

University of Pennsylvania
Political Science 295-301

Introduction to Political Research

Professor Genie Baker

Class

Spring 2004
T-Th 10:30-12
28 Williams Hall

Office

Hours: Mon 3-5
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This course introduces one method of social science research: testing hypotheses through the use of statistics. Heavy emphasis will be given to the fundamental concepts behind statistical methodology; applied work in political science will be used as illustrations. Graded homework assignments will include statistical problems and computer assignments requiring the use of statistical software. Additionally, students will test a hypothesis and submit their results in the form of an original research report.

Course requirements

- Written homework assignments (30%)
- Final statistics exam (25%)
- Research paper (30%)
 - Description of design due 3/18, worth 10%
 - Final paper due 4/22, worth 20%
- Class participation (15%)

Course website: <http://courseweb.library.upenn.edu> will take you to Penn's blackboard site. Announcements, assigned problems, and data sets will be listed here.

READINGS¹

Required text:

David Freedman, Robert Pisani and Roger Purves (1998) *Statistics, Third Edition*. New York: W. W. Norton & Company. (FPP)

Recommended text:

Lawrence C. Hamilton (2003) *Statistics with Stata 7*. Belmont, California: Duxbury, Thomson Learning.

¹ Subject to additions and deletions, once I know more about student interests. Listen for class announcements and keep an eye on the blackboard website.

Additional texts :

Four additional texts have been placed on reserve, as they may help you formulate hypotheses and empirical tests for your final paper. Additionally, Vasquez and Henehan is a source for some of the supplementary readings.

Paul R. Abramson, John H. Aldrich and David W. Rohde (2003) *Change and Continuity in the 2000 and 2002 Elections*. Washington D.C.: Congressional Quarterly Press.

Bruce Bueno de Mesquita (2003) *Principles of International Politics: People's Power, Preferences, and Perceptions, 2nd ed.* Washington, D.C.: Congressional Quarterly Press.

W. Phillips Shively (2001) *Power and Choice: An Introduction to Political Science*. New York: McGraw-Hill

John A. Vasquez and Marie T. Henehan (1992) *The Scientific Study of Peace and War*. New York: Lexington Books. (VH)

Topics and Readings:

Introduction. No readings.

Design of Experiments

- Controlled Experiments
FPP, chapter 1.
Shanto Iyengar, Mark D. Peters and Donald R. Kinder (1982) "Experimental Demonstrations of the 'Not-So-Minimal' Consequences of Television News Programs. *American Political Science Review* 76, 4: 848-858.
- Observational Studies
FPP, chapter 2
Steven Rosen (1972) "War Power and the Willingness to Suffer," reprinted in VH, chapter 11.

Descriptive Statistics

- Frequency distributions for discrete data: histograms and crosstabs
FPP, chapter 3
Angus Campbell, Philip E. Converse, Warren E. Miller and Donald E. Stokes (1964) *The American Voter*, abridged edition. New York: Wiley.
Chapter 5: The Impact of Party Identification, pp. 67-86
Ham, pp. 1-7, 60-64, 97-103.
- Describing continuous variables: the mean and standard deviation
FPP, chapter 4
J. David Singer, Stuart Bremer and John Stuckey, "Capability Distribution, Uncertainty and Major Power War, 1820-1965." Reprinted in VH, Chapter 2, pp. 37-50.
Ham, review pp. 88-92

- Describing continuous variables: the normal approximation and percentiles
FPP, chapter 5
Ham, pp. 94-97
- Measurement error
FPP, chapter 6

Descriptive Statistics: Correlation and Regression

- Plotting points and lines
FPP, chapter 7
Ham, pp. 64-70
- Correlation
FPP, chapters 8 and 9
J. David Singer, Stuart Bremer and John Stuckey, “Capability Distribution, Uncertainty and Major Power War, 1820-1965.” Reprinted in VH, Chapter 2, pp. 51-54
Frank Whelon Wayman, (1984) “Bipolarity and War: The Role of Capability Concentration and Alliance Patterns among Major Powers, 1816-1965.” Reprinted in VH, Chapter 8
Ham, pp. 135-139
- Regression
FPP, chapters 10-12
J. David Singer, Stuart Bremer and John Stuckey, “Capability Distribution, Uncertainty and Major Power War, 1820-1965.” Reprinted in VH, Chapter 2, pp. 54-74
Ronald J. Wonnacott and Thomas H. Wonnacott (1985) *Introductory Statistics*, 4th Ed. New York: Wiley, pp. 392-397 (Regression extensions).
Ham, pp. 124-135, 139-146

Probability

- Probability of simple events
FPP, chapter 13
- Compound events
FPP, chapter 14

Chance Variability

- The Law of Averages
FPP, chapter 16
- Expected Value
FPP, chapter 17
- The Normal Approximation for Probability Histograms
FPP, chapter 18

Sampling

- Sample Surveys
FPP, chapter 19

- Chance Errors in Sampling
FPP, chapter 20

Inferential Statistics

- Tests of significance, the one-sample t-test
FPP, chapter 26
Singer, Bremer and Stuckey paper; review
Ham, pp. 114-119, 145-154
- Two-sample t-test, the z-test
FPP, chapter 27
Ham, 119-122
- The Chi-Square Test
FPP, chapter 28
Michael D. Wallace (1982) "Armaments and Escalation: Two Competing Hypotheses." Reprinted in VH, Chapter 3.
Review Ham, pp. 97-103
- Statistical significance and substantive significance
FPP, chapter 29