

Course name: BUSINESS STATISTICS Number: BUSG 2371

COURSE MASTER SYLLABUS

MANAGEMENT DEPARTMENT

CIP CODE AREA: 5201010000

COURSE LEVEL: Second

COURSE NUMBER: BUSG 2371

COURSE TITLE: Business Statistics

CREDIT HOURS: 3; Lecture Hours 3, Lab hours 0

PREREQUISITE: Math 1324, Math 1314 or instructor approval

METHOD OF PRESENTATION: Three-hour lecture/discussion each week for a 16-week semester. Some lab work is a requirement of the course.

COURSE DISCRIPTION: This course is designed for students majoring in business. Topics include organization of measurements, determining measures of central tendency, variability, counting, probability, statistical inference, hypothesis testing (large and small samples), simple and multiple regression and correlation, nonparametric methods, and time series.

REQUIRED TEXTBOOKS/ MATERIALS:

Title: Statistical Techniques in Business and Economics

Author: Mason, Lind, and Marchal

Publisher: ,11th edition

ISBN: 0072402849

SCANS (SECRETARY’S COMMISSION ON ACHIEVING NECESSARY SKILLS):

Course SCANS Competencies for

Course name: **BUSINESS STATISTICS** Course number: **BUSG 2371**

Please go to <http://phred.dcccd.edu/~ttg/syllabi/scans.htm> for a complete definition and explanation of SCANS. This list summarizes the SCANS competencies addressed in this particular course.

RESOURCES	INTERPERSONAL	INFORMATION	SYSTEMS
TECHNOLOGY	BASIC SKILLS	THINKING SKILLS	PERSONAL QUALITIES

INSTRUCTIONAL METHODOLOGY: See specific instructor’s syllabus

COURSE RATIONALE:

COMMON COURSE LEARNING OBJECTIVES:

- A. Statistical lexicon: Student will be able to**
 - define what is meant by statistics
 - explain what is meant by descriptive statistics and inferential statistics
 - distinguish between a qualitative variable and a quantitative variable
 - distinguish between a discrete variable and a continuous variable
 - distinguish among the nominal, ordinal, interval, and ratio levels of measurement
 - define the terms mutually exclusive and exhaustive

- B. Describing Data - - Frequency Distributions and Graphic Presentation: Student will be able to**
 - organize data into a frequency distribution
 - portray a frequency distribution in a histogram, frequency polygon, and cumulative frequency polygon
 - develop a stem-and-leaf display
 - present data using such graphic techniques as line charts, bar charts, and pie charts

- C. Describing Data - - Measures of Location: Student will be able to**
calculate the arithmetic mean, median, mode, weighted mean, and the geometric mean
explain the characteristics, uses, advantages, and disadvantages of each measure of location
identify the position of the arithmetic mean, median, and mode for both symmetric and skewed distributions
- D. Describing Data - - Measures of Dispersion: Student will be able to**
compute and interpret the range, the mean deviation, the variance, and the standard deviation from raw data
compute and interpret the range, the variance, and the standard deviation from grouped data
explain the characteristics, uses, advantages, and disadvantages of each measure of dispersion
understand Chebyshev's theorem and the Normal, or Empirical Rule, as they relate to a set of observations
compute and interpret quartiles and the interquartile range
construct and interpret box plots
compute and understand the coefficient of variation and the coefficient of skewness
- E. A Survey of Probability Concepts: Student will be able to**
define probability
describe the classical, the empirical, and the subjective approaches to probability
understand the terms: experiment, event, outcome, permutations, and combinations
calculate probabilities applying the rules of addition and the rules of multiplication
use a tree diagram to organize and compute probabilities
calculate a probability using Bayes' theorem
- F. Discrete Probability Distributions: Student will be able to**
define the terms probability distribution and random variable
distinguish between discrete and continuous probability distributions
calculate the mean, variance, and standard deviation of a discrete probability distribution
- G. The Normal Probability Distribution: Student will be able to**
list the characteristics of the normal probability distribution
define and calculate z values
determine the probability that an observation will lie between two points using the standard normal distribution
determine the probability that an observation will be above (or below) a given value using the standard normal distribution
compare two or more observations that are on different probability distributions
- H. Sampling Methods and Sampling Distributions: Student will be able to**
explain why a sample is the only feasible way to learn about a population
explain methods for selecting a sample
define and construct a sampling distribution of the sample means
explain the central limit theorem
calculate confidence intervals for means and proportions
determine the sample size for attribute and variable sampling

