

advanced political data analysis

PSCI 7095.001
SPRING 2017
MONDAYS, 2:00 – 4:30 P.M.
KETCHUM 1B31

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OFFICE HOURS: THURSDAYS, 1 - 3 P.M.

In this course, we will study how to statistically model political relationships. Our focus will be the linear regression model, building on what you learned in PSCI 7085: Introduction to Political Science Data Analysis. We will explore the properties and assumptions of ordinary least squares regression, as well as what happens when these assumptions are violated. We will consider how to see if these assumptions are met and what to do if they are not.

reading assignments

We will rely on two texts in this course. The first, by Gujarati and Porter, is a good econometrics textbook. The second text, by Kennedy, should be seen as a supplemental reader that is a bit more accessible and applied in nature. There are several additional course readings on the syllabus. Journal articles are accessible through the library's website, while book chapters will be accessible through the course website.

The recommended texts by Wooldridge and Fox are alternatives to the Gujarati and Porter text. All three cover the same sorts of topics but sometimes in different sorts of ways, so you may find one of these to be more reader-friendly to you than the Gujarati and Porter text. It should be fine to substitute one of these for the Gujarati and Porter text, or you might choose to pick up one of these as a supplement to help clarify what might not be clear in the main text. The other recommended text by Baum is a useful practical guide for conducting econometric analysis within Stata.

It is recommended that you complete each week's readings before that week's class session. It is dense material that will take more time to read than you expect, so budget your time accordingly. Taking reading notes and rereading the material after class are both good practices to help you fully understand what is being covered in lecture.

REQUIRED TEXTS

Gujarati, Damodar N., and Dawn C. Porter. 2008. *Basic Econometrics*. 5th edition. New York: McGraw-Hill.

Kennedy, Peter. 2008. *A Guide to Econometrics*. 6th edition. Malden, MA: Wiley-Blackwell.

RECOMMENDED TEXTS

Baum, Christopher F. 2006. *An Introduction to Modern Econometrics Using Stata*. College Station, TX: Stata Press.

Fox, John. 2015. *Applied Regression Analysis and Generalized Linear Models*. 3rd edition. Thousand Oaks, CA: Sage Publications.

Wooldridge, Jeffrey M. 2016. *Introductory Econometrics: A Modern Approach*. 6th edition. Boston, MA: South-Western Cengage Learning.

D2L is your friend

This syllabus, assignments, data sets, and other exciting material can be accessed via the class website on learn.colorado.edu.

requirements

HOMEWORK AND PARTICIPATION (40% of your final grade)

You are expected to attend and actively participate in class.

Most weeks, you will also be responsible for a homework assignment designed to help you practice the skills learned in class. Some of these assignments will be written memos while others will be designed as problem sets. While you are welcome to consult with your classmates on the homework assignments, the final work that you turn in must be your own. Late homework assignments will not be accepted.

RESEARCH PAPER (40% of your final grade)

You will be responsible for developing a research paper based on OLS regression. In style, this paper should resemble the journal articles you have read in your classes. The research paper will be due the last week of the class. Additional guidelines will be detailed in a separate handout.

FINAL EXAM (20% of your final grade)

The final exam for the course will be a take-home exam, in a style that resembles the comprehensive exam in political methodology.

special accommodations

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs may be addressed. You can contact the Disability Services office for more information at www.colorado.edu/disabilityservices.

some important comments on academic integrity

- Plagiarism and other academic dishonesty will not be tolerated. If you are not familiar with the rules of citing sources in written work or what constitutes plagiarism, you should contact me or refer to the University Honor Code at honorcode.colorado.edu. Academic dishonesty will result in an F in the course and referral to the Honor Court for additional non-academic sanctions.
- All papers are expected to be original work, not previously or simultaneously handed in for credit in another course (unless prior approval of all instructors involved is obtained).

PSCI 7095 course schedule

1. introduction to the course

Monday, January 23

- Stimson, James A. "Professional Writing in Political Science: A Highly Opinionated Essay."
- Nagler, Jonathan. 1995. "Coding Style and Good Computing Practices." *PS: Political Science and Politics* 28 (3): 488-492.

2. statistical inference and bivariate regression

Monday, January 30

- Gujarati and Porter, Chapters 3, 4, and 5
- Kennedy, Chapters 1 and 2

3. ordinary least squares

Monday, February 6

- Gujarati and Porter, Chapters 7 and 8

4. regression in matrix form, regression assumptions

Monday, February 13

- Gujarati and Porter, Appendix B and Appendix C

5. model fit and model specification

Monday, February 20

- Gujarati and Porter, Chapter 13
- Kennedy, Chapters 5 and 6

6. model specification and dummy variable regression

Monday, February 27

- Gujarati and Porter, Chapter 9 (skim)
- Recommended: Kennedy, Chapter 15

7. interaction effects

Monday, March 6

- Kam, Cindy D., and Robert J. Franzese, Jr. 2007. *Modeling and Interpreting Interactive Hypotheses in Regression Analysis*. Ann Arbor: University of Michigan Press. Chapter 3.

8. influential data points, multicollinearity

Monday, March 13

- Gujarati and Porter, Chapter 10
- Kennedy, Chapter 12

9. nonlinearity and functional form

Monday, March 20

- Gujarati and Porter, Chapter 6 (sections 6.4-6.9) and Chapter 14

spring break

Monday, March 27

10. heteroskedasticity

Monday, April 3

- Gujarati and Porter, Chapter 11
- Kennedy, Chapter 8

11. serial correlation

Monday, April 10

- Gujarati and Porter, Chapters 12 and 17
- Kennedy, Chapter 10

12. panel data

Monday, April 17

- Gujarati and Porter, Chapter 16
- Kennedy, Chapter 18

13. endogeneity, simultaneous equations

Monday, April 24

- Gujarati and Porter, Chapters 18-20
- Kennedy, Chapter 11

14. the linear probability model

Monday, May 1

- Gujarati and Porter, Chapter 15
- Kennedy, Chapters 16 and 17