ECON G160: STATISTICS FOR BUSINESS AND ECONOMICS

Item	Value
Curriculum Committee Approval Date	04/16/2024
Top Code	170100 - Mathematics, General
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)
California General Education Transfer Curriculum (Cal-GETC)	• Cal-GETC 2A Math Concepts (2A)
Intersegmental General Education Transfer Curriculum (IGETC)	• IGETC 2A Math Concepts (2A)
California State University General Education Breadth (CSU GE-Breadth)	• CSU B4 Math/Quant.Reasoning (B4)

Course Description

This course introduces probability techniques, hypothesis testing and predictive techniques to facilitate decision-making. Topics include descriptive statistics, probability and sampling distributions, statistical inference, correlation and linear regression, chi-square and t-test, and application of technology for statistical analysis and interpretation of statistical findings. Provides an introductory statistics course for business and economics majors and provides applications using data from business, social science, sciences, and education. Enrollment Limitation: STAT C1000/STAT C1000E/PSYC G140/SOC G125; students who complete ECON G160 may not enroll in or receive credit for STAT C1000, STAT C1000E, PSYC G140, or SOC G125. PREREQUISITE: Course taught at the level of intermediate algebra or appropriate math placement. Transfer Credit: CSU; UC: Credit Limitation: BIOL G260, ECON G160, MATH G103, MATH G160, MATH G160S, STAT C1000, STAT C1000E, PSYC G140, and SOC G125 combined: maximum credit, 1 course.

Course Level Student Learning Outcome(s)

1. Course Outcomes
2. Calculate key statistical measures on sample data.
3. Calculate probabilities using normal and t-distributions.
4. Determine the appropriate technique for a hypothesis test and interpret the results.
5. Interpret levels of statistical significance and confidence intervals.

Course Objectives

- 1. Interpret data from tables and graphs.
- 2. Calculate measures of central tendency and variation.
- 3. Explore sampling methods and their advantages and disadvantages.
- 4. Calculate mean and variance of a discrete distribution.
- 5. Apply continuous distributions: normal, t-distribution, f-distribution, and chi-squared.
- 6. Determine levels of significance and construct confidence intervals.
- 7. Conduct hypothesis testing and identify statistical errors.
- 8. Estimate regression lines and determine goodness of fit.
- 9. Utilize statistical analysis software to estimate and interpret results from a data set.

Lecture Content

Descriptive Techniques Graphical data Pie and bar charts Histograms Scatter-plots Line charts Numerical descriptive techniques Central tendency Variation Relative standing and box plots Linear relationships Data Collection and Sampling Sampling Sampling and nonsampling errors Probability Joint, marginal, and conditional probability Probability trees Random variables Expected value Probability distribution (discrete and continuous) Binomial distribution Normal distribution t-distribution Chi-squared distribution Sampling Distributions Mean Proportion Central limit theorem Population Estimation and Inference One population Two populations Hypothesis Testing and Inference Significance levels Type I and Type II errors; power p-Value One and two tailed tests Confidence intervals Chi-squared tests Goodness of fit Independence Homogeneity Analysis of Variance (ANOVA) Regression Analysis Linear regression Correlation Influential points and outliers Statistical Analysis using Technology Graphing calculators Excel or other statistical software Statistical applications Business Social science (economics, political science, sociology, and psychology) Sciences (physical, life, and health)

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)

Reading Assignments

TextbookData filesSupplemental readings and case studies

Writing Assignments

Written questions on homework, quizzes, and examsInterpretation of analysis

Out-of-class Assignments

Homework assignments based on lecture and textbook examplesData analysis problems, including the use of statistical softwareIndividual or group projects collecting and analyzing data

Demonstration of Critical Thinking

Problem solving on homework, quizzes, and examsDetermine appropriate statistical tests to apply to a given data setAnalyze data setsApply sample statistics to make population conclusions

Required Writing, Problem Solving, Skills Demonstration

Complete written solutions to homework, quiz, and exam questionsWritten reports or projectsAnalysis and comparison of data

Eligible Disciplines

Business: Masters degree in business, business management, business administration, accountancy, finance, marketing, or business education

OR bachelors degree in any of the above AND masters degree in economics, personnel management, public administration, or Juris Doctorate (J.D.) or Legum Baccalaureus (LL.B.) degree OR bachelors degree in economics with a business emphasis AND masters degree in personnel management, public administration, or J.D. or LL.B. degree OR the equivalent. Masters degree required. Economics: Masters degree in economics OR bachelors degree in economics AND masters degree in business, business administration, business management, business education, finance, or political science OR the equivalent. Masters degree required.

Textbooks Resources

1. Required Keller, G. Statistics for Management and Economics, 12th ed. Cengage, 2023 Rationale: . 2. Required Holmes, L., Illowsky, B., Dean, S. Introductory Business Statistics 2e, ed. OpenStax (OER), 2023