

ADVANCED DATA ANALYSIS FOR PUBLIC POLICY
(34:833:630) [index: 51513]

SEMESTER: Spring 2007

DATE / TIME: Mondays, 6th and 7th periods, 4:30 pm to 7:10 pm

LOCATION: Civic Square Building, 3rd floor computer lab

PROFESSOR: Marc D. Weiner mdweiner@rutgers.edu
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OFFICE HOURS: Wednesdays, 11:00 am to 12:30 pm, and by appointment

COURSE WEBSITE: <https://sakai.rutgers.edu/portal> at tab [2007:3:34:833:630:01](#)

The humanist's image (or we prefer to say, "myth") of the contemporary social [scientist] is that of the heavily subsidized, much-touted and honored scholar, torn at each moment between offers from industry and government – scarcely knowing, indeed, whether to take the rewards offered by the Coca Cola Company or the Air Force – for [her or] his latest documentation of some weary cliché about man, long since a commonplace of literature. The humanist, made especially aware of the spiritual dullness and lack of intellectual curiosity in contemporary society by its indifference to great art, cannot help thinking of the social [scientists'] statistical wisdom as an ersatz for real insight into the social being of man; and he [or she] is likely to be caught muttering bitterly: "Sufficient unto the day is the social science thereof." Perhaps the wittiest expression of this rather unfair, but thoroughly understandable, reaction is found in two lines of Auden, a new commandment for modern life:

*Thou shalt not sit with statisticians
Or commit a social science.*

Leslie A. Fiedler (1959)
Chapter 9, "Voting and Voting Studies," in
American Voting Behavior, eds. Brudick & Brodbeck

COURSE OVERVIEW

To facilitate understanding of "how social programs are structured so they may be effectively studied," *Research Design and Data Analysis for Public Policy* (833:530) introduced basic research methods and statistical principles used in policy research and analysis. This course builds on that foundation by helping students to develop a mastery of statistical techniques commonly employed to analyze public policy programs and problems. This course has three modules: an introduction to regression analysis; an introduction to survey research; and an overview of qualitative research methods.

The most widely used analytical technique in quantitative research is ordinary least squares regression analysis. This course introduces this important and broad topic by exploring the nature and use of

bivariate and multivariate regression models on continuous interval-level data. In so doing, students will learn to assess the adequacy of these models, to diagnose and correct specification and statistical deficiencies and – perhaps most important of all – to interpret and cogently and coherently express regression model findings.

The goal of this part of the course is to provide students with a comprehensive working introduction to the theory, methods, and practice of regression analysis. More specifically, students will develop the skills necessary to: (1) read, understand, and evaluate regression analysis in the professional literature; (2) design and carry out studies that employ regression techniques for testing substantive theories; and (3) prepare to learn about more advanced statistical procedures.

While we will not dwell on statistical theory, we will focus on the nature of the basic ordinary least squares regression model and the development of regression estimators. This model depends very heavily on several assumptions, which we will examine in detail and consider why they are necessary, whether they are valid in practical research situations, and what are the consequences of violating them in particular applications of regression techniques. These formal analytic treatments will be counterbalanced by the use of frequent substantive examples and class exercises. Again, the overall objective of this part of the course is not to turn students into statisticians, but rather to maximize their research skills as social scientists and policy analysts.

Following the regression module, the course introduces the methods and use of survey research, as well as some of the more common qualitative research techniques, such as focus groups, comparative and case study methods, and informant interviewing. These introductions are designed to show students how these methods inform the conceptualization and study of major research problems in public policy. They are also introduced to provide the generalist with an overview of these techniques, and to encourage those with particularized interests to pursue more advanced study in these areas.

REQUIRED BOOKS

Sage Publications, monographs in the “Quantitative Applications in the Social Sciences” series, each \$16.95:

- Schroeder, et. al., (1986). Understanding Regression Analysis: An Introductory Guide, (#57).
- Lewis-Beck, (1980). Applied Regression: An Introduction, (#22).
- Berry & Feldman, (1985). Multiple Regression in Practice, (#50).
- Berry, (1993). Understanding Regression Assumptions, (#92).
- Fox, (1991). Regression Diagnostics, (#79).

Czaja & Blair (2004). Designing Surveys: A Guide to Decisions and Procedures, 2nd. ed., Pine Forge Press, Inc. (Sage Publications), \$35.95.

REQUIRED ARTICLES

All additional required readings can be found as PDFs under the resources tab on the course Sakai site. Each reading is identified by a number, the author, and the date for which it is assigned.

