

PS2030
POLITICAL RESEARCH AND ANALYSIS

Spring Semester 2012: 4430 WW Posvar Hall
Monday 2:30-4:55 PM

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Course Description

This course is the next helping of statistics and research methodology after PS2020. We will begin with a thorough investigation of regression and the general linear model, and then move on to more advanced techniques such as logit and probit analysis, models for ordinal dependent variables, and more advanced models for causal inference. Students will be exposed to the theory of these methods as well as to practical ways of using them in concrete research situations. There are two main goals of the course: to enable students to read, understand and critique existing quantitative literature in political science; and to have students acquire the skills to conduct original quantitative research in their own substantive field of interest.

Texts

Required:

Gujarati, Damador, and Dawn Porter, *Basic Econometrics, 5th Edition*. McGraw-Hill Irwin, 2009.
Long, J. Scott, *Regression Models for Categorical and Limited Dependent Variables*. Sage Publications, 1997.
Baum, Christopher, *An Introduction to Modern Econometrics Using Stata*. Stata Press, 2006.

Recommended:

Long, J. Scott, *The Workflow of Data Analysis Using Stata*. Stata Press, 2009.

Useful:

Kennedy, Peter. *A Guide to Econometrics, 6th Edition*. Blackwell Press, 2008.
Woolridge, Jeffrey, *Introduction to Econometrics: A Modern Approach*. 4th Edition. South-Western Cengage Learning, 2009.

Requirements

Grades will be based on a 20-25 page research paper (55%, including 15% for preparation of a "poster" presentation of the paper on April 23), and three homework exercises which relate to specific statistical methods and problems we will discuss (45% altogether). The paper (due April 20) will be a quantitative analysis, using multiple regression or some of the other methods we cover in the course, of data that you will collect or access from social science archives or other sources. Ideally, the paper should have some substantive interest to you or be relevant to your studies in the graduate program. The paper will discuss your basic theoretical framework, your hypotheses, statistical models, results, possible problems with the analysis, and what you may have done to correct or account for these problems. It will conclude with a discussion of the relevance of your findings for the general topic and for future research.

The homework exercises will be periodic problems or data sets to analyze and will illustrate aspects of the statistical techniques being covered in class.

Course Outline

January 9: **Course Introduction and Stata Review**

Reading: Gujarati and Porter, Introduction and chapter 1.
Baum, chapters 1-2.
Long, *Workflow*, chapters 1-4, Appendix A (chapter 3 is essential, others useful as a reference)

January 23: **Bivariate Regression: Descriptive Statistics**

Reading: Gujarati and Porter, chapter 2 and chapter 3, pp.55-61 and 73-80.

Optional: Woolridge, chapter 2 to p.46.

January 30: **Assumptions of Regression and Hypothesis Testing**

Reading: Gujarati and Porter, pp.61-73, 92-96, chapter 4 to p.102, chapter 5 to p. 129.

Optional: Woolridge, chapter 2, pp. 47-60, 325-329.
Kennedy, chapters 1-3.

February 6: **Multiple Regression**

Reading: Gujarati and Porter, chapters 7-8, and pp.129-133, 157-159.
Baum, chapter 4.

Optional: Woolridge, chapters 3-5, and pp. 184-189, 206-210.
Kennedy, chapters 4-5.

****HOMEWORK 1 HANDED OUT****

February 13: **Dummy Variable Regression**

Reading: Gujarati and Porter, chapter 9.
Baum, chapter 7 to p. 174.

Optional: Woolridge, chapter 7 to p. 246.
Kennedy, chapter 15.

****HOMEWORK 1 DUE WEDNESDAY FEBRUARY 15****

February 20: **Non-Linear and Non-Additive Regression Models**

Reading: Gujarati and Porter, pp. 159-175, 470-482, 486-498.
Brambor, Thomas, William R. Clark, and Matt Golder. 2006. Understanding Interaction Models: Improving Empirical Analyses". *Political Analysis* 14(1):63-82.
Baum, chapter 5.

Optional: Woolridge, pp. 189-199, 210-214, 300-306.
Kennedy, chapter 6.

February 27: **Heteroskedasticity and Multicollinearity**

Reading: Gujarati and Porter, chapters 10-11.
Baum, chapter 6, pp. 133-139 and 142-154.

Optional: Woolridge, chapter 8 to p. 290, and review of pp.95-99.
Kennedy, chapter 7, chapter 8, pp. 112-118, 123-126, chapter 12.

****HOMEWORK 2 HANDED OUT****

March 12: **Autocorrelation and Introduction to Time Series Analysis**

Reading: Gujarati and Porter, chapter 12.
Baum, pp. 139-141.

Optional: Woolridge, chapters 10, 11, 18.
Kennedy, rest of chapter 8, chapter 19.

****HOMEWORK 2 DUE WEDNESDAY MARCH 14****

March 19: **Endogeneity, Measurement Error, and Instrumental Variables**

Reading: Gujarati and Porter, pp. 482-486.
Woolridge, chapters 15-16.
Baum, chapter 8.
Sovey, Allison, and Donald P. Green, "Instrumental Variables Estimation in Political Science: A Reader's Guide", *AJPS* 55(1): 188-200.

Optional: Kennedy, chapters 9 and 10, pp. 157-160, 163-166, 167-168.

March 26: **Introduction to Logit and Probit Models**

Reading: Long, *Regression Models for Categorical and Limited Dependent Variables*,
chapter 1 and chapter 3 to 52.
Baum, chapter 10 to 254.

Optional: Kennedy, chapter 16.

April 2: **Estimation and Interpretation of Logit and Probit Models**

Reading: Long, chapter 2 (especially 25-33), pp. 52-end, and chapter 4.

****HOMEWORK 3 HANDED OUT****

April 9: **Models for Ordinal Dependent Variables**

Reading: Long, chapter 5.
Baum, pp. 254-255.

****HOMEWORK 3 DUE WEDNESDAY APRIL 11****

April 16: **Regression and Models for Causal Inference**

Reading: Kennedy, chapter 22.
Angrist and Pischke, *Mostly Harmless Econometrics*, chapter 2.
Caliendo and Hujer, "The Microeconomic Estimation of Treatment Effects: An Overview", *Allgemeines Statistisches Archiv* 90 (2006), 199-215.
Nichols, "Causal Inference with Observational Data", *The Stata Journal* 7 (2004), 507-541.

Optional: Morgan and Harding, "Matching Estimators of Causal Effects: Prospects and Pitfalls in Theory and Practice", *Sociological Methods and Research* 35: 1 (August 2006), 3-60.
Blackwell, Iacus, King, and Porro, *CEM: Coarsened Exact Matching in Stata*, *The Stata Journal* 9 (2009), 524-546.
Yanovitsky, Zanutto, and Hornik, "Estimating Causal Effects of Public Health Educational Campaigns Using Propensity Score Methodology", *Evaluation and Program Planning* 28 (2005): 209-220.

*****PAPERS AND POSTER POWERPOINTS DUE FRIDAY APRIL 20*****

April 23: **Poster Presentations**