single mean, including use of the t and the z test	3.4 Student is able to calculate confidence interval for a population parameter for a single mean, including use of the t and the z test (2 out of 4)	3.4 Student is able to calculate confidence interval for a population parameter for a single mean, including use of the t and the z test (3 out of 4)
4. Compute and interpret the results of Bivariate Regression and Correlation Analysis.	Student cannot compute and interpret the results of Bivariate Regression and Correlation Analysis.	Student can compute and interpret some of the results of Bivariate Regression and Correlation Analysis.	Student can compute and interpret most of the results of Bivariate Regression and Correlation Analysis.	Student can compute and interpret all of the results of Bivariate Regression and Correlation Analysis.
5. Be able to interpret regression results generated by computer software.	Student cannot interpret regression results generated by a computer software	Student can fairly interpret regression results generated by a computer software	Student can interpret regression results generated by a computer software well	Student can interpret regression results generated by a computer software excellently

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 Student Disability Resources and Services
 Texas A&M University-Commerce
 Gee Library, Room 132
 Phone (903) 886-5150 or (903) 886-5835
 Fax (903) 468-8148
StudentDisabilityServices@tamu-commerce.edu

Statement of Ethical and Professional Conduct:

The College of Business and technology at Texas A&M University –Commerce faculty, staff and students will follow the highest level of ethical and professional behavior. We will strive to be recognized as a community with legal, ethical and moral principles and to teach and practice professionalism in all that we do.

In an academic environment we will endeavor to not only teach these values but also to live them in our lives and daily work. Faculty and staff will be held to the same standards and expectations as our students.

Failure to abide by these principles will result in sanctions up to and including dismissal.

Actionable Conduct:

These are five different types of actions that will bring sanction. They are:

1. Illegal activity: Violation of any local, state or federal laws that prohibit the offender from performance of his or her duty.
2. Dishonest conduct: Seeking or obtaining unfair advantage by stealing or receiving copies of tests or intentionally preventing others from completing their work. In addition falsifying of records to enter or complete a program will also be considered dishonest conduct.
3. Cheating: The unauthorized use of another's work and reporting it as your own.
4. Plagiarism: Using someone else's ideas and not giving proper credit.
5. Conclusion: Acting with others to perpetrate any of the above actions regardless of personal gain.

Sanctions:

In the case of staff or faculty the immediate supervisor will be the arbiter of actionable behavior and will use Texas A&M University Commerce and/or Texas A&M University System Policy and Procedures as appropriate to guide sanctions.

Faculty, guided by clearly delineated policy in the course syllabus, will be arbiter for in-class violations. All violations will be reported to the dean of the college of Business and technology to assure equity and to provide appropriate counsel. In addition, the Dean will maintain the records of violations by students. Second violations will be reviewed by the Dean and sanctions beyond those of the faculty up to and including suspension and permanent expulsion from Texas A&M University –Commerce will be considered. Faculty and students are guided by the current undergraduate and graduate catalogs of the university as well as The Students Guidebook.

Faculty, Staff and Students will always be afforded due process and review as appropriate.

Grading Policy:

Grade Component	Points
Four Home ASSIGNMENTS (4*75 = 300)	300
MIDTERM EXAM (Chs.1,2,3,5, 6 and 7)	300
FINAL EXAM (Chs.5,6,7,8,9,10, and 13)	400

Final grade in the course is the average from the student's total score from the sum of Assignments + Midterm + Final above.

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

EXAMS SCHEDULE

Exams	Exams Uploaded on*	Last Date**	Chapters Covered
Mid-Term Exam (Six hours)	Wednesday, Oct 17th, 2012	Saturday, Oct 20th, 2012	1, 2, 3, 5, 6 and 7
Final Exam (Seven hrs)	Saturday, Dec 8th, 2012	Tuesday, Dec 11th, 2012	5, 6,7, 8, 9,10 and 13

*Uploading will be done in the morning (8 a.m.) of the starting date. The Mid-term and Final have four-day windows with time limits once you start the tests. The Mid-term has a Six-hours time limit and the Final has a Seven-hours time limit. The Exams are one-take Exams. That is, you have to finish the Exam in a single take and one stretch.

Mid-night (11:59 p.m.) of the Last Date. Start **at least 6 hours earlier than 11:59 p.m. of the last date for the Mid-term and **7 hours earlier** for the Final. Once the time passes 11:59 p.m. of the last date or you have spent the given time limit for the test (whichever comes first), the system will kick you out of the test. So, be very careful about the time remaining while taking the test.

