Course Title: ECO 502 Quantitative Analysis for Managers
Course Location/Time: Online
Instructor: Ken Bandy, Ph.D.  Office Hours: By Appointment
Office: Home Office
Contact Information: Kenneth.Bandy@tamu.edu


Course Description: This course satisfies the MBA background requirements for quantitative analysis & production management techniques. The course will cover descriptive statistics, inferential statistics & math models with business applications to analyze management & organizational problems. Specific topics include: measures of central tendency & variation, probability distributions, estimation, hypothesis testing, regression & correlation, decision theory, linear programming, transportation & assignment models, & inventory management & queuing theory models. Prerequisites: Math 175 or 141.

Course Learning Objectives: The *Bloom Learning Taxonomy* was used to guide the design of course learning objectives. By successfully completing this course you will:

1. Appreciate the value of data collection, analysis, & presentation/reporting as a means to support a wide range of business decisions.
2. Recall the definitions of specific data analysis terms & principles.
3. Explain statistical techniques used to support business decisions.
4. Apply formulas & techniques to access useful data & produce numeric values to support decisions.
5. Compare outcomes of applied formulas & techniques to produce solutions to business problems.
6. Compare characteristics of cases & scenarios to devise an appropriate plan to address stated challenges.
7. Assess the impact of quantitative & qualitative factors in specified business scenarios to identify the limits of statistical techniques in supporting business decisions.

Earning Grades:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Quantity</th>
<th>Value</th>
<th>Extended</th>
<th>Your Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td>1 each</td>
<td>200</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Quizzes</td>
<td>25 each</td>
<td>20</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>700</td>
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</tbody>
</table>

Homework problems: Textbook problems will not be assigned as homework. Solving problems at the end of each chapter will introduce you to the various kinds of analysis required in statistical techniques. You are encouraged to solve as many problems as is necessary to prepare for the quizzes & the exam. Solutions to the odd-numbered chapter problems are provided in the appendix to the textbook. You are welcome to post questions about these problems in the corresponding discussion forum found in the online learning management system (LMS).
Quizzes: Twenty-five (25) quizzes are assigned throughout the course. The quizzes are available online in the LMS. There are two (2) quizzes assigned for each chapter. The first chapter quiz includes true/false items that aid you in developing a conceptual knowledge of terms and principles related to statistical analysis. The second chapter quiz includes multiple-choice items that aid you in understanding how formulas and techniques produce numeric values to help solve business problems. Quizzes are due on Tuesdays and Thursdays throughout the first seven (7) weeks of the term. YOU MAY RETAKE QUIZZES MULTIPLE TIMES FROM THE MOMENT THEY ARE AVAILABLE UNTIL THE CLOSING DATE/TIME. Each successive attempt will overwrite your grade on the prior attempt. You are encouraged to post questions and help others solve these problems on discussion forum found in the concurrent week’s assigned lectures and resources. Students should avoid giving answers when assisting others. Instead, provide assistance by sharing reasoning about problems.

Discussion/Group Area in eCollege: A discussion area for each chapter covered in this class is available in eCollege. ALL QUESTIONS related to chapter problems must be posted to their appropriate discussion area. DO NOT send questions about specific chapter problems to the instructor via email. The discussion areas are used to answer questions so that all students may benefit from both the question & the response. YOU WILL RECEIVE EXTRA CREDIT when you quickly, accurately, & originally answer questions posted to the discussion areas. In this manner you can help one another. If you merely repeat another student’s correct response I can not assign extra credit – be first.

Course Policies:

Grading Scale:

- A = 90 – 100%
- B = 80 – 89%
- C = 70 – 79%
- D = 60 – 69%
- F = 59% or less

Academic Integrity: Academic integrity is the pursuit of scholarly free from fraud & deception & 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.

Software Piracy: Students may use University Microcomputer Laboratories & software designed to run on personal computers. Much of this software is of a proprietary nature, & its duplication is strictly prohibited. Unauthorized copying is prohibited by the University, & violates the University’s software licensing agreements & various federal & state laws. Any student who engages in unauthorized software copying will fail the course & will be referred to university officials for further disciplinary action.

