

SOCIOLOGY 312: QUANTITATIVE METHODS IN SOCIOLOGY

Term: Winter 2006

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COURSE DESCRIPTION**Overview**

This course is an introduction to statistical techniques commonly used in much social science research and writing. It is a prerequisite for more advanced quantitative methods courses offered by the Department (e.g., Soc 512 and 513). Sociology 311, Introduction to Social Research, and high school algebra are prerequisites for this course. Instruction in the course will emphasize understanding the logic underlying quantitative analyses applied to social experiences. As such, it will cover the construction and interpretation of tables and graphs, descriptive statistics, measures of association, basic ideas of probability, and elementary statistical inference.

Goal

Our goal is to gain a practical understanding and facile use of statistical techniques at the elementary level. Statistics is a difficult subject for many students. I hope to make the subject matter enjoyable and relevant to real life experiences. I will try to make the lectures and assignments as nonintimidating as I can.

Required Readings

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

These books may be purchased at the University of Oregon Bookstore. This text is a very good introduction to the subject, providing many examples, while using a minimum of statistical notation. The guide contains a number of practical exercises to increase your understanding of statistics by using the concepts and techniques explained in class and in the text. The guide provides answers to selected problems from its chapters. In my lectures, I will use a number of illustrative examples taken from a text, *An Introduction to Statistical Techniques for Social Research*, by Anthony A. Hicks. This text is no longer in print, but the examples used are clear and presented very well. I will try to make any examples used from this text available to you in Blackboard.

Grading

The requirements for completing this course and for grading will be determined at the first class meeting. Suggested criteria are:

1. Midterm examination (1) 30%
2. Final examination (1) 40%
3. Homework Assignments (6) 30%

The examinations will have a variety of test items, primarily multiple choice, but may include true/false, fill in, and calculated problems. They are designed to suit a variety of response modes and to provide an evaluation of students' comprehension of the content of the course. They assess students' understandings of the conceptual aspects of elementary statistics. The homework assignments are designed to give students the opportunity to engage in statistical problem solving in a non-test environment. They provide hands on experience with the mechanics of numerical statistical problem solving. The assignments are important, and so, are equivalent to a midterm in grading weight.

All members of this class are expected to have successfully completed the prerequisite Math 95 or its equivalency. Sociology majors are required to take this course graded and must achieve a grade of at least C- in order to have their course credits qualify for graduation.

Students are advised that all graded work must be done independently. You will be held accountable for your individual performance in the class. Cheating will not be tolerated and where found, will be dealt with severely. Policies in the document, "Students Academic Integrity: Policies and Guidelines for Faculty, Instructors, and Students," will be followed in adjudicating suspected cases of cheating. You should avail yourself of this document from the Student Conduct Program.

I will arrange study sessions for students needing additional support in understanding statistics. The GTFs will shoulder most of this load. It is incumbent upon students to keep the GTFs and me abreast of difficulties in understanding material. I can be reached during my office hours, by phone, and via email. I will arrange alternate times to meet if you cannot make my office hours.

READING LIST

PART ONE: DESCRIPTIVE STATISTICS

I. Week One. Statistics and Measurement

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Chapter 1. The Definition of Statistical Analysis, pp. 3-18.

Chapter 2. Basic Mathematical Concepts, pp. 19-48. Appendix A. Review of Basic Mathematics, pp. 421-427.

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

Chapter 1. The Definition of Statistical Analysis, pp. 1-8.

Chapter 2. Basic Mathematical Concepts, pp. 9-23.

II. Week Two. Descriptive Statistics

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Chapter 3. Frequency Distributions and Graphing Techniques, pp. 49-75.

Chapter 4. Percentiles, pp. 76-89.

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

Chapter 3. Frequency Distributions and Graphing Techniques, pp. 24-35.

Chapter 4. Percentiles, pp. 36-43.

III. Week Three. Descriptive Statistics

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Chapter 5. Measurements of Central Tendency, pp. 90-112.

Chapter 6. Measures of Dispersion, pp. 113-125.

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

Chapter 5. Measurements of Central Tendency, pp. 44-55.

Chapter 6. Measures of Dispersion, pp. 56-68.

IV. Week Four. Estimation

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Chapter 7. The Standard Deviation and the Standard Normal Distribution, pp. 130-151.

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

Chapter 7. The Standard Deviation and the Standard Normal Distribution, pp. 68-81

PART TWO: INFERENCE STATISTICS: PARAMETRIC TESTS OF SIGNIFICANCE

IV. Week Five. Inferential Statistics: Probability

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Chapter 12. Probability, pp. 265-298.

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

Chapter 12. Probability, pp. 136-148.

MIDTERM EXAM: February 8

Week Six. Sampling and Statistical Inference

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Chapter 13. Introduction to Statistical Inference, pp. 299-322.

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

Chapter 13. Introduction to Statistical Inference, pp. 149-160.

VI. Week Seven and Eight. Hypothesis Testing

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Chapter 13. Introduction to Statistical Inference, pp. 299-322.

Chapter 14. Statistical Inference and Continuous Variables, pp. 332-357.

Chapter 16. Statistical Inference With Categorical Variables: Chi Square and Related Measures. pp. 379-401.

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

Chapter 13. Introduction to Statistical Inference, pp. 299-322.

Chapter 14. Statistical Inference and Continuous Variables, pp. 161-174.

Chapter 16. Statistical Inference With Categorical Variables: Chi Square and Related Measures. Pp. 179-188.

PART THREE: MEASURES OF ASSOCIATION, CAUSALITY, AND PREDICTION: INTERVAL AND RATIO SCALES

VII. Weeks Nine. Correlation and Regression

Elifson, K. W., Runyon, R. P., and Haber, A., *Fundamentals of Social Statistics* (required).

Chapter 9. Correlation, pp. 184-209.

Chapter 10. Regression and Prediction, pp. 210-236.

Chapter 11. Multivariate Data Analysis pp. 237-264.

Elifson, K. *Fundamentals of Social Statistics Study Guide* (required).

Chapter 9. Correlation, pp. 100-113.

Chapter 10. Regression and Prediction, pp. 114-124.

Chapter 11. Multivariate Data Analysis pp. 125-135.

VIII. Week Ten. Analysis of Variance

Elifson, K., *Fundamentals of Social Statistics Study Guide* (required).

Chapter 15. An Introduction to the Analysis of Variance, pp. 348-375.

FINAL EXAM: Friday, March 24 at 10:15 am