ASSIGNMENTS AND GRADES

The regression analysis module has six class sessions; there will be three “take-home” assignments, which will be posted to your Sakai drop-box by noon of the day after the second, fourth, and sixth class sessions. They will be due to your Sakai drop-box by noon of the following Monday. Practically speaking, then, you will have a full week to work on each one. Each assignment will constitute 20% of your final course grade.

There will be no midterm exam. There will be a final exam that will constitute 40% of your final course grade; the final exam will cover only the material in the qualitative methods and survey research methods modules.

Schedule of Assignments:

<i>Assignment number:</i>	<i>Date assigned:</i>	<i>Date due:</i>	<i>Covers:</i>
1	Tues., Feb. 6 (noon)	Mon., Feb. 12 (noon)	Classes ##2 & 3
2	Tues., Feb. 20 (noon)	Mon., Feb. 26 (noon)	Classes ##4 & 5
3	Tues., March 6 (noon)	Mon., March 12 (noon)	Classes ##6 & 7

Final Exam: Friday, May 4, 2007, 4:00 to 7:00 pm; covers Classes ##8 through and including 14.

Numerical grades will be calculated on a simple percentage basis as follows:

Assignment #1	20%
Assignment #1	20%
Assignment #1	20%
Final Exam	40%
 Total	 100%

Letter grades will be assigned as follows:

90 to 100%	=	A
85 to 89%	=	B+
80 to 84%	=	B
75 to 79%	=	C+
70 to 74%	=	C
0 to 69%	=	F

01. MONDAY, JANUARY 22

Course introduction; review of 833:530, specifically: frequency distributions, univariate summary statistics; probability distributions; statistical inference; confidence intervals and hypothesis tests; differences between two means, two variances, etc.; and linear combinations.

READING: Morin, Stephen, et al. 2002. "Responding to Racial and Ethnic Disparities in Use of HIV Drugs: Analysis of State Policies." Public Health Reports. 117 (May/June): 263-272. [SAKAI 1]

Studeman, Dave. 2007. "But I Regress..." The Hardball Times. (January 4): <http://www.hardballtimes.com/main/article/but-i-regress/>. [SAKAI 2]

REGRESSION ANALYSIS**02. MONDAY, JANUARY 29**

Regression analysis I: The nature of regression analysis; the bivariate regression model; regression coefficients; R^2 ; correlation; statistical inference; preliminary look at residuals, outliers, and influential cases.

READING: Schroeder, et al.: pp. 11-29; 36-53
 Lewis-Beck: pp. 9-47
 Berry & Feldman: none
 Berry: pp. 1-22
 Fox: none

Obach, Brian K. 2002. "Labor-Environmental Relations: An Analysis of the Relationship between Labor Unions and Environmentalists." Social Science Quarterly. 83(1): 82-100. [SAKAI 3]

03. MONDAY, FEBRUARY 5

Regression analysis II: Bivariate regression model review and summary; the multiple regression model; correlation and multiple regression; statistical inference; extensions to the multiple regression model.

READING: Schroeder, et al: pp. 29-36
 Lewis-Beck: pp. 47-54
 Berry & Feldman: pp. 9-18
 Berry: none
 Fox: none

assigned readings continued...

King, Gary. 1986. "How Not to Lie with Statistics: Avoiding Common Mistakes in Quantitative Political Science." American Journal of Political Science. 30(3): 666-687. [SAKAI 4]

04. MONDAY, FEBRUARY 12

Regression analysis III: Model building and the interpretation of multiple regression results; models of substantive phenomena (standardized and unstandardized results); nominal independent variables (dummy variables; multiplicative terms); functional forms and nonlinear models.

READING: Schroeder, et al: pp. 56-65
 Lewis-Beck: pp. 54-56
 Berry & Feldman: pp. 51-72
 Berry: pp. 22-24; 60-66
 Fox: pp. 53-61

Hess, Frederick M., et al. 2005. "Technocracies, Bureaucracies, or Responsible Polities? Urban School Systems and the Politics of School Violence Prevention." Social Science Quarterly. 84(3): 526-542. [SAKAI 5]

05. MONDAY, FEBRUARY 19

Regression analysis IV: Potential problems in the multiple regression model; interpretation of results; multicollinearity and its effects; heteroscedasticity (and autocorrelation); residual analysis; outliers and influence observations.

READING: Schroeder, et al: pp. 71-77
 Lewis-Beck: pp. 58-74
 Berry & Feldman: pp. 37-50; 73-88
 Berry: pp. 24-29; 67-81
 Fox: pp. 3-5; 10-13; 49-53; 21-40

Downs, George W., et al. 1979. "Interpreting Heteroscedasticity" American Journal of Political Science. 23(4): 816-828. [SAKAI 6]

06. MONDAY, FEBRUARY 26: NOTE: TO BE RESCHEDULED

Regression analysis V: Detecting and correcting violations of model assumptions; the importance of model assumptions; model specification; nonnormal disturbances; measurement error.

