

GENERAL COURSE SYLLABUS-MATH1442- BUSINESS STATISTICS

Department: Mathematics and Engineering

Discipline: Mathematics

Course Number: Math 1442

Course Title: Business Statistics

Credit: 4 **Lecture:** 3 **Lab:** 3

Prerequisites: College Algebra (Math1314) or Math Analysis I (Math1324)
Business Computer Applications (BCIS1305)

Textbook: Elementary Statistics Using EXCEL (6th ed.), by Mario Triola

Supplies: Scientific calculator, preferably a graphing calculator

Course Description: Descriptive and inferential statistical techniques for business and economic decision-making. Topics include the collection, description, analysis, and summarization of data; probability; discrete and continuous random variables; the binomial and normal distributions; sampling distributions; tests of hypotheses; estimation and confidence intervals; linear regression; and correlation analysis. Statistical software is used to analyze data throughout the course. (BUSI 2305 is included in the Business Field of Study.)

Course Purpose/Rational/Goal: To provide a transferable course in the elements of business statistics.

4.1.1.2. Disabilities Statement

Any students who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make and necessary arrangements. Students must present appropriate verification from the SPC Disability Service Office during the instructor's office hours. Please note that instructors are not allowed to provide classroom accommodations until appropriate verification from the SPC Disability Service Office has been provided. For more information, you may contact the Disability Services Office (located in the Health & Wellness Center) at 806-716-2529 or visit <http://www.southplainscollege.edu/health/disabilityservices.php>.

4.1.1.3. Equal Opportunity, Harassment, and Non-Discrimination Statement

South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

South Plains College is dedicated to providing a safe and equitable learning environment for all students. Discrimination, sexual assault, and harassment are not tolerated by the college. The Health and Wellness Center offers confidential support (806-716-2529) and Voice of Hope has a 24-hour hotline (806-763-7273). You are encouraged to report any incidents online at <http://www.southplainscollege.edu/about/campussafety/complaints.php>.

4.1.1.4 Title IX Pregnancy Accommodations Statement

If you are pregnant, or have given birth been within six months, under Title IX you have a right to reasonable accommodations to help continue your education. Students who wish to request accommodations must contact the Health and Wellness Center at 806-716-2529 to initiate the process.

Attendance: Required, if you want to pass the class. Excessive absences (based on instructor) may result in an administrative withdrawal. The last day to withdraw from a class is Thursday, November 14th at 3:00pm.

INSTRUCTOR: Alan Worley
Office: Technical Arts – TA118
Phone #: 716-2338
E-mail: aworley@southplainscollege.edu

OFFICE HOURS: 2:00-2:30pm TR and after class
Available most times 8am-4pm MTWRF
OR BY APPOINTMENT

GRADING: Late homework will be accepted, but a 50% point deduction will be implemented for any work submitted after a deadline. Homework that is turned in by other classmates will result in a 0. Make-up exams will be given only for special reasons, and arrangements must be made with the instructor prior to the scheduled exam. In addition, make-up exams are significantly harder than the original exams.

3 comprehensive exams	- 20% each (60% total)	= 100 points each
Excel Projects	- 10%	= 50 points
In-class Assignments	- 10%	= 50 points
Homework Assignments	- 20%	= 100 points
Total	100%	= 500 points

Grading Scale: A (89+) B (79-89) C (68-79) D (58-67) F (below 58)

LAB/In-Class Assignment Penalties:

Cellular Phone Use: -20 points
Disrespect for Peers, Instructor, or Course – 20 points

COURSE OBJECTIVES: Upon completion of this course and receiving a passing grade, the student will demonstrate mastery of the following concepts:

1. represent raw data using frequency distributions
2. represent raw data using stem & leaf plots, ogives, histograms, bar graphs, and pie charts
3. calculate measures of central tendency, variation, and position for both grouped and ungrouped data and interpret in writing the significance and meaning of the calculations
4. calculate coefficients of variation and skewness and interpret in writing the significance of the calculations
5. calculate classical and empirical probabilities
6. apply binomial, Poisson, and normal distribution properties to calculate probabilities and interpret in writing the significance of the calculations
7. calculate mean, variance, and standard deviations of probability distributions and interpret in writing the significance of test results
8. evaluate a hypothesis testing situation to determine the appropriate test to be used
9. use parametric and non-parametric tests for hypothesis testing and interpret in writing the significance of test results
10. calculate simple and multiple linear regression equations and use equations to make predictions
11. calculate coefficients of correlation, determination, and non-determination and interpret in writing the significance of the calculations
12. use a computer statistics program and/or a statistical calculator to help with computations

Student Learning Outcomes/Competencies-Section

I. Descriptive Statistics

- A. Types of Data and Design of Experiments – Chapter 1
- B. Data Presentation (Graphs/Charts) – Chapter 2
- C. Measures of Central Tendency – Section 3.2
- D. Measures of Variation – Section 3.3
- E. Exploratory Data Analysis – Section 3.4

II. Regression Analysis

- A. Scatterplots and Correlation – Section 10.2
- B. Regression and Applications of Regression – Section 10.3
- C. Regression Diagnostics – Handout

EXAM 1 – chapters 1, 2, 3, and 10 – Last week of September

III. Discrete Random Variables

- A. Discrete Probability Distributions – Section 5.2
- B. Binomial and Poisson Distributions – Section 5.3, 5.4, and 5.5

IV. Normal Distribution

- A. Standard Normal Distribution – Section 6.2
- B. Probability Calculations Using the Normal Distribution - Section 6.3
- C. Sampling Distributions and Estimators – Section 6.4
- D. The Central Limit Theorem – Section 6.5
- E. Sampling – Handout

EXAM 2 – Chapters 5 and 6 – Last week of October

V. Statistical Estimation

- A. Point Estimates and Confidence Intervals for Proportions – Section 7.2
- B. Point Estimates and Confidence Intervals for Means – Section 7.3 and 7.4
- C. Finding a Necessary Sample Size under Given Conditions –Section 7.2-7.4

VI. Hypothesis Testing

- A. Steps for Hypothesis Testing – Section 8.2
- B. Proportion Test – Section 8.3
- C. One-sample mean test – Sections 8.4 and 8.5
- D. Two-mean test for independent samples – Section 9.3
- E. Inferences from Dependent Samples – Section 9.4
- D. Analysis of Variance – Chapter 12

VII. Statistical Process Control

- A. Control Charts for Variation, Mean, and Attributes – Chapter 14 – TBD

VIII. Technology

- A. Calculator applications – All sections – All semester
- B. Computer applications using EXCEL – All sections – All semester

Exam 3 – Chapters 7, 8, and 9 – December 3rd or 5th.

Comprehensive Final Statistical Project – Tuesday, December 10th at 2:30pm