

POLS 671
Methods of Political Research:
Introduction to Data Analysis
Spring 2009

Professor: Jason Gainous

Office Location: 406 Ford Hall

Class Meetings: Tuesday 5:30 PM-8:15 PM Ford Hall 305

Office Hours: Monday, Tuesday and Wednesday 3:15-5:15 PM, and by appointment

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Course Objectives

This course provides an introduction to the theory and practice of quantitative data analysis techniques. The goals are to provide students with the skills necessary to: 1) design and carry out studies that employ quantitative techniques as a means of answering research questions, 2) build a foundation of understanding in statistics in order to learn more about advanced statistical techniques and 3) understand and critique political science research that utilizes quantitative techniques.

Course Requirements

Your grades will be based attendance and class participation, 3 homework assignments, and a research paper.

Attendance in class is assumed. If you must miss class, for any reason, I expect to be notified. You are responsible for making up any material that you miss. This course is quite a bit different from typical seminar-style courses in graduate study. Each week's material builds on the previous week's material. You are expected to participate in class discussions based on the reading for each week. Therefore, it is essential that you keep up.

Homework assignments will be composed of hand-calculated problems as well as lab assignments using SPSS for Windows. It will be due 1 week from the time it is handed out (dates in schedule below). Please check out the Guidelines for Homework (in an additional handout) for more information.

The research paper entails finding and using a dataset of your choosing to help you understand a political phenomenon. The final project should be 10-15 pages long, include a multivariate statistical analysis, and bibliography. Please consult the Final Project Description for more details. We will also discuss the final project in more detail over the course of the semester.

	<u>Percentage of Grade</u>
Attendance and Participation	20%
Homework Assignments	40%
Research paper	40%

Course Materials

Agresti, Alan and Barbara Finlay. 1997. *Statistical Methods for the Social Sciences*, 3rd Edition. Upper Saddle River, NJ: Prentice-Hall.

Shannon, David M. and Mark A. Davenport. 2001. *Using SPSS to Solve Statistical Problems: A Self-Instruction Guide*. Upper Saddle River, NJ: Prentice-Hall.

SPSS is available in the Ford Hall data lab on the first floor. However, should you want to purchase your own copy for home use, you can purchase the graduate student version of SPSS from the University bookstore.

Tips for Success

- 1) **Complete assigned readings before class.** If you read the material before class, my lectures will make more sense. Additionally, you will be able to ask questions in class about the material in the chapter that you didn't understand.
- 2) **Read the Agresti chapters several times.** Learning statistics, for many of you, will be similar to learning a foreign language. In order to learn another language, you need to immerse yourself in the language and use it frequently.
- 3) **Complete the odd-numbered exercises at the end of each chapter.** Answers for these are provided in the back of the text. Applying the concepts from the chapter to help you solve problems will reinforce the concepts learned in each chapter.
- 4) **Be consistent.** Unlike other political science seminars, where you can read and master material in chunks of time, you will most likely be more successful if you spend a little bit of time several times a week on your statistics. From past experience, many students find it difficult to spend large chunks of time concentrating on statistics. As such, if you designate several smaller blocks of time during each week to work on statistics, you are less likely to forget the language, forget what you read in Agresti, and more likely to keep up with the workload.

Schedule This is my best guess about when we will cover specific topics. As a guess, it means that I am not bound to these dates and you will have to keep up with the readings based on our class progress.

Week 1- January 13th

Course Introduction

Week 2- January 20th

Introduction to Statistical Methodology; Sampling and Measurement

- Agresti, Chapters 1 & 2
- “Verification/Replication” in *PS: Political Science & Politics*. Volume 28, Number 3, September 1995 (read intro and first 3 articles in issue).

Week 3- January 27th

Descriptive Statistics

- Agresti, Chapter 3
- Shannon & Davenport, Chapters 1-4
- Grofman, Bernard, William Koetzle, and Anthony J. McGann. 2002. “Congressional Leadership 1965-96: A New Look at the Extremism versus Centrality Debate.” *Legislative Studies Quarterly*, 27: 87-105

Week 4- February 3rd

Probability Distributions

- Agresti, Chapter 4
- Shannon & Davenport, Chapters 5&6
- Homework #1 will be distributed

Week 5- February 10th

Statistical Inference: Estimation

- Agresti, Chapter 5
- Shannon & Davenport, Chapters 7&8
- Homework #1 is due at the beginning of class

Week 6- February 17th

Statistical Inference: Significance Tests

- Agresti, Chapter 6
- Shannon & Davenport, Chapters 9&10

Week 7- February 24th

Comparison of Two Groups

- Agresti, Chapters 7
- Shannon & Davenport, Chapters 11 – 15
- Homework #2 will be distributed

Week 8- March 3rd

Analyzing Association between Categorical Variables

- Agresti, Chapters 8
- Gill, Jeff. 1999. "The Insignificance of Null Hypothesis Significance Testing." *Political Research Quarterly* 52(3): 647.
- Homework #2 is due at the beginning of class

Week 9- March 10th

More Analyzing Association between Categorical Variables

- Hokenmaier, Karl G. 1998. "Social Security vs. Educational Opportunity in Advanced Industrial Societies: Is There a Trade-Off?" *American Journal of Political Science*, 42:709-711.
- Wood, Sandra L, Keith, Linda C., Lanier, Drew N. and Ayo Ogundele. 1998. "'Acclimation Effects' for Supreme Court Justices: A Cross-Validation, 1888-1940." *American Journal of Political Science*, 42:690-697.
- Proposed research question, bibliography, and dataset are due at the beginning of class

Week 10- March 17th

No class for Spring Break

Weeks 11 and 12- March 24th and March 31st

Linear Regression and Correlation

- Agresti, Chapter 9
- Shannon & Davenport, Chapter 21
- Bartels, Larry M. "Five Approaches to Model Specification." *The Political Methodologist*, 3:2-6. Available at http://polmeth.wustl.edu/tpm/tpm_v3_n2.pdf.
- Hill, Kim Quaile, Hanna, Stephen, and Shafqat, Sahar. 1997. "The liberal-conservative ideology of U.S. senators: a new measure." *American Journal of Political Science*, 41:1395-1414.
- Homework #3 will be distributed on March 31st

Week 13 and 14- April 7th and 14th

Multivariate Regression and Correlation

- Agresti, Chapters 10 & 11
- Shannon & Davenport, Chapters 22 & 23
- Green, Donald P. "On the Value of Not Teaching Students to Be Dangerous." *The Political Methodologist*, 3:7-9. Available at http://polmeth.wustl.edu/tpm/tpm_v3_n2.pdf.
- Friedrich, Robert J. 1982. "In Defense of Multiplicative Terms in Multiple Regression Equations." *American Journal of Political Science*, 26:797-833.
- King, Gary. 1986. "How Not to Lie with Statistics: Avoiding Common Mistakes in Quantitative Political Science." *American Journal of Political Science*, 30:666-687.
- Luskin, Robert C. 1991. "Abusus Non Tollit Usum: Standardized Coefficients, Correlations, and R2s." *American Journal of Political Science*, 35:1032-1046.
- King, Gary. 1991. "Truth" Is Stranger than Prediction, More Questionable than Causal Inference." *American Journal of Political Science*, 35:1047-1054.
- Homework #3 is due at the beginning of class on April 7th

Weeks 15- April 21st

- Research paper is due at the beginning of class
- Summary and review of the semester.