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
Phone: 903.886.5687 (off); 903.886.5693 (fax)
Email: kishor.guru-gharana@tamuc.edu

Required Text:

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, includin g 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

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

3.2 Student doesn’t understand the meaning of type I and type II error.

3.3 Student cannot perform test of hypothesis.

3.4 Be able to calculate confidence interval for a population parameter for a single mean, including use of the t and z test.

3.4 Student cannot calculate confidence interval for a population parameter for a single mean, including use of the t and z test.

3.1 Student understands the meaning of a null and an alternative hypothesis.

3.2 Student understands the meaning of type I and type II error.

3.3 Student is able to perform some test of hypothesis.

3.4 Student is able to calculate confidence interval for a population parameter for a single mean, including use of the t and z test (2 out of 4).

3.1 Student understands the meaning of a null and an alternative hypothesis.

3.2 Student understands the meaning of type I and type II error.

3.3 Student is able to perform some test of hypothesis.

3.4 Student is able to calculate confidence interval for a population parameter for a single mean, including use of the t and z test (3 out of 4).

3.1 Student understands the meaning of a null and an alternative hypothesis.

3.2 Student understands the meaning of type I and type II error.

3.3 Student is able to perform some test of hypothesis.

3.4 Student is able to calculate confidence interval for a population parameter for a single mean, including use of the t and z test.

4. Compute and interpret the results of Bivariate Regression and Correlation Analysis.

4.1 Student cannot compute and interpret the results of Bivariate Regression and Correlation Analysis.

4.2 Be able to interpret regression results generated by computer software.

4.1 Student cannot interpret regression results generated by computer software.

4.2 Be able to interpret regression results generated by computer software.

4.2 Student can fairly interpret regression results generated by computer software well.

5. Be able to interpret regression results generated by computer software.

5.1 Student can fairly interpret regression results generated by computer software well.

5.2 Student can interpret regression results generated by 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:

<table>
<thead>
<tr>
<th>Grade Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four Home ASSIGNMENTS (4*75 = 300)</td>
<td>300</td>
</tr>
<tr>
<td>MIDTERM EXAM (Chs.1,2,3,5, 6 and 7)</td>
<td>300</td>
</tr>
<tr>
<td>FINAL EXAM (Chs.5,6,7,8,9,10, and 13)</td>
<td>400</td>
</tr>
</tbody>
</table>

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

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

EXAMS SCHEDULE

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

*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.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Designated Assignment Problems</th>
<th>Date/Due date</th>
<th>Chapter Goals</th>
</tr>
</thead>
</table>
| Chapter 1 | What is Statistics | Instruction posted in e-college Announcement Section | Aug 27 - Sept 16 | 1. Understand why we study Statistics  
2. Explain what is meant by descriptive statistics and inferential statistics  
3. Distinguish between qualitative and quantitative variables  
4. Describe how a discrete variable is different from a continuous variable  
5. Distinguish among the nominal, ordinal, interval, and ratio levels of measurement. |
| Chapter 2 | Describing Data: Frequency tables, Frequency Distributions, and Graphic Presentations | Instruction Posted in e-college Announcement Section | Aug 27- Sept 16 | 1. Organize qualitative data into a frequency table.  
2. Present a frequency table as a Bar Chart or a Pie Chart.  
3. Organize quantitative data into a frequency distribution.  
4. Present a frequency distribution for quantitative data using histograms, frequency polygons, and cumulative frequency polygons. |
| Chapter 3 | Describing Data: Numerical measures | Instruction Posted in e-college Announcement Section | Aug 27 - Sept 16 | 1. Calculate the arithmetic mean, weighted mean, median, mode, and geometric mean  
2. Explain the characteristics uses, advantages, and disadvantages of each measure of location.  
3. Identify the position of the mean, median, and mode for both symmetric and skewed distributions.  
4. Compute and interpret the range, mean deviation, variance, and standard deviation.  
5. Understand the characteristics, uses, advantages, and disadvantages of each measure of dispersion.  
6. Understand Chebyshev’s theorem and the Empirical rule as they relate to a set of observations. |
| Assignment 1 | (Chapters 1, 2 and 3) | Posted in e-college Announcement Section | Sunday, Sept 16$^{th}$ by 11:59 pm |
| Chapter 5 | A Survey of Probability Concepts | Instruction to be posted in e-college Announcement Section | Sept 17- Oct 7 | 1. Define probability.  
2. Describe the Classical, Empirical, and Subjective approaches to probability.  
3. Explain the terms experiment, event, outcome, permutations, and combinations  
4. Define the terms conditional probability and joint probability.  
6. Calculate the probability using Bayes’ Theorem |
| Chapter 6 | Discrete Probability Distributions | Instruction to be posted in e-college Announcement Section | Sept 17- Oct 7 | 1. Define probability distribution and random variable.  
2. Differentiate between discrete and continuous probability distributions.  
3. Calculate the mean, variance, and standard deviation of a discrete distribution.  
4. Describe the characteristics and compute probabilities using the binomial probability distribution – use of tables and computer.  
5. Describe the characteristics and compute probabilities using the Poisson distribution – use of tables. |
| Chapter 7 | Continuous Probability Distributions | Instruction to be posted in e-college Announcement Section | Sept 17- Oct 7 | 1. Understand the difference between discrete and continuous probability distributions.  
2. Understand the characteristics of the normal probability distribution.  
3. Define and calculate Z values.  
4. Determine the probability is between two points on a normal probability distribution.  
5. Determine the probability an observation is above or below a point on a normal probability distribution.  
6. Use the normal probability distribution to approximate the binomial probability distribution. |
| Assignment 2 | (Chapters 5, 6, 7) | To be posted in e-college Announcement Section | Sunday, Oct 7$^{th}$ by 11:59 pm |
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 of each posted Assignment. **NO LATE SUBMISSION WILL BE ACCEPTED**

<table>
<thead>
<tr>
<th>Chapters</th>
<th>Problem(s)</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapters 1-3</td>
<td>Assignment 1 (posted in the Announcement section)</td>
<td>Sunday, Sept 17th</td>
</tr>
<tr>
<td>Chapters 5-7</td>
<td>Assignment 2 (posted in the Announcement section)</td>
<td>Sunday, Oct 7th</td>
</tr>
<tr>
<td>Chapters 8-9</td>
<td>Assignment 3 (posted in the Announcement section)</td>
<td>Sunday, Nov 11th</td>
</tr>
<tr>
<td>Chapters 10 and 13</td>
<td>Assignment 4 (posted in the Announcement section)</td>
<td>Sunday, Dec 2nd</td>
</tr>
</tbody>
</table>

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