

POSC 202 B
SURVEY OF QUANTITATIVE METHODS FOR POLITICAL SCIENCE II
Spring 2004
MW 12:40-2PM

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Office hours: Thursday, 1-3 p.m.

This is the second in a sequence of statistics courses designed for Political Science students. By this point, you have enjoyed an introduction to probability, the logic of hypothesis testing, statistical inference, and the regression model. This second quarter is primarily devoted to further exploring regression analysis. Most of the course will be spent developing basic approaches to regression analysis when the assumptions of OLS fail. We will also introduce techniques for analyzing data representing discrete dichotomous choices, outcomes, or events.

Most of your homework, discussed below, will require a computer. On some occasions we will likely meet in the Sproul Hall Statistical Computing Collaboratory or another appropriate facility. For your computer-based work, I recommend Stata. Student licenses are available from UCR Computing & Communication or *www.stata.com*, but the program is also on machines in the collaboratory.

Required books

Gujarati, Damodar. 1999. *Essentials of Econometrics*. 2nd edition. Irwin McGraw-Hill.

This is an abridged version of Gujarati's *Basic Econometrics*. If you can find a version of *Essentials* without the computer disk and cheaper, feel free to do so, but get it fast because the readings will begin immediately.

Aldrich, John H., and Forrest D. Nelson. 1984. *Linear Probability, Logit, and Probit Models*. Sage.

This monograph introduces logit and probit, two useful variations on regression analysis used to study dichotomous dependent variables.

Reading

Be sure to read the assigned readings before class. For example, below you will note that I have assigned Gujarati chapters 1-4 for March 31. This means that I want you to have read chapters 1-4 of Gujarati before class on Wednesday, March 31.

Course grades

Homework	25 percent	(5 assignments, 5% each)
Final exam	25 percent	
Final paper	40 percent	
Poster session	10 percent	

Homework and Final exam

You will have five homework assignments over the course of the quarter. Turn these in at class the day they are due, noted below. The take-home final will be due by 5 p.m., June 11.

Paper and poster session

Over the course of the quarter, you will develop a research paper drawing on techniques learned this class. You may extend the paper you began work on in POSC 202A or invest in an entirely new project. You may extend a paper you started in a substantive course. So, for example, if you have a solid literature review from another class, you can expand on it with analysis for this class.

The research paper should be closely modeled on a research journal article: Articulate a research question, review relevant literature, identify a set of theoretical proposition and elaborate specific hypotheses, defend a set of measures, and using appropriate data and techniques test these hypotheses. The major difference is that the paper will also need to include an explicit set of technical appendices reporting the results of the various diagnostic tools you learn in this course for detecting violations of the major assumption of OLS and other techniques you used to address concerns you have about your data analysis.

Periodically you will be called upon to update the class on your progress with this paper.

On our last scheduled day of class, June 2, we will have a public poster session where you present your research papers. Prof. Esterling, interested faculty, graduate students, and I will review your projects in this forum, asking questions and discussing your work. A poster session is almost exactly like a science fair. You will create displays that help you explain your project. Professional meetings (APSA, Midwest, and the Political Methodology Association, among others) regularly include poster sessions, so this will also help with your on-going socialization into the discipline. These posters will be graded on the basis of their acceptability at a professional meeting.

The paper is due by 5 p.m., June 4, giving you a couple of days to write into the paper any feedback you get or insights you have during the poster session.

Course schedule

March 29	Introduction and a discussion of designing original quantitative research
March 31	Reviewing basic statistical concepts Gujarati, Chapter 1-4
April 5	Bivariate regression Gujarati, Chapter 5
April 7	Bivariate regression Gujarati, Chapter 6
April 12	Functional forms Gujarati, Chapter 8 HOMEWORK I DUE

April 14	Multiple regression Gujarati, Chapter 7
April 19	Multiple regression
April 21	Multiple regression
April 26	Dichotomous right-hand side variables Gujarati, Chapter 9 HOMEWORK II DUE
April 28	Interaction with continuous and dummy variables Friedrich, Robert J. 1982. "In Defense of Multiplicative Terms in Multiple Regression Equations." <i>AJPS</i> 26(4):797-833. Aiken, Leona S., and Stephen G. West. 1991. <i>Multiple Regression: Testing and Interpreting Interactions</i> . Newbury Park, CA: Sage. Chapter 1.
May 3	Multicollinearity Gujarati, Chapter 10
May 5	Outliers HOMEWORK III DUE
May 10	Heteroskedasticity Gujarati, Chapter 11
May 12	Autocorrelation Gujarati, Chapter 12
May 17	Workshop on final papers and poster session HOMEWORK IV DUE
May 19	Dichotomous dependent variables Gujarati, Chapter 14 Aldrich and Nelson, Chapters 1-2
May 24	Dichotomous dependent variables Aldrich and Nelson, Chapters 3-5
May 26	Presenting results and interpretation King, Gary, Michael Tomz, and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." <i>AJPS</i> 44(2):347-61. Kritzer, Herbert M. 1996. "The Data Puzzle: The Nature of Interpretation in Quantitative Research." <i>AJPS</i> 40(1):1-32. HOMEWORK V DUE
June 2	STUDENT POSTER SESSION
June 4	FINAL PAPER DUE
June 11	FINAL EXAM DUE