

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Business Management</u>
COURSE RUBRIC AND NUMBER	<u>BUSI 2305</u>
COURSE TITLE	<u>Business Statistics (F)</u>
COURSE CREDIT HOURS	<u>3 3 :</u> <u>1</u>
	Credits Lec Lab

I. Catalog 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. **Prerequisite:** [MATH 1324 or MATH 1314] and [BCIS 1305 or MATH 1325]. **(3:1). Lab fee.**

II. Course Objectives

A. Unit I. Descriptive Statistics with Business Applications

1. Differentiate between descriptive and inferential statistics, sample and population, statistic and parameter, probability and statistics, qualitative and quantitative variables, discrete and continuous variables, and levels of measurement.
2. Organize qualitative data into frequency distributions and create a histogram, bar chart, pie chart, frequency polygons, and cumulative frequency polygons manually and through the use of computerized software.
3. Calculate (manually and with software) and discuss the characteristics, uses, advantages, and disadvantages of the measures of central tendency and measures of dispersion for grouped and ungrouped data.
4. Compute (manually and with software) and explain measures of position: quartiles, deciles, and percentiles.
5. Compute and explain the coefficient of skewness and recognize the relationship among the mean, the mode, and the median in symmetrical and skewed distributions.
6. Explain the empirical rule and the Chebyshev's theorem as they relate to a set of observations.
7. Display and explore data.

B. Unit II. Probability and Probability Distributions

1. Define probability; the related classical, empirical, and subjective approaches to probability; and related terms such as experiment, event, outcome, permutations, combinations, conditional probability, and joint probability.
2. Calculate probabilities using the rules of addition and multiplication.
3. Determine situations where Bayes' theorem applies and use the theorem to calculate a probability.
4. Identify and distinguish between discrete and continuous random variables and probability distributions.
5. Calculate the mean, variance, and standard deviation of a discrete probability distribution.

6. Use the binomial, hypergeometric, and Poisson distribution models to calculate probabilities for appropriate random variables and show how the distributions are applied in daily business decisions.
7. Define and calculate z values.
8. Evaluate the underlying assumptions and development of the normal distribution and its applications.
9. Compute probabilities by using the normal probability distribution table for observations between two points, for observations above or below a point, and to approximate the binomial probability distribution.

C. Unit III. Sampling Methods, the Central Limit Theorem, and Estimation and Confidence Intervals

1. Explain the importance of sampling, discuss how results from samples can be used to estimate the population parameters, and describe methods to select a sample.
2. Analyze the concepts of the central limit theorem and their relationship to sampling theory and the development of sampling distributions.
3. Apply the central limit theorem to determine the probabilities for a sampling distribution using the appropriate table of areas.
4. Define point estimate and level of confidence.
5. Construct a confidence interval for the population mean when the population standard deviation is known and unknown.
6. Determine the required sample size, given the standard error, to achieve the standard accuracy.

D. Unit IV. Statistical Inferences: Hypothesis Testing

1. Define a hypothesis and hypothesis testing and describe the five-step hypothesis-testing procedure.
2. Distinguish between a one-tailed and two-tailed test of hypothesis.
3. Conduct a test of hypothesis for one population parameter with small and large samples.
4. Identify and describe possible Type I and Type II errors in hypothesis testing.
5. Test a hypothesis about the differences between two population parameters.

E. Unit V. Simple Regression and Correlation Analysis

1. Discuss the underlying assumptions and basic purposes of regression analysis and linear correlation.
2. State the applications of the simple regression and correlation models.
3. Construct a scatter diagram using software.
4. Calculate the least squares regression line using software.

III. THECB Learning Outcomes (ACGM)

Upon successful completion of this course, students will:

1. Describe the random processes underlying statistical studies.
2. Calculate and use probability in solving business problems.
3. Compute descriptive statistics, construct graphs for data analysis, and interpret outcomes.
4. Compute and interpret measures of central tendency and dispersion.
5. Calculate expected values to evaluate multiple outcomes of a decision.
6. Describe, interpret, and apply discrete and continuous probability distributions.
7. Construct and interpret confidence intervals for means and proportions.
8. Formulate, perform, and interpret hypotheses tests (one and two population parameters).
9. Calculate, evaluate, and interpret simple linear correlation/regression.
10. Use statistical software to graph, compute, and analyze statistical data.

IV. Evaluation

- A. Evaluation Methods
1. Minimum of three interim tests and a comprehensive final

2. Minimum of 10 Performance Excel Assignments covering the diverse requirements
3. Chapter Quizzes

B. Grading Scale:

A = 90% - 100%	I = Incomplete
B = 80% - 89%	W = Withdrew or withdrawn
C = 70% - 79%	
D = 60% - 69%	
F = below 60%	

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024)

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.

VII. Title IX and Sex Discrimination

Title 9 (20 U.S.C. 1681 & 34 C.F.R. Part 106) states the following "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." The Violence Against Women Act (VAWA) prohibits stalking, date violence, sexual violence, and domestic violence for all students, employees and visitors (male and female). If you have any concerns related to discrimination, harassment, or assault (of any type) you can contact the Assistant to the Vice President for Student and Enrollment Services at 915-831-2655. Employees can call the Manager of Employee Relations at 915-831-6458. Reports of sexual assault/violence may also be reported to EPCC Police at 915-831-2200.