READING: Schroeder, et al: pp. 67-69; 70-71
 Lewis-Beck: pp. 56-58

assigned readings continued...

Berry & Feldman: pp. 18-37
 Berry: pp. 1-22 (review); 30-60; 81-82
 Fox: pp. 40-48

Chatterjee, Sangit, et al. 1983. "Use of Regression Diagnostics in Political Science Research." American Journal of Political Science. 27(3): 601-613. [SAKAI 7]

07. MONDAY, MARCH 5

Regression analysis VI: Multiple regression catch-up; introduction to advanced regression topics (binary dependent variables – logit and probit models; simultaneous equations; time series models)..

READING: Schroeder, et al.: pp. 77-80
 Lewis-Beck: none
 Berry & Feldman: none
 Berry: pp. 67-72 (review)
 Fox: none

MONDAY, MARCH 12 SPRING BREAK

SURVEY RESEARCH AND QUALITATIVE RESEARCH METHODS

08. MONDAY, MARCH 19

Survey research I: Introduction and overview; types of data collection; questionnaires, writing, organizing, developing, and testing.

READING: Czaja and Blair: Chapters 1 through 6.

09. MONDAY, MARCH 26

Survey research II: Guest lectures, and discussions: (1) Practical Aspects of Conducting Survey Research for State and Federal Agencies; and (2) The Use and Abuse of Survey Research in Policymaking

READING: AAPOR's "Standard Definitions" (2006) [SAKAI 8]
 AAPOR's "Best Practices for Survey and Public Opinion Research" (2005) [SAKAI 9]

assigned readings continued...

AAPOR's "Survey Practices that AAPOR Condemns" (2006) [SAKAI 10]
Market Research Association's statement on Research Abuse [SAKAI 11]
American Statistical Associations pamphlet, *What Is A Margin of Error?*(1998)
[SAKAI 12]
American Statistical Associations pamphlet, *Judging the Quality of a Survey*
(1998) [SAKAI 13]

10. MONDAY, APRIL 2 -- FIRST NIGHT OF PASSOVER

Qualitative methods I: Interviewing (Professor Jocelyn Elise Crowley, guest lecture)

READING: Arendell, Terry. 1997. "Reflections on the Researcher-Researched Relationship: A Woman Interviewing Men." Qualitative Sociology. 20(3): 341-368.
[SAKAI 14]

Sass Rubin, Julia. 2002. "Organizations on the Institutional Cusp: The Origins and Behaviors of Community Development Venture Capital Funds. Chapter 3. Doctoral Dissertation, Harvard University. [SAKAI 15]

11. MONDAY, APRIL 9

Survey research III: Sampling; design, selection, and practical considerations; reducing errors; special topics; analysis and report generation.

READING: Czaja and Blair: Chapters 7 through 10.

12. MONDAY, APRIL 16

Qualitative methods II: Focus Groups

READING: Krueger, Richard. 1988. Focus Groups. Beverly Hills: Sage Publications. Chapter 2, 4-6. [SAKAI 16]

Wilkinson, Sue. 1988. "Focus Group Methodology: A Review." International Journal of Social Research Methodology. Vol. 1(3): 181-203
[SAKAI 17]

Sample materials:

Topic Guide, Economic News Focus Groups, Stoudt (2002). [SAKAI 18]
Summary Research Report, Economic News Focus Groups, Stoudt (2002).
[SAKAI 19]

13. MONDAY, APRIL 23**Qualitative methods III: Comparative Analysis and Case Studies**

READING: King, Gary, et al. 1994. Designing Social Inquiry. Princeton: Princeton University Press. Chapter 1. [SAKAI 20]

Yin, Robert K. 2003. Case Study Methods: Design and Methods. Thousand Oaks, CA: Sage Publications. Chapters 1 and 2. [SAKAI 21]

Lijphart, Arend. 1971. "Comparative Politics and the Comparative Method." American Political Science Review. 65(3): 682-693. [SAKAI 22]

Symposium: Field Research: How Rich? How Thick? How Participatory? (2006) (articles by B.L. Read; L.M. MacLean; M. Cammett, and, B. Reiter). 4(2): 9-24. [SAKAI 23]

14. MONDAY, APRIL 30

Catch up; course review; final exam preparation, etc.

FRIDAY, MAY 4 FINAL EXAM

Scheduled, 4:00 to 7:00 pm