

SOC 106 QUANTITATIVE SOCIOLOGICAL METHODS

Fall 2020

Instructor: Fatmir Haskaj

Email: haskaj@berkeley.edu

Online/asynchronous

August 26, 2020-December 18, 2020

COURSE DESCRIPTION

This course provides students with the necessary fundamentals for designing, analyzing, and producing quantitative sociological research. We will focus on the evaluation and construction of research design, and also on the practice of particular quantitative research methods using statistics and the software program SPSS. We will move along gradually and slowly taking a collaborative and hands on approach to familiarizing ourselves with the concepts, practices and tools to build a quantitative research project. We will start by building a strong conceptual and theoretical base of research design and practice by exploring questions such as: What is sociological research and publishing? What does a professional sociologist do? How does sociology contribute to knowledge about society and individuals? Then we will begin to learn how to conduct quantitative research using basic quantitative concepts and methods. Some topics and techniques covered during this semester will include the sociological research process, theory building and testing, tendency and variability, probability, statistical inference and hypothesis testing, and correlation and linear regression.

***Instructor reserves the right to modify course requirements and schedule. You are responsible not only for the deadlines and course work specified in the syllabus but also for any changes announced on bCourses. This statement has been prepared so that you understand course requirements as well as the learning that will take place this semester. Read it carefully. Mark the important parts. Ask questions about any parts that are unclear to you.**

LEARNING OBJECTIVES

Upon successful completion of the course requirements, you will:

- Become familiar with the basic concepts, methods, and procedures of statistical analysis in the social sciences, as well as the logic underlying those procedures;

- Acquire statistical literacy (to be able to explain the differences among various statistical techniques and identify an appropriate technique for a given set of variables and research questions);
- Obtain hands-on experience with data programming (SPSS) and analyses; and
- Learn how to apply your knowledge of statistics in thinking critically about scholarly research and popular press reports of data and research.

PREREQUISITES:

- Previous training in statistics is neither required nor expected. Successful completion of Sociology 5 is a requirement for this course, but other courses that provide an introduction to social science research methods may also suffice.

Required Text: This will be the primary text for the semester. The lectures, exercises, quizzes and exams will be drawn directly from this text.

- Salkind, N. J. and Frey, B. B. (2019). *Statistics for People Who (Think They) Hate Statistics* (7th ed.). Thousand Oaks, CA: Sage. ISBN: 978-1-5443-9339-1

A free and open companion website for this textbook is available to help you study. This site, at edge.sagepub.com/salkindfrey7e, includes the data sets for the exercises in the book, as well as practice Quizzes, flashcards, videos, and journal articles.

Required Software:

- MS Word
- MS PowerPoint
- PDF viewer
- SPSS statistical software

All of the above software is provided for free by UCB. Go <https://software.berkeley.edu/home> and you may download and install at no cost.

Course Requirements

- **Exercises (5%)** Throughout the semester there will be practice sessions in which we will use knowledge acquired in the readings and lecture to perform statistical calculations using SPSS. You will be required to show an SPSS output or record your screen and post to the assignment some kind of proof you have run the calculation. Further instructions will be forthcoming each week.
- **Participation (5%)** While there is no in person instruction in this course or synchronous meetings there will be general weekly discussions. Each week and in each module a discussion post will be present with a question and/or topic. You must comment each week in the discussion section to receive the full 10% credit. While there is no exact qualitative or quantitative standard for commentary, high marks will be given for posters who engage and are supportive of other students in the course. We are learning quantitative methods together. My hope is that the discussion boards will provide a space to connect, share and grow together as a class.
- **Weekly Quizzes (40%)** Each week there will be a Quizzes based upon the chapter, videos, lecture and exercises conducted. The purpose of the Quizzes are twofold. First, to ensure that you are keeping up with the class and understanding the material, and second, as a way of reviewing the weeks course content. These Quizzes are designed to be “low stakes” so they will be untimed and open book. I welcome and encourage study groups and you may even take the Quizzes collectively if you can manage the technological hurdles, if not, do not worry. The Quizzes are drawn directly from the textbook, multi-media presentations, power points and lectures. There are no surprises here.
- **Mid-term research report (10%):** A research review and methodology paper that must be 3-4 pages, double spaced in 12-point new times roman font will be due mid semester. This is not a traditional ‘term paper’ but more of a short report that will showcase and strengthen your understanding of the material. For this assignment you are expected to find five peer-reviewed academic journal articles in your area of interest in which reliability and validity data are reported. Then 1) discuss the

outcome measures that are used in each article, and 2) Identify the type of reliability that was established and the type of validity and comment on whether you think that the levels are acceptable. If not, how can they be improved?

- **Final Research Report (20%)** This assignment is designed to familiarize you with the research and publication process. By the end of the semester you will have a general understanding of quantitative research tools and methods. In this report you will 1) establish and discuss your research question, 2) review prior scholarly work on your research question, 3) discuss and justify the statistical method that you used in your analyses, 4) the data analyses results, and 5) your finding and conclusions. A more detailed. More detailed instructions can be found on the bCourses assignment.
- **Final Exam (20%):** The final exam will be composed of multiple choice and true false questions that will be drawn from previous quizzes. There will be questions that have not appeared before as well. It will be cumulative. Unlike the quizzes, it will be timed and therefore I highly encourage you to review the entire semesters material beforehand. It will be open book but since there is a time limit you may not have the time to refer to your text or notes. You should be well prepared by this point.

