

Data Analysis for Justice Research
Spring 2005
JUS 630

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Office hours: Mondays 12:30-1:30
Wednesdays 1:30-2:30
And by Appointment

Course goals: This course seeks to equip students from a wide variety of intellectual traditions with a working knowledge of advanced quantitative methods. My goal is to teach the process of data analysis, including: hypothesis testing, diagnosing and accounting for flaws in datasets, multivariate model estimation, and comprehension of sophisticated quantitative analyses. Through discussion of multivariate statistical techniques, students will learn how to conduct their own research as well as how to understand the work of others. The course will focus on the practical application of data analysis to a diverse array of research within justice studies.

Prerequisites: Students must have taken JUS 509 and be familiar with the concepts discussed in that course: descriptive statistics, significance testing, correlation, and Ordinary Least Squares regression. We will begin with a review of the above topics, but students are expected to have a basic understanding of these topics prior to enrollment.

Requirements: Students will be required to work with actual data, using the SPSS software package. They will use data from the 1998 General Social Survey (GSS) to practice applying the statistical procedures discussed in class. Students will use these data to perform graded homework problem-sets due in class each week.

In addition, students will conduct original analyses, culminating in a research paper. They may use either the GSS data for these analyses, or they may opt to find a dataset better suited to their individual research interests. If they choose to use their own data, they must be able to download and assemble these data by week 5 of the course (February 16); if the data are not easily accessible or not already cleaned, students will use the GSS data.

Examples of datasets students may opt to use are:

- Census data (see www.census.gov)
- Data from the Bureau of Justice Statistics (<http://www.ojp.usdoj.gov/bjs>)
- Data from the Center for Disease Control – National Center for Health Statistics (<http://www.cdc.gov/nchs/>)
- World Bank Data on International Development and Inequality (<http://www.worldbank.org/data/onlinedatabases/onlinedatabases.html>)
- Data from the ICPSR archives (<http://www.icpsr.org/>)

The papers will pose research questions relevant to students' interests and answer these questions through quantitative analyses. Each student will present preliminary findings (in a conference-style presentation) to the class during the last three sessions. Papers will be due on May 9.

Students' grades will be calculated as follows:

- 50% Research Paper
- 20% Paper Presentation
- 30% Weekly Homework Assignments

Required Readings: Each week the class will be assigned a combination of readings, including: 1) descriptions of statistical methods, and 2) substantive articles applying these methods. Unless otherwise noted, the substantive articles will be available for downloading from the course blackboard page.

The required statistical readings will include chapters from:

David Knoke, George W. Bohrnstedt, and Alisa Potter Mee. 2002. *Statistics for Social Data Analysis* (4th ed.). Belmont CA: Thomson Wadsworth.

Optional Readings:

John Fox. 1991. *Regression Diagnostics: An Introduction*. CA: Sage.

Marija J. Norusis. 2002. *SPSS 11.0 Guide to Data Analysis*. Upper Saddle River, NJ: Prentice-Hall.

Course Outline:

January 24: Introduction and Course Overview

January 31: Review of Descriptive Statistics and Hypothesis Testing: Central Tendency, Dispersion, Testing Differences Between Means, and the Normal Curve

Knoke et al., chapters 1 through 3.

February 7: Review of ANOVA and Chi-Square

Knoke et al., chapters 4 and 5.

February 14: Review of Correlation and Regression

Knoke et al., chapters 6 and 7.

February 21: Multivariate OLS Regression II

Knoke et al., chapter 8.

Leonie Huddy and Nayda Terkildsen. 1993. "The Consequences of Gender Stereotypes for Women Candidates at Different Levels and Types of Office." *Political Research Quarterly* 46(3).

February 28: Regression With a Dichotomous Dependent Variable: Logistic Regression

Knoke et al., chapter 9 (sections 9.2 through 9.5).

March 7: Regression With a Dichotomous Dependent Variable: Logistic Regression II

Carol Ann Traut and Craig F. Emmert. 1998. "Expanding the Integrated Model of Judicial Decision Making: The California Justices and Capital Punishment." *The Journal of Politics* 60 (4).

March 14: No Class – Spring Break

March 21: Regression Diagnostics: Nonlinearity, Heteroskedasticity, Multicollinearity, and Outliers

Knoke et al., chapter 9 (section 9.1).

John Fox, *Regression Diagnostics*, chapters 3 and 4 (copy from outside my office).

March 28: Path Analysis

Knoke et al., chapter 11.

Robert V. Robinson and Wendell Bell. 1978. "Equality, Success, and Social Justice in England and the United States." *American Sociological Review* 43(2).

April 4: Factor Analysis

Knoke et al., chapter 12 (section 12.1 through 12.3).

Vaughan Stapleton, David P. Aday, Jr., and Jeanne A. Ito. 1982. "An Empirical Typology of American Metropolitan Juvenile Courts." *American Journal of Sociology*. 88(3).

- April 11: Introduction to Advanced Models: Survival Analysis, Time Series Analysis, Hierarchical Linear Modeling
- April 18: Student Presentations I
- April 25: Student Presentations II
- May 2: Student Presentations III