

Course Syllabus for BA 302- 01W

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| Regents Professor: | E. J. Manton | E-Mail: | Edgar.Manton@tamuc.edu |
| Office: | BA 327 | Office Hours: | Office Hours: M 9:00 am – 1:00 pm TR 8:30 am - 9:30 am T 5:30 pm - 6:15 pm (UCD) R 11:00 am – 12:00 pm |
| Phone: | 903.886.5684 (Office) 903.886.5693 (Fax) | | |

Required Text:

D. A. Lind/W. G. Marchal/S. A. Wathen, Statistical Techniques in Business & Economics – McGraw Hill Irwin, 15th edition ISBN-13: 978-0-07-340180-5

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 & dispersion, probability, probability distributions, sampling, estimation, hypothesis testing, regression, and correlation analysis, multiple regression & 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 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. |

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| <p>3. 1 Understand the Hypothesis Testing: Understand the meaning of a null and an alternative hypothesis</p> <p>3.2 Understand the meaning of type I and type II error.</p> <p>3.3 Be able to perform test of hypothesis</p> <p>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.</p> | <p>3.1 Student doesn't understand the meaning of a null and an alternative hypothesis</p> <p>3.2 Student doesn't understand the meaning of type I and type II error.</p> <p>3.3 Student cannot perform test of hypothesis</p> <p>3.4 Student cannot calculate confidence interval for a population parameter for a single mean, including use of the t and the z test</p> | <p>3.1 Student understands the meaning of a null and an alternative hypothesis</p> <p>3.2 Student understands the meaning of type I and type II error.</p> <p>3.3 Student is able to perform some test of hypothesis</p> <p>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</p> | <p>3.1 Student understands the meaning of a null and an alternative hypothesis</p> <p>3.2 Student understands the meaning of type I and type II error.</p> <p>3.3 Student is able to perform some test of hypothesis</p> <p>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</p> | <p>3.1 Student understands the meaning of a null and an alternative hypothesis</p> <p>3.2 Student understands the meaning of type I and type II error. and</p> <p>3.3 Student is able to perform some test of hypothesis</p> <p>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</p> |
| <p>4. Compute and interpret the results of Bivariate Regression and Correlation Analysis.</p> | <p>Student cannot compute and interpret the results of Bivariate Regression and Correlation Analysis.</p> | <p>Student can compute and interpret some of the results of Bivariate Regression and Correlation</p> | <p>Student can compute and interpret most of the results of Bivariate Regression and</p> | <p>Student can compute and interpret all of the results of Bivariate Regression and Correlation</p> |

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| | | Analysis. | Correlation Analysis. | 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 |

Statement of Ethical and Professional Conduct:

The College of Business and Entrepreneurship at Texas A&M University–Commerce faculty, staff and students will follow the highest level of ethical & 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. Collusion: 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.

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

Grading Policy:

Evaluation of student performance will be based upon four equally weighted exams and graded assignments. Each exam will count 21% of the course grade and the **selected problems** will count 16%. There is no comprehensive final exam. Grades for the course will be determined by achieving the following average ranges:

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

NOTE THE FOLLOWING:

1. The assignments listed are tentative for the semester. It is meant to be a guide. Certain topics may be stressed more or less than indicated in the text and, depending on class progress, certain topics may be omitted.

2. Homework: Homework problems are **RECOMMENDED**, but will not be collected or graded. The solution to most of these homework problems can be found at the "solved problems" link. These are intended for you to try and practice on your own. **You need to do this.** Additional **SELECTED HOMEWORK PROBLEMS** (see below) are assigned to be turned in approximately each week. Early submissions would be appreciated and when time permits resubmission will be acceptable. The solutions to these problems will be provided by the following Monday. Only doing the 2 or 3 **Selected Homework Problems** to hand in for each chapter probably will not be enough to succeed in the course. You must attempt to work and study the **RECOMMENDED PROBLEMS** as well for practice. There will be similar problems on the four exams.

3. Missed examination: A missed examination may be made-up during the week of final exams. This make-up exam will be comprehensive.

4. Students are expected to:

- a. Complete and submit the [Orientation Quiz 2014](#) by Friday, Jan 17, 2014.
- b. Read text assignments as scheduled.
- c. Read the chapter lectures.
- d. Review text power point presentation on assigned text material.
- e. Work the **RECOMMENDED HOMEWORK PROBLEMS** independently (Note: solutions may be found on course website).
- f. Turn in **SELECTED HOMEWORK PROBLEMS** due as indicated.
- g. Read the weekly (approximately) email messages with additional comments on subject matter.

5. **Exams: All Exams will be conducted on Thursday or Friday evenings between 7pm and 9:30pm Central time. Students will be assigned to groups as requested for the evening selected. Students will sign on the designated chapter and click on the exam link. A password will be provided and the time to complete the exams will be strictly observed.**

6. Students should read chapters, do as many of the **RECOMMENDED HOMEWORK PROBLEMS** as possible and be familiar with the chapter summaries and the end of chapter self-examinations.

