

## Sociology 360, Section 1: Social Statistics

Fall 2005

### Professor Ted Gerber

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Social scientists use statistical techniques to find out about the social world. Not all social research involves statistics, but statistical data analysis can be a powerful and flexible tool for uncovering social structures, patterns, and trends. Sometimes competing theories about the characteristics of our society can only be resolved using statistics. Of course, other fields also use statistics. Medical researchers analyze epidemiological data or use statistics to assess the effectiveness of new drugs or treatments. Journalists often report the results of public opinion polls, and political consultants use them to shape their candidates' messages. Baseball managers use statistics to assess the quality of players and the probability that they will perform well in particular situations. Market researchers use surveys to test different packaging ideas and advertising messages. Government analysts use statistics to test the effectiveness of various programs and reforms. In short, statistics play a pervasive and important role in our society, and as sociologists we must develop a basic understanding of how to properly use and interpret statistical techniques.

This course will teach you how social scientists use statistics to reach conclusions about the social world. Not only will you learn how to calculate and apply various statistical formulas, you will also learn to use a statistical software package—SPSS—to conduct analyses of large data sets. This will give you hands-on experience doing statistical analysis of social data. Although the course is challenging, you will find it rewarding as well, since it will give you the chance to perform your own analyses of real survey data. By the end of the course, you will have an “insider” perspective on the use of statistics in sociological research and in other contexts.

### Format

The course will consist of lectures and lab sessions. We will do some individual and group work during lecture sessions at times. The lab sessions, which are *mandatory*, will be held in the Social Science Microcomputing Lab (SSML), 3218 Social Science. Lab sessions are crucial for this class—during these sessions you will learn how to use the computer software that you must master in order to do well on the exams, and you will go over the solutions to homework problems. *Remember to bring the data CD and at least one extra floppy diskette to every lab session.* You must attend every class—you will have great difficulty catching up if you fall behind in this course. Lecture outlines will be posted on a course website accessible via Learn@UW (details will be provided in class).

## Requirements

Weekly reading assignments must be completed by the dates indicated on the Schedule. The lectures will cover similar material as the readings, but you will have a much easier time learning the material if you do the reading first. Your written work includes:

- 1) *Homework*. Eleven written homework assignments must be completed and submitted by the dates indicated on the schedule. Homework will be graded for effort, accuracy, thoroughness, and timeliness. Each assignment is worth 2.5 points, except for the last assignment, worth 5 points. So, written homework counts for 30% of your overall grade.
- 2) *Exams*. Two in-class midterm exams will be given. Each will have two parts: one during lecture and one during lab in the SSML. The first will be **Oct 20 and 21**, the second **Dec 1 and 2**. Make-ups will be given only in the case of an absolutely unavoidable, unchangeable conflict. If you have such a conflict, you must let me know well in advance of the exam dates. Each midterm counts for 25% of your overall grade.
- 3) *Final Project*. Rather than a sit-down final exam, you will complete a final project, in which you design and implement a brief study using the variables available in one of the data sets we will be analyzing for homework and in-class assignments. The end product will be a short research report—no more than 3 pages. *Graduate students must write longer papers (10-12 pages)*. I will provide more details about the final project mid-way through the semester. You must begin working on the project early. You will have to submit a project proposal on Dec 8. The final project will be due on the scheduled final exam day for this class, Dec 22 (though you may submit your project report earlier). The final project will count for 20% of your overall grade.

*Note:* Read the Schedule very carefully—***you are responsible for knowing when homework is due and when exams will take place.*** The schedule lists all deadlines and lab sessions, but not all lectures. *All lecture sessions will meet unless it says otherwise.*

## Texts

The textbook for this course, which includes a compact disk with software and data sets that you will need, is available at the University Bookstore:

Ferris Ritchey, *The Statistical Imagination: Elementary Statistics for the Social Sciences*. McGraw Hill. 2000.

## SCHEDULE

### **Week 1 (Sep 6/8): Introduction: Basic Concepts**

Sep 6: Introduction

Sep 8: Read Ritchey, chs. 1, 2

Sep 9 LAB: Introduction to SPSS. ***DO NOT MISS THIS SESSION!!!!!!***

### **Week 2 (Sep 13/15): Looking at Data: Frequencies and Crosstabs**

Sep 13: Read Introduction to Computer Exercises for Chapter 2 (on Ritchey CD)

*Assignment 1 due:* Ch. 1 Questions 2-6; Exercises 3, 6, 11, 13, 16  
Ch. 2 Questions 4, 5, 6, 11, Exercises 2, 4, 5, 13, 14

Sep 16 LAB: Review Assignment 1, review procedures for assignment 2.

