

PLSC 503 Multivariate Analysis for Political Research
Spring 2002
Monday, Wednesday, and Thursday 9:30-11:00

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Course description

This course will provide students with the tools needed to undertake intermediate level quantitative research in political science. Students are assumed to have mastered basic statistics at the level of an introductory graduate course (e.g., discrete and continuous probability distributions, hypothesis testing, correlation).

The main body of this course focuses on intermediate to advanced level single-equation regression techniques. Although the approach to these techniques will be partly theoretical (e.g., derivation of estimators and their statistical properties), the course is designed primarily to address practical problems in applied regression. Students will learn: (1) the practical implications of the assumptions underlying the basic regression model; (2) the means used to diagnose when these assumptions are not satisfied; and (3) the remedial measures that are available to address these estimation problems. More advanced topics in regression such as maximum likelihood estimation and its uses (e.g., logit and probit), and time series techniques will comprise the last half of the course.

There is one required (R) and one optional (O) text. Additional required readings are available from me upon request.

(R) Gujarati, Damodar N. 1995. *Basic Econometrics*, 3rd ed. New York: McGraw-Hill, Inc.

(O) Wooldridge, Jeffrey M. 2000. *Introductory Econometrics: A Modern Approach*. South-Western College Publishing.

Course Requirements

Scheduled class meetings will generally follow a lecture-style rather than a seminar-style format; the nature of the course material dictates the style. However, your input in these class sessions is essential -- I expect students to ask and answer questions, and to come to class prepared and able to participate in the discussion of assigned readings. As time and interest permit, the class will also engage in data analysis demonstrations -- sometimes David or I will take the lead in these demonstrations and, at other times, you will.

Throughout the semester you will be assigned problem sets requiring you to apply the concepts and techniques covered in class. Some of these problem sets will necessitate the use of a computer and statistical software. You may use any statistical package you wish to complete these problem sets. However, I recommend that you use *Stata*. In addition to problem sets, you will also be required to write a final project (details below) and take both a midterm and final exam.

Grading and important dates

Problem Sets	25%
Dates TBA	
January 31. Paper Proposal due.	
February 28. Summary Statistics on Final Paper data due.	
Midterm Exam (Thursday, February 28)	25%
Final Project (Due Wednesday, April 24)	25%
Final Exam (TBA)	25%

Final Project.

The final project will require you to apply the techniques learned in this course to an existing data set or to a set of data you assemble. I encourage you to derive your paper topics from on-going or previous original research. A short proposal for the paper is due on January 31. Earlier proposals are strongly encouraged. You should plan to work on this project throughout the semester and to use the data for this project in assignments when appropriate. To help meet this goal, plan to give me a one-page sheet of statistics that describe (e.g., minimum and maximum values, means, standard deviations) your dependent and independent variables before spring break.

We will discuss the paper in detail in early class sessions, but in general you should think of this paper as an expanded version of the methodology discussion in an article-length research project. In structuring the paper you should: 1) briefly introduce the substance of the research question/problem; 2) describe (briefly) and justify the use of your analytic technique(s); 3) describe diagnostic efforts in some detail; 4) interpret the results of your analysis; and 5) discuss the generalizability of your results. In assessing your papers, I will focus on the methodology and reasoning you employ to answer your research question, and the clarity with which you communicate the conduct of your analysis.

The final project is due in class on Wednesday, April 24.

Academic Dishonesty¹

The Department of Political Science, along with the College of the Liberal Arts and the University, takes violations of academic dishonesty seriously. Observing basic honesty in one's work, words, ideas, and actions is a principle to which all members of the community are required to subscribe.

All course work by students is to be done on an individual basis unless an instructor clearly states that an alternative is acceptable. Any reference materials used in the preparation of any assignment must be explicitly cited. In an examination setting, unless the instructor gives explicit prior instructions to the contrary, whether the examination is in-class or take-home, violations of academic integrity shall consist of any attempt to receive assistance from written or printed aids, or from any person or papers or electronic devices, or of any attempt to give assistance, whether the one so doing has completed his or her own work or not.