- I. Tests of Hypothesis - - Large Samples: Student will be able to**
define a hypothesis and hypothesis testing
describe the five-step hypothesis testing procedure
distinguish between a one-tailed and a two-tailed test of hypothesis
conduct a test of hypothesis about a population mean and a population proportion
conduct a test of hypothesis about the difference between two population means and two population proportions
define Type I and Type II errors
compute the probability of a Type II error
- J. Tests of Hypothesis - - Small Samples: Student will be able to**
describe the characteristics of Student's t distribution
understand the difference between dependent and independent samples
understand the assumptions necessary to conduct a test of hypothesis regarding a population mean when the number of observations is small
conduct a test of hypothesis about a population mean
conduct a test of hypothesis about the difference in the means of two independent samples
conduct a test of hypothesis regarding the mean difference between paired observations
- K. Linear Regression and Correlation: Student will be able to**
draw a scatter diagram
understand and interpret the terms dependent and independent variable
calculate and interpret the coefficient of correlation, the coefficient of determination, and the standard error of estimate
conduct a test of hypothesis to determine whether the population coefficient of correlation is different from zero
calculate the least squares regression line
construct and interpret confidence intervals and prediction intervals for the dependent variable
set up and interpret an ANOVA table
- L. Multiple Regression and Correlation Analysis: Student will be able to**
describe the relationship between several independent variables and a dependent variable using a multiple regression equation
compute and interpret the multiple standard error of estimate and the coefficient of determination
interpret a correlation matrix
set up and interpret an ANOVA table
- M. Nonparametric Methods - - Chi-Square Applications: Student will be able to**
list the characteristics of the chi-square distribution
conduct a test of hypothesis comparing an observed set of frequencies to an expected distribution
conduct a test of hypothesis for normality using the chi-square distribution
conduct a hypothesis test to determine whether two classification criteria are related
- N. Time Series and Forecasting: Student will be able to**
define the four components of a times series
determine a linear trend equation
compute a moving average

COMMON COURSE LEARNING OUTCOMES:

GRADING SYSTEM:

COURSE POLICIES: Departmental policies for Incompletes, Attendance, and Withdrawal are as follows:

Incomplete Policy: An incomplete (I) will be granted to a student in rare circumstances.

Generally, to receive a grade of I, a student must have completed all examinations and assignments to date, be passing, and have personal circumstances that prevent course completion that occur after the deadline to withdraw with a grade of W.

Attendance Policy: All students are expected to attend classes. Non-attendance will have an impact on the student's grade.

Withdrawal Policy: It is the student's responsibility to withdraw from a course. Instructors are allowed to withdraw students but students must not rely on their instructor to withdraw them if they wish to withdraw.

Austin Community College policies for Academic Freedom, Scholastic Dishonesty, Student Discipline, and Students with Disabilities are as follows:

Academic Freedom Statement: Each student is strongly encouraged to participate in class. In any classroom situation that includes discussion and critical thinking, there are bound to be many differing viewpoints. These differences enhance the learning experience and create an atmosphere where students and instructors alike will be encouraged to think and learn. On sensitive and volatile topics, students may sometimes disagree not only with each other but also with the instructor. It is expected that faculty and students will respect the views of others when expressed in classroom discussions.

Scholastic Dishonesty Statement: Acts prohibited by the College for which discipline may be administered include scholastic dishonesty, including but not limited to cheating on an exam or quiz, plagiarizing, and unauthorized collaboration with another in preparing outside work. Academic work submitted by students shall be the result of their thought, research or self-expression. Academic work is defined as, but not limited to tests, quizzes, whether taken electronically or on paper; projects, either individual or group; classroom presentations, and homework" (Student Handbook, 2002-2003, p. 32). Penalties for scholastic dishonesty will depend upon the nature of the violation and may range from lowering a grade on one assignment to an F in the course and/or expulsion from this institution.

Student Discipline Statement: Classroom behavior should support and enhance learning.

Behavior that disrupts the learning process will be dealt with appropriately, which may include having the student leave class for the rest of that day. In serious cases, disruptive behavior may lead to a student being withdrawn from the class. ACC's policy on student discipline can be found in the Student Handbook, 2002-2003, p. 32.

Students with Disabilities Statement: Each ACC campus offers support services for students with documented physical or psychological disabilities. Students with disabilities must request reasonable accommodations through the Office for Students with Disabilities on the campus where they expect to take the majority of their classes. Students are encouraged to do this three weeks before the start of the semester” (Student Handbook, 2002-2003, p. 14).