SOC 0015 - INTRODUCTION TO STATISTICS IN SOCIOLOGY

Catalog Description

Prerequisite: Completion of intermediate algebra or appropriate placement
Advisory: Concurrent enrollment in a support course (SOC 15S or SOC 815S) is strongly recommended for those who have not recently completed intermediate algebra
Hours: 54 lecture
Description: Introduction to the use of descriptive and inferential statistics in the analysis of sociological data, including: levels and types of measurement, measures of central tendency and variability, distributions, probability, estimation, hypothesis testing, correlation, and regression. Social science statistical software will be explored as an aid in processing and analyzing sociological data. (C-ID SOCI 125) (CSU, UC-with unit limitation)

Course Student Learning Outcomes

- CSLO #1: Conduct statistical analysis of sociological data.
- CSLO #2: Interpret and critically analyze the results of statistical analysis.
- CSLO #3: Organize, classify, and display sociological data in various forms.
- CSLO #4: Demonstrate familiarity with utilizing statistical software to analyze sociological data.

Effective Term

Fall 2024

Course Type

Credit - Degree-applicable

Contact Hours

54

Outside of Class Hours

108

Total Student Learning Hours

162

Course Objectives

1. Practice mathematical techniques and apply them to social science data;
2. Conduct numerical computations; interpret and critically analyze the results in written form;
3. Organize, classify, and represent quantitative data in various forms: tables, graphs, rates, percentages, measures of central tendency and variability;
4. Make statistical inference using estimation, hypothesis testing, correlation, and regression;
5. Demonstrate familiarity with applications in statistical software.

General Education Information

- Approved College Associate Degree GE Applicability
  - AA/AS - Comm & Analyt Thinking
  - AA/AS - Mathematical Skills
- CSU GE Applicability (Recommended-requires CSU approval)
  - CSUGE - B4 Math/Quantitative Reasoning
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)
  - IGETC - 2A Math/Quan Reasoning

Articulation Information

- CSU Transferable
- UC Transferable

Methods of Evaluation

- Essay Examinations
  - Example: Discuss the pros and cons of using the mean as a measure of central tendency for the above question. Would you choose to report the mean or the median for the above set of data? Why? (This essay refers to the same set of data included in the Problem Solving Example.)
- Objective Examinations
  - Example: Both stepwise regression and hierarchical regression involve adding variables to a multiple regression equation one step at a time and checking whether the addition significantly improves the prediction. Which of the following statements about the two procedures is true? a) Stepwise regression is more useful than hierarchical regression in exploratory research where one doesn't know what to expect. b) Hierarchical regression is more useful than stepwise regression in applied research domains in which one is looking for the best prediction formula without caring about its theoretical meaning. c) In stepwise regression, the order in which the variables are added is based on some theory or plan, decided in advance by the researcher. d) In hierarchical regression, the computer figures out the best variables to add until adding more makes no additional significant contribution.
- Problem Solving Examinations
  - Example: Calculate the mode, mean, and median for the following responses on a survey asking how people feel about raising property taxes to pay for improvements at a local community college (5 indicates strongly in favor, 1 indicates strongly not in favor). Data set: 5 4 3 5 1 1 1 1 1 2 2 5 3 1 1 2 2 2 1 5
- Skill Demonstrations
  - Example: Using SPSS and the General Social Survey, determine whether there is a statistically significant difference in self-reports of poor mental health during the past 30 days comparing males to females (MNTLHLTH and SEX).

Repeatable

No

Methods of Instruction

- Lecture/Discussion
- Distance Learning

Lecture:

1. Instructor will provide a lecture about measures of variability and demonstrate how to calculate measures of variability. Then the instructor will provide a practice problem for students to work on in small groups to demonstrate their comprehension of the measures of variability.
2. After a PowerPoint-driven lecture on bivariate analysis, the instructor will walk students through the steps necessary to produce Bivariate Tables on the computers using the SPSS software. At each step, instructor will ask students to respond to questions about why the steps are being taken and what the resulting data tells us. Then the instructor will ask the students to produce a Bivariate Table from a given set of variables on their own to demonstrate they have understood and can replicate the process.

Distance Learning

1. Instructor creates a video demonstrating how to perform hypothesis testing and discussing its application in sociological research. As students watch the video, they are encouraged to pause/play at each key step to complete the work on their own along with the instructor so they can become familiar with the process.

Typical Out of Class Assignments

Reading Assignments

1. Prior to reading chapter, please read the handout entitled "Overcoming Math Anxiety" by Sheila Tobias. This reading will help with any anxiety you may have about taking a statistics course. 2. Read chapter and the case study by Margaret L. Anderson and Patricia Hill Collins entitled "Race, Class, and Gender" which demonstrates the sampling distributions discussed in chapter.

Writing, Problem Solving or Performance

Sample Writing and Problem Solving Questions for Assignments or Exams: 1. You listen to a debate between two politicians discussing the economic health of the United States. One politician says that the average household income in the United States is $126,500; the other says that the average household income is only $70,784, so Americans are not as well off as the first politician claims. Is it possible for both of these politicians to be correct? If so, explain how. 2. Using the data about the upcoming election, calculate the 95% Confidence Interval for the proportion of registered voters voting for Candidate A. Is it possible they will lose the election based on this Confidence Interval? Explain your response. 3. Regular written check-in assignments with students about course content as well as needs outside of class.

Other (Term projects, research papers, portfolios, etc.)

At the beginning of the semester, students will choose a sociological topic they are interested in and then complete analysis for each statistic they learn throughout the semester. At the end of the semester, students will compile all of their calculations and critical analysis into one cohesive assignment demonstrating their knowledge of sociological statistics and their application to sociological topics.

Required Materials

- Social Statistics for a Diverse Society
  - Author: Chava Frankfort-Nachmias and Anna Leon Guerrero
  - Publisher: Sage
  - Publication Date: 2020
  - Text Edition: 9th
  - Classic Textbook?: No
  - OER Link:
  - OER:
- Elementary Statistics in Social Research: Essentials
  - Author: Jack A. Levin and James Alan Fox
  - Publisher: Pearson
  - Publication Date: 2019
  - Text Edition: 4th
  - Classic Textbook?: No
  - OER Link:
  - OER:
- Statistics for the Behavioral and Social Sciences: A Brief Course
  - Author: Arthur Aron, Elliot Coups, and Elaine Aron
  - Publisher: Pearson
  - Publication Date: 2021
  - Text Edition: 6th
  - Classic Textbook?: No
  - OER Link:
  - OER:
- Statistics: A Tool for Social Research and Data Analysis
  - Author: Joseph F. Healey and Christopher Donoghue
  - Publisher: Cengage
  - Publication Date: 2021
  - Text Edition: 11th
  - Classic Textbook?: No
  - OER Link:
  - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.

SPSS software