Other violations include, but are not limited to, any attempt to gain an unfair advantage in regard to an examination, such as tampering with a graded exam or claiming another's work to be one's own. Violations shall also consist of obtaining or attempting to obtain, previous to any examinations, copies of the examination papers or the questions to appear thereon, or to obtain any illegal knowledge of these questions. Lying to the instructor or purposely misleading any Penn State administrator shall also constitute a violation of academic integrity.

In cases of a violation of academic integrity it is the policy of the Department of Political Science to impose appropriate penalties that are consistent with University guidelines.

¹Much of the text above has been directly obtained from the sections of the Princeton University website <http://www.princeton.edu/pr/pub/rrr/99/pages/OI.htm> concerning academic integrity (Rights, Rules, Responsibilities introductory text as well as pages 55-69) as well as from the website of the Department of Economics at The Pennsylvania State University.

Disabilities

The Pennsylvania State University encourages qualified people with disabilities to participate in its programs and activities and is committed to the policy that all people shall have equal access to programs, facilities, and admissions without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. If you anticipate needing any type of accommodation in this course or have questions about physical access, please tell the instructor as soon as possible. Reasonable accommodations will be made for all students with disabilities, but it is the student's responsibility to inform the instructor early in the term. Do not wait until just before an exam to decide you want to inform the instructor of a learning disability; any accommodations for disabilities must be arranged well in advance.

Course Schedule -- Tentative

The Basics of Regression Analysis – Cross Sectional Data

1. Bivariate Regression, Ordinary Least Squares Estimation, and Classical Statistical Inference (Jan. 8-Jan. 24).

Required Reading:

Gujarati Chapters 1-5 and Appendix A.

Recommended Reading:

Wooldridge Chapters 1-2 and Appendices A-C.

Bivariate Regression Applications (READ ONE):

Segal, Jeffrey A., Lee Epstein, Charles M. Cameron and Harold Spaeth. 1995.

"Ideological Values and the Votes of U.S. Supreme Court Justices Revisited." *Journal of Politics*. 57:812-23.

Jacobs, Lawrence R. and Robert Y. Shapiro. 1994. "Issues, Candidate Image, and Priming: The Use of Private Polls in Kennedy's 1960 Presidential Campaign." *American Political Science Review*. 88:527-40.

Finifter, Ada W. and Ellen Mickiewicz. 1992. "Redefining the Political System of the USSR: Mass Support for Political Change." *American Political Science Review*. 86:857-74.

Bean, Clive and Anthony Mughan. 1989. "Leadership Effects in Parliamentary Elections in Australia and Britain." *American Political Science Review*. 83:1165-80.

2. Extensions to Multivariate Regression (January 28-February 8).

Required Readings:

Gujarati Chapters 7-8 and 15.

Recommended Readings:

Wooldridge Chapters 3-7.

Berry, William D. 1993. *Understanding Regression Assumptions*, Sage University Series on Quantitative Applications in the Social Sciences, series no. 07-092. Newbury Park, CA: Sage Publications, pp. 1-23.

Multivariate Regression Applications (READ ONE):

Manion, Melanie. 1996. "The Electoral Connection in the Chinese Countryside." *American Political Science Review*. 90:736-48.

Ansolabehere, Stephen and Alan Gerber. 1994. "The Mismeasure of Campaign Spending: Evidence from the 1990 U.S. House Elections." *Journal of Politics*. 56:1106-1118.

McDonough, Peter. 1995. "Identities, Ideologies, and Interests: Democratization and the Culture of Mass Politics in Spain and Eastern Europe." *Journal of Politics*. 57:495-507.

Miller, Arthur H., Vicki L. Hesli, and William M. Reisinger. 1994. "Reassessing Mass Support for Political and Economic Change in the Former USSR." *American Political Science Review*. 88:399-411.

Pacek, Alexander C. 1994. "Macroeconomic Conditions and Electoral Politics in East Central Europe." *American Journal of Political Science*. 38:723-44.

Jacoby, William G. 1994. "Public Attitudes Toward Government Spending." *American Journal of Political Science*. 38:336-61.

Pollins, Brian M. 1989. "Conflict, Cooperation, and Commerce: The Effect of International Political Interactions on Bilateral Trade Flows." *American Journal of Political Science*. 33:737-61.

