

Reviewed by: D. Mitchell
Reviewed by: N. Cahoon
Reviewed by: S. Getty
Date reviewed: Fall 2024
C & GE Approved:
Board Approved:
Semester effective: Fall 2025

Statistics (STAT) C1000 Introduction to Statistics (5 Units) CSU: UC
[formerly Statistics 10, STAT 1510]

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.

Hours and Units Calculations:

80 hours lecture. (160 Outside-of-class Hours); (240 Total Student Learning Hours) 5 units

Catalog 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.

Type of Class/Course: Degree Credit

Representative Texts, Manuals, and/or OER that is equivalent, Other Support Materials:

- Introduction to Modern Statistics 2e, Çetinkaya-Runde, M., Hardin, J., OpenIntro, 2024 (\$0-25): <https://www.openintro.org/book/ims/>
- Statistics: Learning From Data 3e, Peck, R., Case, C., Cengage, 2024 (\$57-250): <https://www.cengage.com/c/new-edition/9780357758298/>
- Introductory Statistics: Exploring the World Through Data 4e, Gould, R., Wong, R., Ryan, C., Pearson, 2025 (\$65-80): <https://www.pearson.com/en-us/subject-catalog/p/introductory-statistics/P200000011641/9780138242145>
- Introductory Statistics 2e, Illowsky, B., Dean, S., OpenStax, 2023 (\$0): <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 (\$0): <https://www.utdanacenter.org/products/introductory-statistics>

Course Objectives/Outcomes:

At the conclusion of this course, the student should be able to

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

Student Learning Outcomes (SLOs)

SLO1: Design and analyze methods for collecting and producing sample data and implement appropriate methods to draw conclusions based on the data by constructing and/or evaluating tables, graphs, and various numerical measures

SLO2: Identify, describe, and evaluate data distributions through the study of sampling distributions and probability theory

SLO3: Identify and design the appropriate statistic analysis (e.g. interval estimates & hypothesis tests) for evaluating a given conjecture and communicate the results

Course Content:

1. Introduction to statistical thinking and processes
2. Technology-based statistical analysis
3. 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
4. Units (subjects/cases) and variables in a data set, including multivariable data sets
5. Categorical and quantitative variables
6. Sampling methods, concerns, and limitations, including bias and random variability
7. Observational studies and experiments
8. Data summaries, visualizations, and descriptive statistics
9. Probability concepts
10. Probability distributions (e.g., binomial, normal)
11. Sampling distributions and the Central Limit Theorem
12. Estimation and confidence intervals
13. Hypothesis testing, including t-tests for one and two populations, Chi-squared test(s), and ANOVA; and interpretations of results
14. Regression, including correlation and linear regression equations

Learning Activities Required Outside of Class:

The students in this class will spend a minimum of 10 hours per week outside of the regular class

time doing the following:

1. Completing the assigned reading from the textbook
2. Completing homework and other assignments
3. Watching instructional videos
4. Studying
5. Completing supplementary reviews

Methods of Instruction:

1. Lecture demonstrations and sample problems done by instructor
2. Individual work with calculators/iPads
3. Recorded videos that introduce concepts and explain how to solve problems utilizing technology
4. Student presentations of completed problems
5. Hands on activities

Methods of Evaluation:

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.

1. Homework and other problem solving assignments
2. Quizzes
3. Exams
4. Discussions
5. Math lab attendance

Supplemental Data:

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| TOP Code: | 170100: Mathematics, General |
| SAM Priority Code: | E: Non-Occupational |
| Distance Education: | Online; Offline |
| Funding Agency: | Y: Not Applicable(funds not used) |
| Program Status: | I: Program Applicable |
| Noncredit Category: | Y: Not Applicable, Credit Course |
| Special Class Status: | N: Course is not a special class |

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| Basic Skills Status: | N: Course is not a basic skills course |
| Prior to College Level: | Y: Not applicable |
| Cooperative Work Experience: | N: Is not part of a cooperative work experience education program |
| Eligible for Credit by Exam: | E: Credit By Exam |
| Eligible for Pass/No Pass: | NO |
| Taft College General Education: | CSB4: CSU Area B4 IG2A: IGETC Area 2A LCAT: Local GE Communication |
| Discipline | Mathematics |