

POSC 202 B  
**SURVEY OF QUANTITATIVE METHODS FOR POLITICAL SCIENCE II**  
Winter 2007  
T/Th 9:40-11:00 AM

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

By this point, you have enjoyed an introduction to probability, the logic of hypothesis testing, statistical inference, and the bivariate regression model. This second quarter is primarily devoted to further exploring regression analysis and will introduce analytical approaches to limited dependent variables. Most of your homework will require a computer. On some occasions we may meet in the Sproul Hall Statistical Computing Collaboratory or another appropriate facility. For your computer-based work, I recommend Stata, which is installed on machines in the Collaboratory and graduate lounge.

**Required book**

Gujarati, Damodar. 2002. *Basic Econometrics*. 4<sup>th</sup> edition. McGraw-Hill.

This is the full version of Gujarati's econometrics text book. When ordering this, be sure not to confuse it with Gujarati's *Essentials of Econometrics*.

**Reading**

Read the assigned readings before class.

**Course grades**

Homework	30 percent	(5 assignments, 6% each)
Final exam	25 percent	
Final paper	35 percent	
Poster session	10 percent	

**Homework and Final exam**

You will have six 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., March 23.

**Paper and poster session**

Over the course of the quarter, you will develop a research paper drawing on techniques learned this class and 202A. You may extend a paper you started in another course. If you do this, I would like to see a copy of the preliminary paper early in the quarter. If you plan to develop a paper for this class and use it in another class as well, you need explicit approval from me and the other professor involved.

The research paper should be closely modeled on a research journal article: Articulate a research question, review relevant literature, identify a set of theoretical propositions 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 assumptions 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, March 15, you will present your research papers in a public poster session. Faculty, graduate students, and undergraduates will review your projects, ask questions and discuss your work with you. A poster session is strikingly similar to a Science Fair. You will create displays that help you explain your project. Professional meetings (APSA, Midwest, and the political

methodology society, among others) regularly include poster sessions. **These posters will be graded on the basis of their acceptability at a professional meeting.**

The paper itself is due by 5 p.m., March 19, giving you a few days to write into the paper any feedback you get or insights you have during the poster session.

### Course schedule

Jan. 4	Introduction and a discussion of designing original quantitative research
Jan. 9	Two-variable regression model, basic review; Gujarati, ch. 1 and 2
Jan. 11 & 16	Regression assumptions, Gauss-Markov Theorem; Gujarati, ch. 3 (incl. appendix 3A)
Jan. 18	Two-variable regression model, hypothesis testing; Gujarati, ch. 5 <b>HOMEWORK 1 DUE January 18</b>
Jan. 23	Functional forms; Gujarati, ch. 6
Jan. 25 & 30	Multiple regression, estimation; Gujarati, ch. 7 King, Gary. 1986. "How Not to Lie with Statistics: Avoiding Common Mistakes in Quantitative Political Science." <i>American Journal of Political Science</i> 30:666-687.
Feb. 1 & 6	Multiple regression, hypothesis testing and comparing models; Gujarati ch. 8 <b>HOMEWORK 2 DUE February 6</b>
Feb. 8	Multicollinearity; Gujarati, ch. 10
Feb. 13	Heteroskedasticity; Gujarati, ch. 11 <b>HOMEWORK 3 DUE February 13</b>
Feb. 15	Autocorrelation; Gujarati, ch. 12
Feb. 20	Dummy variables and interaction with dummy variables; Gujarati, ch. 9
Feb. 22	Interaction with continuous variables Friedrich, Robert J. 1982. "In Defense of Multiplicative Terms in Multiple Regression Equations." <i>American Journal of Political Science</i> 26:797-833. Aiken, Leona S., and Stephen G. West. 1991. <i>Multiple Regression: Testing and Interpreting Interactions</i> . Newbury Park, CA: Sage. ch. 1 <b>HOMEWORK 4 DUE February 22</b>
Feb. 27	Maximum likelihood and the linear model; Gujarati ch. 4 Long, Scott. 1997. <i>Regression Models for Categorical and Limited Dependent Variables</i> . Thousand Oaks, CA: Sage. ch. 2.
Mar. 1 & 6	Dichotomous dependent variables; Gujarati 16 Long, Scott. 1997. <i>Regression Models for Categorical and Limited Dependent Variables</i> . Thousand Oaks, CA: Sage. ch. 3.
Mar. 8	Hypothesis testing and model fit Long, Scott. 1997. <i>Regression Models for Categorical and Limited Dependent Variables</i> . Thousand Oaks, CA: Sage. ch. 4. <b>HOMEWORK 5 DUE March 8</b>
Mar. 13	Interpreting results and counterfactuals King, Gary, Michael Tomz, and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." <i>American Journal of Political Science</i> 44:347-61.
March 15	POSTER SESSION
March 19	FINAL PAPER DUE
March 23	FINAL EXAM DUE