Government 19
Advanced Quantitative Political Analysis

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Description

This course introduces mathematical and statistical models in the social sciences beyond the level of bivariate regression. Topics to be covered include multivariate regression, selection bias, discrete choice, count models, and duration models. We will use these models to study voter turnout, elections, bargaining in legislatures, public opinion, political tolerance, the causes and duration of wars, gender bias in employment, educational testing, poverty and income, and a host of other topics. Students will write a paper of original research using some of the methods covered in class.

Prerequisite: Government 10, Economics 10, Geography 10, Mathematics 10, Psychology 10, Social Sciences 10, or equivalent.

Required Books

Freedman, David A. 2005. *Statistical Models: Theory and Practice*. New York: Cambridge University Press.

Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage.

Additional reading, mostly journal articles, will be available on Canvas.

Grading

Attendance and participation	5% of grade
Homework assignments	70% of grade
Research Paper	25% of grade

Assignments are due at the start of class on the date due. Homework must be turned in as hard copy, meaning on paper. In rare circumstances I will accept electronic copies, but only as .pdf files. Most of your homework will consist of equations, tables, and graphs. All tables and graphs should be well formatted, self-contained, and understandable to someone who may not have read the assignment. Think of these as tables or graphs that you would not be embarrassed to include in your dissertation or as a journal submission.

The labs will require you to use either STATA (version 11 or 12) or R as well as a word processing program such as Open Office, Microsoft Word or, even better, LaTeX. I will help you learn some of the STATA and R commands that we will use. The basics of both programs are available in extensive on-line help guides and from consultants in the computer labs. You are on your own to learn word processing or LaTeX.

The research paper may be your own or collaborative work with other students in the class. In the case of collaborative work, all co-authors will receive the same grade. The paper should be original research that poses an interesting question and answers it using data and the appropriate methods from the course.

Contacting Me

You should feel free to talk to me about the course or assignments. I will have office hours on Fridays, first-come-first-served. I am generally available for a while after class. I welcome appointments for other times. You may also call my direct line at 646-9228 or 717-2944. If you contact me by email, put Gov 19 as the subject. I get so many emails that I usually do not reply to them. But, I will check my email almost every day, sort it by subject, and respond to all of those with Gov 19 as the subject. If I do not reply within 24 hours, either give me a call or resend the message. I may have missed your email in a sea of spam.

Students with Disabilities

Students with learning, physical, or psychiatric disabilities enrolled in this course that may need disability-related classroom accommodations are encouraged to make an office appointment to see me before the end of the second week of the term. All discussions will remain confidential, although the Student Accessibility Services office may be consulted to discuss appropriate implementation of any accommodation requested.

Religious Observances

I realize that some students may wish to take part in religious observances that fall during this academic term. Should you have a religious observance that conflicts with your participation in the course, please come speak with me before the end of the second week of the term to discuss appropriate accommodations

Schedule and Reading

Observational Studies and Experiments
Freedman, Ch. 1
Dartmouth SPORT Study (Weinstein, et al.)

The Basics: Notation, Linear Models, and Regression
Freedman, Chs. 2 & 3 Long, Chs. 1 & 2.1–2.5

Multiple Regression
Freedman, Ch. 4

Panel Data
Clark, Tom S, and Drew A. Linzer. 2013. "Should I Use Fixed or Random Effects?"

Introduction to Likelihood
Freedman, Ch. 6.1 Long, Ch. 2.6–2.7

Linear Probability, Logit, and Probit
Freedman, Ch. 6.2, 6.3 Long, Ch. 3.1–3.6
King, Gary, and Langche Zeng. 2001. "Explaining Rare Events in International Relations." *International Organization* 55(Summer):693-715.

Interpreting Logit and Probit Results
Freedman, Ch. 6.4 Long, Ch. 3.7–3.9

Functional Forms and Interactions
Friedrich, Robert J. 1982. "In Defense of Multiplicative Terms in Multiple Regression Equations." *American Journal of Political Science* 24(4):797-833.
Braumoeller, Bear. 2003. "Hypothesis Testing and Multiplicative Interaction Terms." *International Organization*.

Hypothesis Testing, Goodness of Fit, and Presenting Results
Long, Ch. 4
King, Gary, Michael Tomz, and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." *American Journal of Political Science* 44(April):347-61.

Ordered Dependent Variables
Long, Ch. 5
Alvarez. R. Michael, and John Brehm. 1998. "Speaking in Two Voices:

American Equivocation about the Internal Revenue Service." *American Journal of Political Science* 42(2):418-52.

Bivariate and Multivariate Probit

Lacy, Dean. 2014. "Moochers and Makers in the Voting Booth: Who Benefits from Federal Spending, and How Did They Vote in the 2012 Presidential Election?" *Public Opinion Quarterly*

Chib, Siddhartha, and Edward Greenberg. 1998. "Analysis of Multivariate Probit Models." *Biometrika* 85:2(June):347-361.

Unordered DV's: Multinomial Logit, Multinomial Probit, HEV, GEV, RPL

Long, Ch. 6

Glasgow, Garrett. 2001. "Mixed Logit Models for Multiparty Elections." *Political Analysis* 9(Spring):116-36.

Selection, Truncation, and Censoring

Long, Ch. 7

Sartori, Anne E. 2003. "An Estimator for Some Binary-Outcome Selection Models Without Exclusion Restrictions." *Political Analysis* 11(2):111-138.

Count Models

Long, Ch. 8

Duration and Survival Models

Box-Steffensmeier, Janet, and Brad Jones. 1997. "Time is Of the Essence: Event History Models in Political Science." *American Journal of Political Science* 41(October): 1414-61.

Latent Class and Item Response Models

Hill, Jennifer L., and Hanspeter Kriesi. "Classification by Opinion-Changing Behavior: A Mixture-Model Approach." *Political Analysis* 9(4):301-324.

Clinton, Joshua D., Simon D. Jackman, and Douglas Rivers. 2004. "The Statistical Analysis of Roll Call Data: A Unified Approach." *American Political Science Review* 98:355-370.

Conclusions

Long, Ch. 9

Lindsey, J. K. 1999. "Some Statistical Heresies." *The Statistician* 48(1):1-40.