Grading:

The course grading will be based on the weighted percentage of quizzes and exams.

Exercises	5%
Participation	5%
Weekly quizzes	50 %
Mid-term research report	10 %
Final research report	10%
Final	20%
Total Percent	100%

Grading scale is as follows:

- A+ <100 % to 99.9%
- A < 99.9 % to 95.0%
- A- < 95.0 % to 90.0%
- B+ < 90.0 % to 87.0%

B	< 87.0 %	to 83.0%
B-	< 83.0 %	to 80.0%
C+	< 80.0 %	to 77.0%
C	< 77.0 %	to 73.0%
C-	< 73.0 %	to 70.0%
D+	< 70.0 %	to 67.0%
D	< 67.0 %	to 63.0%
D-	< 63.0 %	to 60.0%
F	< 60.0 %	to 0.0%

Schedule of Course Readings and Deliverables: This is a tentative schedule and we may move more quickly or more slowly depending on the tempo of the class.

Week	Date/Chapter/Topics & Assignments
1	August 28 Chapter 1: Statistics or Sadistics? It's Up to You Quizzes • Best, J. <i>More damned lies and statistics</i>, pp. 1-29. (Pdf) • Statistics is All Around Us From the United States Census Bureau, a terrific illustration as to how descriptive statistics are used in the public health arena to understand and access important data about infectious diseases.
2	September 4 Chapter 2: Means to an End: Computing and Understanding Averages Quizzes • Computing the Mean This video is on computing the average and gives a bit of an introduction to descriptive and inferential statistics. • Computing the Median More good things from the Khan Academy.
3	September 11 Chapter 3: Vive la Différence: Understanding Variability Quizzes & Exercise

- [Understanding the Standard Deviation](#)
Explanation and visualization of the standard deviation

4 September 18

Chapter 4: A Picture Really Is Worth a Thousand Words

Quizzes & Exercise

- [Representing Data](#)
An overview of some of the different ways to graph data.

5 September 25

Chapter 5: Ice Cream and Crime: Computing Correlation Coefficients

Quizzes & Exercise

- [Correlation Versus Causation](#)
Ted talk with Ionica Smeets that explains the danger of mixing up correlation and causation.

6 October 2

Chapter 6: Just the Truth: Intro to Understanding Reliability & Validity

Quizzes & Exercise

- [Measurement Reliability Versus Measurement Validity](#)
Animated description of the basics of measurement reliability and validity, with examples.
- [Improving Measurement Reliability](#)
Animated description of measurement reliability and ways to improve reliability.

7 October 9 **Mid-term research exercise due**

Chapter 7: Hypotheticals and You: Testing Your Questions

Quizzes & Exercise

- [Looking at a Sampling Error](#)
The sampling error of the mean is only one kind of sampling error.
- [The Null Hypothesis](#)
This video describes a null hypothesis side by side with other types of hypotheses.

8 October 16

Chapter 8: Probability and Why It Counts: Fun with a Bell-Shaped Curve
Quizzes & Exercise

- [A Basic Introduction to Probability](#)

9 October 23

Chapter 9: Significantly Significant: What It Means for You and Me
Quizzes & Exercise

- [Evaluating Levels of Significance](#)
The Headless Professor takes about statistical significance but more importantly, the various levels of significance and what they mean.
- [Statistical Versus Practical Significance](#)
Here's more discussion about statistical versus practical or applied significance where sample size and other factors are discussed.

Chapter 10: Only the Lonely: The One-Sample Z Test
Quizzes & Exercise

- [Performing a One-Sample Z-Test](#)
SPSS does not do one-sample z-test, but this Video is a terrific example.
- [Populations and Samples](#)
For our first inferential test, perhaps a bit of a review of the difference between samples and populations.

10 October 30

Chapter 11: t (ea) for Two: Tests Between the Means of Different Groups
Quizzes & Exercise

- [Finding the Critical t-Test Value](#)
Finding the critical value using the t-test for independent means.

Chapter 12: t (ea) for Two (Again): Tests Between the Means of Related Groups

Quizzes

- [Degrees of Freedom](#)

11 November 6

Chapter 13: Two Groups Too Many? Try Analysis of Variance

Quizzes & Exercise

- [ANOVA: Computing the F-Test Statistic](#)

Finding the critical value for a one-way ANOVA test

12 November 13

Chapter 14: Two Too Many Factors: Factorial Analysis of Variance

Quizzes & Exercise

- [Interaction Effects](#) quick run-through of interaction effects.

Chapter 15: Testing Relationships Using the Correlation Coefficient

Quizzes & Exercise

13 November 20

Chapter 16: Using Linear Regression: Predicting the Future

Quizzes

14 November 27

Thursday, November 26 & Friday, November 27, 2020- Holiday

15 December 4

Chapters 17: Nonparametric Statistics: Why and how. Chi-square tests

Quizzes & Exercise

- [Basics of Correlations](#)

Here's a brief overview of correlations

16 Monday, December 7–Friday, December 11, 2020

Reading/Review/Recitation Week

17 Friday, December 11, 2020 (last day of instruction- Review)

📌 Research Report Due