NOTE THE FOLLOWING:

1. Feel free to ask questions through **email** or other online tools, especially the **virtual office**. I am accessible 24/7 through these channels even during weekends or holidays. You can ask any question related to the course topics in the virtual office and I try to answer them within few hours (maximum 24 hours). In the virtual office or students' forum you can also try to answer others' questions. But you are expected to maintain etiquette and decency in your responses.
2. 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 text books and, depending on class progress, certain topics may be omitted.
3. Homework problems are assigned and graded every week. Solution to Assignment problems will be provided after the deadline for submission.
4. Missed examination: Missing Homework Assignment will result in zero score while missing the Final will result in grade "F". There will be no make-up Exam or make-up Assignment.
5. I provide detailed Instructions with examples for each Chapter. I post the links to the Chapter Instructions in the Announcement Section. I also provide power point slides for the chapters covered in the course.
6. Students are expected to:
 - a. Read text assignments as scheduled.
 - b. Read the chapter Instructions and the power point slides provided by the Professor.
 - c. Work the assigned homework problems independently. Submit the homework problems due as indicated in the appropriate drop box.
 - d. Read the regular announcements in the Announcement section of the e-college and download the posted materials with download links.
7. Demeanor: "All students enrolled at the university shall follow tenets of common decency and acceptable behavior conducive to a positive learning environment". See Students Guide Book.
8. Attendance Policy: In the online course there is no class attendance. But assignments and tests have corresponding due dates.
10. **Excel (2007)** will be used to solve problems along with calculator and formulas.

Topical Outline and Schedule of Assignments:

The schedule will depend on class progress; chapter assignments and tests may be altered as the class progresses. Students should read chapters and power point slides, and Instructions provided by the Professor.

Chapter	Designated Assignment Problems	Date/Due date	Chapter Goals
<u>Chapter 1</u> What is Statistics	Instruction posted in e-college Announcement Section	Aug 27 - Sept 16	<ol style="list-style-type: none"> Understand why we study Statistics Explain what is meant by <i>descriptive statistics</i> and <i>inferential statistics</i> Distinguish between <i>qualitative</i> and <i>quantitative</i> variables Describe how a <i>discrete</i> variable is different from a <i>continuous</i> variable Distinguish among the <i>nominal, ordinal, interval, and ratio</i> levels of measurement.
<u>Chapter 2</u> Describing Data: Frequency tables, Frequency Distributions, and Graphic Presentations	Instruction Posted in e-college Announcement Section	Aug 27- Sept 16	<ol style="list-style-type: none"> Organize <i>qualitative data</i> into a <i>frequency table</i>. Present a frequency table as a <i>Bar Chart</i> or a <i>Pie Chart</i>. Organize quantitative data into a <i>frequency distribution</i>. Present a frequency distribution for quantitative data using <i>histograms, frequency polygons, and cumulative frequency polygons</i>.
<u>Chapter 3</u> Describing Data: Numerical measures	Instruction Posted in e-college Announcement Section	Aug 27 - Sept 16	<ol style="list-style-type: none"> Calculate the <i>arithmetic mean, weighted mean, median, mode, and geometric mean</i>. Explain the characteristics uses, advantages, and disadvantages of each <i>measure of location</i>. Identify the position of the <i>mean, median, and mode</i> for both <i>symmetric</i> and <i>skewed distributions</i>. Compute and interpret the <i>range, mean deviation, variance, and standard deviation</i>. Understand the characteristics, uses, advantages, and disadvantages of each <i>measure of dispersion</i>. Understand <i>Chebychev's theorem</i> and the <i>Empirical rule</i> as they relate to a set of observations.
Assignment 1 (Chapters 1, 2 and 3)	Posted in e-college Announcement Section	Sunday, Sept 16th by 11:59 pm	
<u>Chapter 5</u> A Survey of Probability Concepts	Instruction to be posted in e-college Announcement Section	Sept 17- Oct 7	<ol style="list-style-type: none"> Define probability. Describe the <i>Classical, Empirical, and Subjective</i> approaches to probability. Explain the terms <i>experiment, event, outcome, permutations, and combinations</i> Define the terms <i>conditional probability and joint probability</i>. Calculate probabilities using the <i>Rules of Addition</i> and the <i>Rules of Multiplication</i>. Calculate the probability using <i>Bayes' Theorem</i>
<u>Chapter 6</u> Discrete Probability Distributions	Instruction to be posted in e-college Announcement Section	Sept 17- Oct 7	<ol style="list-style-type: none"> Define probability distribution and random variable. Differentiate between <i>discrete and continuous probability distributions</i>. Calculate the mean, variance, and standard deviation of a discrete distribution. Describe the characteristics and compute probabilities using the <i>binomial probability distribution</i> – use of tables and computer. Describe the characteristics and compute probabilities using the <i>Poisson distribution</i> – use of tables.
<u>Chapter 7</u> Continuous Probability Distributions	Instruction to be posted in e-college Announcement Section	Sept 17- Oct 7	<ol style="list-style-type: none"> Understand the difference between <i>discrete and continuous probability distributions</i>. Understand the characteristics of the <i>normal probability distribution</i>. Define and calculate Z values. Determine the probability is between two points on a <i>normal probability distribution</i>. Determine the probability an observation is above or below a point on a <i>normal probability distribution</i>. Use the <i>normal probability distribution</i> to approximate the <i>binomial probability distribution</i>.
Assignment 2 (Chapters 5, 6, 7)	To be posted in e-college Announcement Section	Sunday, Oct 7th by 11:59 pm	