Dummy Variable Applications:

Schlozman, Kay L., Nancy Burns and Sidney Verba. 1994. "Gender and Pathways to Participation: The Role of Resources." *Journal of Politics*. 56:963-90.

Leighley, Jan. 1996. "Group Membership and the Mobilization of Political Participation." *Journal of Politics*. 58:447-63.

Anderson, Leslie and Mitchell A. Seligson. 1994. "Reformism and Radicalism Among Peasants: An Empirical Test of Paige's *Agrarian Revolution*." *American Journal of Political Science*. 38:944-72.

Harris, Fredrick C. 1994. "Something Within: Religion as a Mobilizer of African-American Political Activism." *Journal of Politics*. 56:42-68.

Mutz, Diana C. 1994. "Contextualizing Personal Experience: The Role of the Mass Media." *Journal of Politics*. 56:689-714.

Banaszak, Lee Ann and Eric Plutzer. 1993. "Contextual Determinants of Feminist Attitudes: National and Subnational Influences in Western Europe." *American Political Science Review*. 87:147-57.

Kathlene, Lyn. 1994. "Power and Influence in State Legislative Policymaking: The Interaction of Gender and Position in Committee Hearing Debates." *American Political Science Review*. 88:560-76.

Finding and Treating Estimation Problems in Multiple Regression Analysis

1. Heteroskedasticity (February 11-21).

Required Reading:

Gujarati chapter 11

Recommended Reading:

Wooldridge chapter 8

Applications (READ ONE):

Jones, Bryan D., James L. True, and Frank R. Baumgartner. 1997. "Does Incrementalism Stem From Political Consensus or From Institutional Gridlock?" *American Journal of Political Science*. 41:1319-39.

James, Peggy Ann and Kunihiko Imai. 1996. "Measurement of Competition Between Powers: The Cases of the United States and the U.S.S.R." *Journal of Politics*. 58:1103-31.

Voss, D. Stephen. 1996. "Beyond Racial Threat: Failure of an Old Hypothesis in the New South." *Journal of Politics*. 58:1156-70. Giles, Micheal W. and Melanie A. Buckner. 1996. "Comment." *Journal of Politics*. 58:1171-80. Voss, D. Stephen. 1996. "Familiarity Doesn't Breed Contempt: A Rejoinder to 'Comment'." *Journal of Politics*. 58: 1181-83.

2. Collinearity, Specification error, and measurement error (February 25-28).

Required Reading:

Gujarati, Chapters 10 and 13

Bartels, Larry M. 1990. "Five Approaches to Model Specification." *The Political Methodologist*. 3 (Fall):2-6.

Recommended Reading:

Wooldridge chapter 9

Berry, William D. 1993. *Understanding Regression Assumptions*, pp. 24-60.

MIDTERM EXAM February 28

SPRING BREAK March 4-10

Regression Analysis with Time Series Data

The Nature of Time Series Data (March 11-28)

Required Reading:

Wooldridge chapter 10-12

Recommended Reading:

Gujarati chapter 12

Berry, William D. 1993. *Understanding Regression Assumptions*, pp. 67-81.

Applications (READ ONE):

Coleman, John J. 1997. "The Decline and Resurgence of Congressional Party Conflict." *Journal of Politics*. 59:165-84.

Volgy, Thomas J., John E. Schwarz, and Lawrence E. Imwalle. 1996. "In Search of Economic Well-Being: Worker Power and the Effects of Productivity, Inflation, Unemployment and Global Trade on Wages in Ten Wealthy Countries." *American Journal of Political Science*. 40:1233-52.

Kerr, Brinck and Kenneth R. Mladenka. 1994. "Does Politics Matter? A Time-Series Analysis of Minority Employment Patterns." *American Journal of Political Science*. 38:918-43.

Cohen, Jeffrey E. 1995. "Presidential Rhetoric and the Public Agenda." *American Journal of Political Science*. 39:87-107.

Holbrook, Thomas M. 1994. "Campaigns, National Conditions, and U.S. Presidential Elections." *American Journal of Political Science*. 38:973-98.

Dugan, William E. and William A. Taggart. 1995. "The Changing Shape of the American Political Universe Revisited." *Journal of Politics*. 57:469-82.