Class Schedule:

The schedule will depend on class progress. Chapter assignments and tests may be altered as the class progresses.

| Text Assignment | Topic | Date (Week of) |
|------------------------|--|-----------------------|
| Chapter 1 | What is Statistics? | |
| Chapter 2 | Describing Data- Frequency Distribution and Graphic Presentation | |
| Chapter 3 | Describing Data-Measures of Central Tendency | |
| Chapter 4 | Other Descriptive Measures | |
| Exam 1 | Chapter 1 – Chapter 4 | Feb 6 or 7 |
| Chapter 5 | A Survey of Probability Concepts | |
| Chapter 6 | Discrete Probability Distributions | |
| Chapter 7 | The Normal Probability Distribution | |
| Exam 2 | Chapter 5 – Chapter 7 | Feb 27 or 28 |
| Chapter 8 | Sampling Methods and the Central Limit Theorem | |
| Chapter 9 | Estimation and Confidence Intervals | |
| Chapter 10 | One-Sample Tests of Hypothesis | |
| Exam 3 | Chapter 8 – Chapter 10 | Apr 3 or 4 |
| Chapter 11 | Two-Sample Tests of Hypothesis | |
| Chapter 13 | Linear Regression and Correlation | |
| Chapter 14 | Multiple Regression and Correlation Analysis | |
| Exam 4 | Chapter 11, 13 and 14 | May 8 or 9 |

RECOMMENDED HOMEWORK PROBLEMS ASSIGNMENTS (To study and solve on your own- Solutions available in solved problems):

Chapter 1: 1, 5, 6, 7, 8, 9

Chapter 2: 12, 18, 22

- Chapter 3:** 3, 10, 14, 18, 20, 37, 41, 46, 47, 49, 53, 54, 59, 60, 65
Chapter 4: 5, 10, 11, 13, 19, 20, 22, 24, 25, 26
Chapter 5: 1, 3, 4, 8, 11, 12, 14, 17, 18, 20, 27, 28, 29, 41, 42, 43, 44, 45, 66, 67, 78
Chapter 6: 1, 2, 5, 7, 9, 13, 15, 19, 20, 21, 22, 23, 31, 32, 33, 34, 35, 46, 60, 61
Chapter 7: 4, 9, 11, 13, 17, 18, 20, 21, 23, 24, 26, 29, 30, 31, 32, 41
Chapter 8: 6, 15, 16, 17, 18, 34, 35
Chapter 9: 1, 2, 3, 4, 5, 7, 9, 11, 12, 13, 15, 16, 17, 18, 19, 20, 23, 27, 29, 31, 43, 44, 46, 48, 50
Chapter 10: 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 18, 19, 20, 21, 22, 23, 25, 32, 36, 35, 52, 54
Chapter 11: 3, 4, 5, 6, 8, 11, 12, 14, 15, 16, 19, 25, 28, 32, 33 , Additional problems 1, 2
Chapter 13: 1, 2, 5, 7, 8, 13, 14, 15, 16, 19, 21, 22, 27, 28
Chapter 14: 1, 2, 3, 4

SELECTED HOME WORK PROBLEMS TO BE TURNED IN-

- The schedule will depend on class progress. Chapter assignments and tests may be altered as the class progresses. Students should read chapters, do as many of the identified homework problems as possible and be familiar with the chapter summaries and the end of chapter self-examinations. The assigned **SELECTED HOMEWORK PROBLEMS** are due as indicated at midnight.

| Chapter | Selected Problem(s) | Selected Problem Grade | Due Date |
|------------------|---|-------------------------------|-----------------|
| Chapter 1 | Orientation Quiz | Friday | Jan 17 |
| Chapter 2 | #17 page 41, #21 page 45 (Note: hand sketches are acceptable for histogram, frequency polygon, etc.) | 1% | Jan 20 |
| Chapter 3 | #62 page 92, #80 page 97 (Note: additional problems will be assigned for these problems for Chapter 4) | 1% | Jan 25 |
| Chapter 4 | #9 page 110, #14 page 116, also calculate the Coefficient of Variation for problem #3-62 and the Pearson Coefficient of Skewness for problem #3-80 from chapter #3. | 1% | Feb 1 |
| Chapter 5 | #50 page 178, #62 page 179, #66 page 180 | 1% | Feb 15 |

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| Chapter 6 | #5 Page 194, #24 Page 204, solve using the binomial formula and also using the binomial tables. Also calculate the mean, variance and standard deviation for this distribution, #34 Page 212, also calculate the probability that there will be fewer than two autos arrive in a minute, $P(X < 2)$. | 1% | Feb 22 |
| Chapter 7 | #19 page 239, also calculate the percentage of returns which are less than \$3000, #21 page 239, #26 page 237 | 2% | March 1 |
| Chapter 8 | #34 page 293, #42 page 294 | 1% | March 22 |
| Chapter 9 | #8 page 306, #40 page 324, #50 page 325 | 1% | March 29 |
| Chapter 10 | #32 page 364, #46 page 366, #54 page 360 | 2% | April 5 |
| Chapter 11 | #6 page 378, #16 page 387, #12 page 382 | 1% | April 19 |
| Chapter 13 | Problem 13-4 page 471. In addition to solving for r and r squared, test the model for statistical significance, and interpreting. Find the regression equation, and S_{yx} and solve by excel. (Hand Sketch of the scatter diagram is acceptable). See chapter sidebar for further instructions on this assignment. | 2% | April 26 |
| Chapter 14 | Solve the assigned problems using excel solutions only. See chapter sidebar for further instructions on this assignment. | 2% | May 3 |