**Week 3 (Sep 20/22): Looking at Data: Charts and Graphs**

Sep 20: Read Ritchey, ch. 3

*Assignment 2 due:* Ch. 2 Computer Assignment C1-3, D1-2, E1-2

Sep 23 LAB: Review assignment 2, learn procedures for assignment 3.

**Week 4 (Sep 27/29): Measures of Central Tendency and Dispersion**

Sep 27: Read Ritchey, chs. 4 and 5

*Assignment 3 due:* Ch. 3 Exercises 5, 9, 10

Ch. 3 Computer Assignment B1-6

Sep 29 LAB: Review assignment 3, learn procedures for assignment 4.

**Week 5 (Oct 4/6): Three-way crosstabs and scales**

Oct 4: Read: Handout on three-way crosstabs and scales

*Assignment 4 due:* Ch. 4 Questions 2, 4, 10; Exercises 1, 2, 12

Ch. 4 Computer Assignment D1-2, E1-2

Ch. 5 Questions 6, 9, 14; Exercises 3-5

Ch. 5 Computer Assignment D1-3, E1-2

Oct 7 LAB: Review assignment 4, learn procedures for assignment 5.

**Week 6 (Oct 11/13): Catch up and Review**

Oct 11: More three-way cross tabs and scales

*Assignment 5 due:* Handout

Oct 14 LAB: Review assignment 5, review SPSS procedures for midterm

**Week 7 (Oct 18/20): First Midterm**

Oct 18: Review for midterm

*Oct 20: First midterm, Part I*

*Oct 21 LAB: First midterm, Part II MEET IN SSML.*

**Week 8 (Oct 25/27): Probability and Inference**

Oct 25: Read Ritchey, chs. 6, 7

Oct 29 LAB: Go over midterm.

Learn procedures for assignment 7

*Assignment 6 due:* Ch. 6 Exercises 3, 8, 13, 15, 17

Ch. 7 Exercises 2, 3, 4

**Week 9 (Nov 1/3): Confidence Intervals and Tests About One Mean**

Nov 1: Read Ritchey, chs. 8-10

Nov 4 LAB: Review assignment 6, learn procedures for assignment 7.

**Week 10 (Nov 8/10): Group Comparisons with Two-Sample t-tests**

Nov 8: Read Ritchey, ch. 11

*Assignment 7 due:* Ch. 8 Exercises 6, 8

Ch. 9 Exercises 6, 7  
Ch. 10 Exercises 5, 7, 9, 10  
Ch. 8 Computer Exercises H1-H5

Nov 11 LAB: Review assignment 7, learn procedures for assignment 8.

**Week 11 (Nov 15/17): Reading Crosstabs and Using Chi-square**

Nov 15: Read Ritchey, ch. 13 (only pp.418-33 required)

*Assignment 8 due:* Ch. 11 Exercises 3, 5, 6  
Ch. 10 Computer Exercises E1-E3, F1-F3  
Ch. 11 Computer Exercises D1-D2, E1-E2, F1-F2

Nov 18 LAB: Review assignment 8, learn procedures for assignment 9.

**Week 12 (Nov 22/24): Chi-square (cont.)**

Nov 22: Finish Chi-square

*Assignment 9 due:* Ch. 13 Exercises 1, 5, 6  
Ch. 13 Computer Exercises B1-B4, F1-F2

Nov 24, 25: *Thanksgiving: No Class!*

**Week 13 (Nov 29/Dec 1): Review, Second Midterm**

Nov 29: Review assignment 9; review for second midterm.

***Dec 1: Second Midterm Examination, Part I.***

***Dec 2: Second Midterm Examination, Part II.***

**Week 14 (Dec 6/8): Correlation/Regression**

Dec 6: Read Ritchey, chs. 14-15

Dec 8: Submit project proposals.

Dec 9 LAB: Review midterm, learn procedures for assignment 11, discuss project proposals

*Assignment 10 due:* Ch. 14, Exercises 1, 2, 5  
Ch. 15, Exercises 7, 8

**Week 15 (Dec 13/15): Correlation/Regression (cont.)**

Dec 15: *Assignment 11 due* (worth 5 points): Computer Assignment (handout)

***Final projects are due on December 22 by 2:45 pm.***