

Political Methodology II

POLS 206

Winter 2018

Syllabus

Heather Stoll

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Class meeting time: T R 3:30–4:45 p.m.

Class location: 3814 Ellison (Pritchett Room)

Office: 3715 Ellison

Office hours: R 10:00 a.m. - 12:00 p.m., or by appointment

1 Course Objectives

This course is the second required course in quantitative political methodology for political science graduate students, picking up where POLS 205 has left off. We will start with extensions to and criticism of the multivariate linear regression model. We will then turn to statistical models with limited dependent variables, some of the most common in political science. Specifically, we will learn about the linear probability model and its flaws, and logit and probit models for binary choices, such as yes/no decisions. Throughout, I will ask you to work in one of two major statistical software packages: R or STATA. However, we will only devote class time to R implementations of the statistical tools that we are learning. Where possible, we will also read journal articles that illustrate or otherwise illuminate the conceptual and practical issues on the table.

2 Course and Contact Information

The syllabus, assignments, and other handouts are all available from the course GauchoSpace site. Announcements will be posted to the site; it should be your first port of call if you're unsure about what's happening when and where.

The best way to contact me is either to come to my office hours or to send me an e-mail.

- *Office Hours:* I encourage you to stop by early in the quarter so that you can get to know me and vice versa. Don't, in other words, feel shy about coming to see me, whether you just want to chat about the weather or have more substantive course-related issues to discuss.
- *E-mail:* I will respond within twenty-four hours to e-mails that I receive during business hours on Mondays through Thursdays (I rarely check e-mail in the evenings). I will try to answer e-mails received prior to mid-afternoon on Friday before 4:00 p.m./, but I may not manage to respond until Monday.

3 Prerequisites

I assume a basic knowledge of linear regression and statistics, such as that obtained in POLS 205. I also assume working knowledge of either R or STATA, again such as that obtained in POLS 205.

4 Requirements

Course requirements are four (approximately bi-weekly) problem sets and a take-home final. Grades for the course will be calculated as follows:

- Four problem sets (equally weighted): 50%. Homework assignments are designed to give you hand-on experience with implementing the methods discussed in class. They will typically consist of using R or STATA to estimate a model and to write up the results.
- Take-home final examination: 50%. The final examination will resemble the homeworks. I will ask you to appropriately analyze a data set and *professionally* write-up and present the results using the statistical models learned in the class. You will be required to engage in regression criticism and to estimate, interpret, and present a logit/probit model. You have the option of either analyzing a data set with which I will provide you or of finding a data set on your own that you would like to analyze. The final product should resemble the empirical section of a journal article.

I strongly encourage you to form small study groups to work through the assignments. However, the write-ups *must be your own*. This means that you can talk through an answer with someone else, but you must then on your own (in another room, later in the day, in silence), in your own words, put the answer down on paper. Not handing in work that is your own, as defined here, is academic dishonesty, which will be reported to Judicial Affairs. No late assignments will be accepted without documentation. Extensions should be arranged at least twenty-four hours in advance.

5 Required Reading Materials

You may choose one of two required texts for the course:

Gujarati, Damodar N. 2005. *Essentials of Econometrics*. 3rd Edition. Boston: Irwin/McGraw-Hill. Also acceptable is the 2nd edition from 1999.

(henceforth, Gujarati). Or

Wooldridge, Jeffrey M. *Introductory Econometrics: A Modern Approach*. 3rd or 5th Editions. Thompson: Southwestern.

(henceforth, Wooldridge). You should have used the Wooldridge text in POLS 205. I suggest that you browse through both books and choose the one that works the best for you for 206; some of you may find Wooldridge's way of writing more accessible, while others may feel this way about Gujarati. Some past students have felt that Gujarati presents the material in a less math-heavy, more accessible vein, although Wooldridge's text is more comprehensive. You may find it helpful to read the relevant sections of both texts in order to get two different perspectives on the material. Both are older editions, and the bookstore cannot obtain used copies. However, they can be ordered quickly from many used book vendors online, such as Amazon. Also, in previous years, students have found a free version of Wooldridge's 5th edition available online. I accordingly recommend you take one of these two routes. Also, many of our more senior students have used the Gujarati text in the past, so you may be able to borrow a copy from them, at least to see if you like it.

Finally, older as well as more recent versions than those listed here are probably acceptable; consult with me about the corresponding page numbers from these other editions.

Towards the end of the quarter, I will make chapters from some alternative texts available to you via GauchoSpace because neither Wooldridge nor Gujarati provide extensive coverage of logit/probit models. These online texts will serve as an alternative “textbook” for the final weeks of the class. Also, throughout the quarter, I will list on the course Gauchospace page some pages/chapters from recommended texts that are good additional sources to consult, if you are interested in doing further reading on the topic.

I will occasionally supplement the texts with journal articles, all of which will be made available in some way through the course’s GauchoSpace site.

6 Schedule

The tentative schedule and readings for the course follow. Some topics will take more than a week, others less.

Extensions of Multivariate Regression: Dummy Variables and Interaction Models

Gujarati, Chapter 10.1-10.5

Wooldridge, p. 204-206, 230-252 [5th ed.: 198-200, 227-248]

Brambor, Thomas, William Roberts Clark, and Matt Golder. 2005. “Understanding Interaction Models: Improving Empirical Analyses.” *Political Analysis*.

Berry, William D., Matt Golder and Daniel Milton. 2012. “Improving Tests of Theories Positing Interaction.” *Journal of Politics*.

Regression Criticism: Overview and General Problems

Gujarati, p. 168–171, p. 212–214, Chapter 11

Wooldridge, p. 64-65 (50-62 for a more thorough coverage), p. 89-111, 166-167, Chapter 5, p. 304-310, 318–325 [5th ed.: 59 (45-56 for a more thorough coverage), 83-102, 157-158, Chapter 5, 304-308, 317-324]

Regression Criticism: Multicollinearity

Gujarati, Chapter 12

Regression Criticism: Heteroskedasticity

Gujarati, Chapter 13

Wooldridge, Chapter 8 [5th ed.: Chapter 8]

Regression Criticism: Autocorrelation

Gujarati, Chapter 14

Wooldridge, Chapter 12 [5th ed.: Chapter 12]

The Linear Probability Model

Gujarati, p. 315–319

Wooldridge, p. 252–257 [5th ed.: 248-253]

Logistic Regression

Gujarati, p. 501–508

Wooldridge, p. 582–595 [5th ed.: 583-596]

Hamilton, Lawrence. *Regression with Graphics: A Second Course in Applied Statistics*. Duxbury Press. Chapter 7.

Probit and Generalized Linear Models

Agresti, Alan. 1996. *An Introduction to Categorical Data Analysis*. John Wiley & Sons. Chapter 4.