STAT S1000: COREQUISITE SUPPORT FOR INTRODUCTION TO STATISTICS

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2024
Credits:	2
Total Contact Hours:	36
Lecture Hours :	36
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	72
Total Student Learning Hours:	108
Prerequisite:	Direct placement based on multiple measures.
Corequisite:	Concurrent enrollment in MATH 165 at Citrus College.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Pass/No Pass

Catalog Course Description

A review of the core prerequisite skills, competencies, and concepts needed in statistics. Intended for students who are concurrently enrolled in Math 165, Introductory Statistics, at Citrus College. Topics include concepts from arithmetic, pre-algebra, elementary and intermediate algebra, and descriptive statistics that are needed to understand the basics of college-level statistics. Concepts are taught through the context of descriptive data analysis. Additional emphasis is placed on solving and graphing linear equations and modeling with linear functions. Pass/No Pass only. Non-degree applicable. 36 lecture hours.

Course Objectives

- Graphically represent the distribution of categorical and quantitative data. \\n
- Compare related data sets using numerical measures and appropriate graphical representations and communicate findings in the context of data.
- Set up two-way tables for bivariate categorical data and use appropriate marginal and conditional percents to investigate relationships and answer questions.
- Identify the place-value structure of the base-ten number system and are able to represent and compare rational numbers (including negative rationals) in decimal form and their approximate location on the number line.
- Recognize, generate, and fluently use equivalent forms of fractions, decimals, and percentages.
- Identify, compare, and explain the contextual meaning of fractions that represent the marginal distribution of a single categorical variable.
- Identify, compare, and explain the contextual meaning of fractions that represent the relationship of two categorical variables in a conditional distribution.
- Explain and apply the concept of variables as representations of quantities.
- Explain and apply the concept of a function and interpret functions as communicating relationships between variables.
- Recognize the difference between variables and parameters in general forms of linear models.
- Identify relationships that are proportional, define the constant of proportionality in the context of the problem, and use proportional reasoning to solve problems.
- Relate proportionality to linearity as well as the concept of slope.
- Solve linear equations.
- Use the order of operations to evaluate statistical formulas by hand and with technology.
- Describe statistical measure (e.g. mean, variance, standard deviation, least squares, correlation coefficient) and its characteristics by referencing symbolic form.
- Construct, use, and interpret mathematical models, specifically linear functions to represent and communicate relationships in quantitative data.
- Consistently apply effective learning strategies for success in college. Students will demonstrate that they can apply effective learning strategies if they:\\na. attend class regularly;\\nb. turn in assignments on time;\\nc. work productively with peers on group assignments;\\nd. seek help from peers, teacher, and other resources when necessary;\\ne. set up and maintain their notebook;\\nf. use rubric criteria to assess performance on assignments and make improvements; and\\ng. meet with a counselor to develop an educational plan.

Major Course Content

A just-in-time approach to:

1. Topics from pre-algebra and beginning algebra
   a. Order of operations
   b. Performing arithmetic operations on signed numbers
   c. Graphing fractions, decimals, and signed numbers on a number line.
   d. Comparing fractions with the same and different denominators
   e. Comparing fractions, decimals, percentages.
   f. Identifying fractions and percentages that describe part of a whole (marginal distributions)
   g. Identifying fractions and percentages that describe the impact of one quantity on another (conditional distributions)
   h. Relative versus absolute difference
   i. Graphing in the Cartesian coordinate system
   j. A graph as the set of solutions to an equation
   k. Proportions and linearity
2. Topics from Intermediate Algebra
   a. Evaluating expressions
   b. Scatterplots
   c. Solving linear equations
   d. Linear functions, constant rate of change, graphing, interpreting slope and y-intercept in context
3. Graphs of distributions of categorical data: bar charts and pie charts

4. Contingency tables: marginal and conditional distributions
5. Measures of center and associated measures of spread: mean, variance, standard deviation, median, quartiles, and percentiles
6. Graphs of univariate distributions of quantitative data: histograms and boxplots
7. Topics related to developing effective learning skills:
    a. Study skills: organization and time management, test preparation, and test taking skills
    b. Self-assessment: using performance criteria to judge and improve one's own work, analyzing and correcting errors on one's test

Suggested Reading Other Than Required Textbook

Students will be provided with reading assignments on topics such as affective domain and growth mindset to help students overcome self-sabotaging behaviors, such as missing class, not doing homework, and non-participation in class-room activities.

Examples of Required Writing Assignments

Students will be expected to write short self-reflection papers to help them develop meta-cognitive strategies to develop skills that will allow them to take charge of their learning of statistical concepts, and to develop a plan of action to improve study skills to prepare for assessments in the course.

Examples of Outside Assignments

Students will collect data for a group project from a survey, library research, or internet research and use statistical analysis to describe key statistical measures of the data set such as the mean, variance, standard deviation, and correlation coefficient. The student will then use these measures along with critical thinking skills to draw conclusions about the data set.

Instruction Type(s)

Lecture, Online Education Lecture