Inglehart, Ronald and Paul R. Abramson. 1994. "Economic Security and Value Change." *American Political Science Review*. 88:336-54.

Kamlet, Mark S. and David C. Mowery. 1987. "Influences on Executive and Congressional Budgetary Priorities, 1955-1981." *American Political Science Review*. 81: 155-78.

Beck, Nathaniel. 1987. "Elections and the Fed: Is There a Political Monetary Cycle?" *American Journal of Political Science*. 31:194-216.

Norpoth, Helmut. 1987. "Guns and Butter and Government Popularity in Britain." *American Political Science Review*. 81:949-59.

Muller, Frank G. and Klaus Zimmermann. 1986. "The Determinants of Structural Changes in Public Budgets: A Theoretical and Empirical Analysis for the Federal Republic of Germany." *European Journal of Political Research*. 14:481-98.

Stewart, Charles. 1987. "Does Structure Matter?: The Effects of Structural Change on Spending Decisions in the House, 1871-1922." *American Journal of Political Science*. 31:584-605.

Beyond Basic Regression Analysis

1. Maximum Likelihood Estimation and Some of its Uses (April 1-12).

Required Readings:

King, Gary. 1989. *Unifying Political Methodology: The Likelihood Theory of Statistical Inference*. Chapters 2-4 and 11.

Discrete (and Count) Dependent Variables: Logit and Probit etc...

Gujarati, chapter 16.

Wooldridge, chapter 17.

Applications (READ ONE):

Dimock, Michael A. and Gary C. Jacobson. 1995. "Checks and Choices: The House Bank Scandal's Impact on Voters in 1992." *Journal of Politics*. 57:1143-59.

Gerber, Alan. 1996. "African Americans' Congressional Careers and the Democratic House Delegation." *Journal of Politics*. 58:831-45.

Rousseau, David L., Christopher Gelpi, Dan Reiter and Paul K. Huth. 1996. "Assessing the Dyadic Nature of the Democratic Peace, 1918-1988." *American Political Science Review*. 90:512-33.

Hall, Richard L. and Robert P. Van Honweling. 1995. "Avarice and Ambition in Congress: Representatives' Decisions to Run or Retire from the U.S. House." *American Political Science Review*. 89:121-36.

Bowler, Shaun, David J. Lanoue, and Paul Savoie. 1994. "Electoral Systems, Party Competition, and Strength of Partisan Attachment: Evidence from Three Countries." *Journal of Politics*. 56:991-1007.

Dominguez, Jorge I. and James A. McCann. 1995. "Shaping Mexico's Electoral Arena: The Construction of Partisan Cleavages in the 1988 and 1991 National Elections." *American Political Science Review*. 89:34-48.

Spriggs, James F., III. 1996. "The Supreme Court and Federal Administrative Agencies: A Resource-Based Theory and Analysis of Judicial Impact." *American Journal of Political Science*. 40:1122-51.

Dixon, William J. 1994. "Democracy and the Peaceful Settlement of International Conflict." *American Political Science Review*. 88:14-32.

Lupia, Arthur. 1994. "Shortcuts versus Encyclopedias: Information and Voting

Behavior in California Insurance Reform Elections." *American Political Science Review*. 88:63-76.

Songer, Donald R., Jeffrey A. Segal and Charles M. Cameron. 1994. "The Hierarchy of Justice: Testing a Principal-Agent Model of Supreme Court-Circuit Court Interactions." *American Journal of Political Science*. 38:673-96.

Gill, Anthony J. 1994. "Rendering unto Caesar? Religious Competition and Catholic Political Strategy in Latin America, 1962-79." *American Journal of Political Science*. 38:403-425.

Beck, Paul Allen, Lawrence Baum, Aage Clausen, and Charles Smith, Jr. 1992. "Patterns and Sources of Ticket Splitting in Subpresidential Voting." *American Political Science Review*. 86:916-28.

Leighley, Jan E. and Jonathan Nagler. 1992. "Socioeconomic Bias in Turnout 1964-1988: The Voters Remain the Same." *American Political Science Review*. 86:725-36.

