Course Outline

2026-2027 Catalog

STAT C1000 - Introduction to Statistics

Catalog Description

Transfer Status: CSU/UC

Prerequisite:

Placement as determined by the college's multiple measures assessment process or completion of a course taught at or above the level of intermediate algebra

Unit(s): 4.00

Lecture: 68.00 Contact hours/136.00 Out of class hours/204.00 Total hours/4.00 Unit(s)
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Course Description: This course is an introduction to statistical thinking and processes, including methods and concepts for discovery and decision-making using data. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance, chi-squared, and t-tests; and application of technology for statistical analysis including the interpretation of the relevance of the statistical findings. Students apply methods and processes to applications using data from a broad range of disciplines. (C-ID MATH 110).

Objectives

Upon successful completion of this course, the student should be able to:

1. Evaluate ethical issues in statistical practice.
2. Identify appropriate statistical techniques and use technology-based statistical analysis to describe, interpret, and communicate results.
3. Demonstrate an understanding of, and ability to use, basic ideas of statistical processes, including hypothesis tests and confidence interval estimation.
4. Describe and apply probability concepts and distributions.
5. Identify appropriate graphs and summary statistics for variables and relationships between them and correctly interpret information from graphs and summary statistics.
6. Assess how data were collected and recognize how data collection affects what conclusions can be drawn from the data.

Course Content

Topic Titles / Suggested Time Topic

Lecture

Topics	Lec Hrs
Introduction to statistical thinking and processes	68.00
Technology-based statistical analysis	
Applications using data from four or more of the following disciplines: administration of justice, business, economics, education, health science, information technology, life science, physical science, political science, psychology, and social science	
Units (subjects/cases) and variables in a data set, including multivariable data sets	
Categorical and quantitative variables	
Sampling methods, concerns, and limitations, including bias and random variability	
Observational studies and experiments	
Data summaries, visualizations, and descriptive statistics	
Probability concepts	
Probability distributions (e.g., binomial, normal)	
Sampling distributions and the Central Limit Theorem	
Estimation and confidence intervals	
Hypothesis testing, including t-tests for one and two populations, Chi-squared test(s), and ANOVA; and interpretations of results	
Regression, including correlation and linear regression equations	
Total Hours:	**68.00**

Methods of Instruction

A. Collaborative Group Work

B. Discussion
C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
D. Lecture

Methods of Evaluation

A. Examples of potential methods of evaluation used to observe or measure students' achievement of course outcomes and objectives could include but are not limited to quizzes, exams, laboratory work, field journals, projects, research demonstrations, etc. Methods of evaluation are at the discretion of local faculty.

Examples of Assignments

Reading Assignments

1. Read the section in the textbook on measures of variation and be able to describe the range, variance, and standard deviation for a data set.
2. Read the section in the textbook on sampling distributions and be able to describe a sampling distribution of sample means and state the Central Limit Theorem.

Writing Assignments

1. Write a paragraph explaining how to find a deviation of an entry in a data set and how you find the standard deviation for the data set.
2. After applying the Central Limit Theorem to find the probability of a sample mean, write a sentence interpreting your results.

Out-of-Class Assignments

1. Review the section on measures of central tendency and solve the problems in the exercises assigned by the instructor.
2. Review the section on sampling distributions and solve the problems in the exercises assigned by the instructor.

Recommended Materials of Instruction

Peck, R., Case, C. (2024). Statistics: Learning from Data. *Cengage, 3rd.* 978-0357758298.

Gould, R., Wong, R., Ryan, C. (2025). Introductory Statistics Exploring the World Through Data. *Pearson, 4th.* 9780138242145.

Triola, M. (2023). Essentials of Statistics. *Pearson, 7th.* 9780137466092.

Zero Cost Textbook

Introduction to Modern Statistics 2e, Çetinkaya-Runde, M., Hardin, J., OpenIntro, 2024: https://www.openintro.org/book/ims/

Introductory Statistics 2e, Illowsky, B., Dean, S., OpenStax, 2023: https://openstax.org/details/books/introductory-statistics-2e

Introductory Statistics: Analyzing Data with Purpose, The Dana Center Mathematics Pathways, Charles A. Dana Center, University of Texas at Austin, 2021: https://www.utdanacenter.org/products/introductory-statistics

Other Learning Materials

MyMathLab, a computer web-based learning system; graphing calculator with statistical capabilities

Minimum Qualifications

Mathematics (Masters Required)

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