Conduct: “All students enrolled at the University shall follow the tenets of common decency & acceptable behavior conducive to a positive learning environment” (Student Guide Book, pp. 67-73).

Late Assignments: Assignments/quizzes are due on specific dates, as assigned. Assignments/quizzes will not be accepted after the due date, unless previously authorized by the instructor.
# Tentative Course Schedule

**FIRST DAY OF CLASS MONDAY, August 31, 2015!**

<table>
<thead>
<tr>
<th>Week of:</th>
<th>Topics</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1:</td>
<td></td>
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</tr>
<tr>
<td>Tuesday</td>
<td>9/1  What is Statistics Describing Data</td>
<td>Chs. 1,&amp;2 Read Only</td>
</tr>
<tr>
<td>Saturday</td>
<td>9/5  Describing Data: Numerical Measures</td>
<td>Ch. 3</td>
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<tr>
<td>Week 2:</td>
<td>9/8  Describing Data: Displaying &amp; Exploring Data</td>
<td>Quiz A Quiz B</td>
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<tr>
<td>Tuesday</td>
<td>9/12 Probability</td>
<td>Ch. 5</td>
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<tr>
<td>Saturday</td>
<td>9/15 Discrete Probability Distributions</td>
<td>Quiz A Quiz B</td>
</tr>
<tr>
<td>Tuesday</td>
<td>9/19 Continuous Probability Distributions</td>
<td>Ch. 7</td>
</tr>
<tr>
<td>Saturday</td>
<td>9/22 Sampling Methods &amp; the Central Limit Theorem</td>
<td>Quiz A Quiz B</td>
</tr>
<tr>
<td>Tuesday</td>
<td>9/26 Estimation &amp; Confidence Intervals</td>
<td>Ch. 9</td>
</tr>
<tr>
<td>Saturday</td>
<td>9/29 One-Sample Test of Hypothesis</td>
<td>Ch. 10</td>
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<tr>
<td>Tuesday</td>
<td>10/3 Two-Sample Test of Hypothesis</td>
<td>Ch. 11</td>
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<tr>
<td>Saturday</td>
<td>10/6 ANOVA Linear Programming</td>
<td>Ch. 12</td>
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<tr>
<td>Tuesday</td>
<td>10/10 Linear Regression &amp; Correlation</td>
<td>Ch. 13</td>
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<tr>
<td>Saturday</td>
<td>10/13 Multiple Regression Inventory</td>
<td>Ch. 14</td>
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<tr>
<td>Tuesday</td>
<td>10/17 Chi Square Applications</td>
<td>Ch. 17</td>
</tr>
<tr>
<td>Saturday</td>
<td>10/20 Final Exam</td>
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*Note: Quiz A and Quiz B refer to the quizzes scheduled for each week.*
Specific Course Learning Outcomes: This list serves as the study guide for the final exam. By the end of this course you will:

1. Know the definition of inferential statistics.
2. Be able to identify the measures of central tendency.
3. Know the definition of variance.
4. Be able to calculate the mean for grouped data.
5. Be able to calculate the variance for grouped data.
6. Know the definition of probability.
7. Be able to calculate a probability using the general rule of addition.
8. Know how to determine the random variable of a normal distribution.
9. Be able to use the normal distribution table to solve a problem.
10. Be able to calculate the mean & variance of a binomial distribution.
11. Be able to use the binomial distribution tables to solve a problem.
12. Be able to use the Poisson distribution table to solve a problem.
13. Know the definition of a sampling distribution of means.
14. Know the central limit theorem.
15. Know the definition of a random sample.
16. Know the definition of a Type I & a Type II error.
17. Be able to calculate a confidence interval to estimate a population parameter.
18. Be able to test a statistical hypothesis.
19. Know how to test the hypothesis involving a small sample size.
20. Know the interpretation of the coefficient of determination.
21. Know the definition of correlation.
22. Know the definition of least squares.
23. Know how to calculate a correlation coefficient.
24. Know how to calculate a regression equation.