Ostrom, Charles W., Jr. and Brian L. Job. 1986. "The President and the Political Use of Force." *American Political Science Review*. 80:541-66.

2. Systems of Equations, Simultaneity, and Structural and Reduced Form Estimation

Required Reading:

Gujarati, Chapters 18-20

Recommended Reading:

Wooldridge, Chapters 15-16

Applications (READ ONE):

Overby, L. Marvin, and Kenneth M. Cosgrove. 1996. "Unintended Consequences? Racial Redistricting and the Representation of Minority Interests." *Journal of Politics*. 58:540-50.

Brady, Henry E., Sidney Verba, and Kay Lehman Schlozman. 1995. "Beyond SES: A Resource Model of Political Participation." *American Political Science Review*. 89:271-94.

Nadeau, Richard, Richard G. Niemi, and Timothy Amato. 1994. "Expectations and Preferences in British General Elections." *American Political Science Review*. 88:371-83.

Nadeau, Richard, Richard G. Niemi, and Timothy Amato. 1995. "Emotions, Issue Importance, and Political Learning." *American Journal of Political Science*. 39:558-74.

Alt, James E. and Robert C. Lowry. 1994. "Divided Government, Fiscal Institutions, and Budget Deficits: Evidence from the States." *American Political Science Review*. 88:811-28.

Austen-Smith, David and John R. Wright. 1994. "Counteractive Lobbying." *American Journal of Political Science*. 38:25-44.

Leighley, Jan. 1991. "Participation as a Stimulus of Political Conceptualization." *Journal of Politics*. 53:198-211.

Haynes, Audrey A., Paul-Henri Gurian, and Stephen M. Nichols. 1997. "The Role of

Candidate Spending in Presidential Nomination Campaigns." *Journal of Politics*. 59:213-25.

Green, Donald and Jonathan Kranso. 1990. "Rebuttal to Jacobson's 'New Evidence for Old Arguments'." *American Journal of Political Science*. 34:363-72.

Jacobson, Gary C. 1990. "The Effects of Campaign Spending in House Elections: New Evidence for Old Arguments." *American Journal of Political Science*. 34:334-62.

Green, Donald C. and Jonathan Kranso. 1988. "Salvation for the Spendthrift Incumbent: Reestimating the Effects of Campaign Spending in House Elections." *American Journal of Political Science*. 32:884-907.

Strøm, Kaare. 1985. "Party Goals and Government Performance in Parliamentary Democracies." *American Political Science Review*. 79:738-57.

Franklin, Charles and John E. Jackson. 1983. "The Dynamics of Party Identification." *American Political Science Review*. 77:957-73.

Beck, Paul Allen and M. Kent Jennings. 1982. "Pathways to Participation." *American Political Science Review*. 76:94-108.

Markus, Gregory B. and Philip E. Converse. 1979. "A Dynamic Simultaneous Equation Model of Candidate Choice." *American Political Science Review*. 73:1055-70.

Jacobson, Gary C. 1978. "The Effects of Campaign Spending in Congressional Elections." *American Political Science Review*. 72:469-91.

3. Panel Data and/or Pooled Cross-Section Time-Series Analysis

Required Readings:

Wooldridge, chapter 13 and/or 14

Stimson, James A. 1985. "Regression in Space and Time: A Statistical Essay." *American Journal of Political Science*. 29:914-47

Lab Sessions

Lab sessions will supplement class material in a variety of ways. Early on they will serve as basic review sessions. We will quickly move to sessions on writing an empirical research paper. Sessions will include how to make tables, get data, and possibly an introduction to LaTeX. Throughout the semester, the lab sessions will also involve review of materials presented in class sessions and discussions of applications listed on the syllabus. As a general rule, lab sessions will be run by David Sobek and will be on Wednesdays. At times we will skip lab sessions and other times we may have multiple lab sessions in a row. Our preliminary lab schedule for January looks like this:

1. January 10 (Thursday): Review of probability and statistics. Selective coverage of Gujarati Appendix A and Wooldridge Appendices A-C.
2. January 16: More review.
3. January 23: Writing a research paper (chapter 16 in Wooldridge), getting data, LaTeX, etc...
4. January 30: Presenting results (making tables).