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

This course satisfies a math requirement for Business Majors and some nursing majors (BSN)

Prerequisites: College Algebra (Math1314), Math Analysis I (Math1324), or consent of instructor

Available Formats: Conventional

Campus: Levelland Campus and Reese Campus

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

Supplies: Scientific calculator, preferably a graphing calculator

Course Description: This course is an introduction to the techniques of collection, presentation, analysis, and interpretation of numerical data. Applications of correlation methods, analysis of variance, dispersion, sampling, quality control, reliability, and mathematical models will be covered. This course will require lab time on the computer using EXCEL.

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

Equal Opportunity: South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability, or age.

Disability Statement: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Special Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Special Services Coordinator. For more information, call or visit Linda Young at 716-2577 (Levelland) or Dawn Valles at 716-4675 (Reese).

Campus Concealed Carry - Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to the SPC policy at: (http://www.southplainscollege.edu/human_resources/policy_procedure/hhc.php)

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

Attendance: Required, if you want to pass the class. Excessive absences (based on instructor) may result in an administrative withdrawal.

INSTRUCTOR: Alan Worley
Math & Engineering 120
Phone #: 716-2645
E-mail: aworley@southplainscollege.edu

OFFICE HOURS: Monday/Wednesday: 10:45-11:30am, 2:15-3:00pm
Tuesday/Thursday: 1:30-2:30pm
Friday: 1:15-4:15pm
OR BY APPOINTMENT

GRADING: There will be three major examinations, including the final. Homework/in-class assignments will be assigned weekly. Some homework assignments will include problems using EXCEL. Homework and in-class assignments all fall under an assignment grade. Late homework will not be accepted. 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.

A: 90-100	3 comprehensive exams: 75%
B: 80-89	Assignments: 20%
C: 70-79	Final Project: 5%
D: 60-69	
F: 0-59	

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 – Mid-February

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 – Late March

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 – Thursday, May 3rd

Comprehensive Final Statistical Project – Tuesday, May 8th