Midterm Exam Time Limit: 6 hours, once the test starts (Single Take and One Stretch Exam)	Chapters 1,2,3,5,6 and 7	8a. m. Wednesday, Oct 17th till 11:59 p.m. Saturday, Oct 20th, 2012	
Chapter 8 Sampling Methods and the Central Limit Theorem	Instruction to be posted in e-college Announcement Section	Oct 22- Nov11	<ol style="list-style-type: none"> 1. Explain why a <i>sample</i> is often the only feasible way to learn something about <i>population</i>. 2. <i>Describe methods to select a sample.</i> 3. Define and construct a <i>sampling distribution</i> of the sample mean. 4. Understand and explain the <i>central limit theorem</i>. 5. Use the central limit theorem to find probabilities of selecting possible sample means from a specified population.
Chapter 9 Estimation and Confidence Intervals	Instruction to be posted in e-college Announcement Section	Oct 22- Nov11	<ol style="list-style-type: none"> 1. Define a <i>point estimate</i>. 2. Define <i>level of confidence</i>. 3. Construct a <i>confidence interval</i> for a population mean when the <i>population standard deviation</i> is unknown: learn about <i>t-distribution</i>. 4. Construct a confidence interval for a <i>population proportion</i>. 5. Calculate the <i>required sample size</i> for either an <i>attribute or a variable</i>.
Assignment 3 (Chaps. 7 and 8)	To be Posted in e-college Announcement Section	Sunday, Nov 11th by 11:59 pm	
Chapter 10 One Sample Test of Hypothesis	Instruction to be posted in e-college Announcement Section	Nov 12- Dec 2	<ol style="list-style-type: none"> 1. Define <i>Hypothesis</i> and <i>Hypothesis testing</i>. 2. Describe the <i>five step hypothesis-testing procedure</i>. 3. Distinguish between a <i>one-tailed</i> and a <i>two-tailed test of hypothesis</i>. 4. Conduct a hypothesis test regarding a population mean. 5. Conduct a test of hypothesis about a population proportion. 6. Define <i>Type I</i> and <i>Type II</i> errors.
Chapter 13 Linear Regression and Correlation	Instruction to be posted in e-college Announcement Section	Nov 12- Dec 2	<ol style="list-style-type: none"> 1. Understand and interpret the terms independent and dependent variables. 2. Calculate and interpret <i>coefficient of correlation</i>, the <i>coefficient of determination</i> and the <i>standard error of the estimate</i>. 3. Calculate the least squares <i>regression line</i> and interpret the <i>slope</i> and <i>intercept values</i>. 4. Conduct <i>tests of significance</i> on the <i>regression coefficients</i>. 5. Learn about <i>prediction</i> of dependent variable using regression.
Assignment 4 (Chaps 10 & 13)	To be Posted in e-college Announcement section	Sunday, Dec 2nd by 11:59 pm	
Final Exam :Time limit 7 hours: once you start the Test (Single Take and One-Stretch Exam)	Chapters 5, 6, 7, 8, 9, 10, and 13	Dec 8- 11, 2012 Saturday*-Tuesday*	

The window period for the Final starts at 8 am on Saturday and ends at 11:59 pm on Tuesday

HOME WORK PROBLEMS TO BE TURNED IN- The Home Assignments are to be turned in by the **Midnight** of the due date also indicated on top each posted Assignment. **NO LATE SUBMISSION WILL BE ACCEPTED**

Chapters	Problem(s)	Due Date
Chapters 1-3	Assignment 1 (posted in the Announcement section)	Sunday, Sept 17th
Chapters 5-7	Assignment 2 (posted in the Announcement section)	Sunday, Oct 7th
Chapters 8-9	Assignment 3 (posted in the Announcement section)	Sunday, Nov 11th
Chapters 10 and13	Assignment 4 (posted in the Announcement section)	Sunday, Dec 2nd

Submit your Answers via Drop box of the indicated week in the e-college system.