
P SC 5923 & 5933: Intro and Intermediate Analysis of Political & Administrative Data

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Office Hours: By Appointment

Description

This course is designed to provide Ph.D. students in Political Science with a firm foundation in, and an ability to apply, quantitative methods that are commonly used in the social sciences. The course is also designed to provide a working knowledge of R, a free software program for statistical computing and graphics. By the end of the course, students will be able to:

1. Understand the principles of social research and apply these principles when evaluating and conducting quantitative research
2. Find a dataset and prepare it for analysis in R
3. Describe and visualize quantitative data using R
4. Identify and employ analytical techniques that should be used to answer empirical questions with quantitative data
5. Communicate results of statistical analyses with words, numbers, and graphics

Format

This is a discussion-oriented class that will include lectures and lab sessions in R. Students are expected to read the assigned material before class and participate regularly. Our pace will be brisk – be sure to keep up and ask questions.

Canvas

We will use Canvas for course management and support. This system can be accessed at <https://oklahoma.instructure.com>. Course documents, assignments, class announcements, and grades will be posted there. Note, however, that grades found on Canvas are *unofficial*; official grades are those that the instructors keep. Every effort will be made to post grades correctly, but the instructors reserve the right to correct clerical errors. Please monitor Canvas for announcements.

Instructional Materials (available on Canvas)

- *QRM: Quantitative Research Methods for Political Science, Public Policy and Public Administration*
- *CPR: The Craft of Political Research*
- *OIS: OpenIntro Statistics* (also available online at: <https://www.openintro.org/stat>)

R Resources

- R Project (<http://www.r-project.org>) – download R here
- RStudio (<http://www.rstudio.com>) – download R interface here
- Quick-R (<http://www.statmethods.net>)
- R Data Import/Export (<http://cran.r-project.org/doc/manuals/r-release/R-data.html>)
- Twotutorials (<http://www.twotutorials.com>)
- DataCamp (<https://www.datacamp.com/courses>)
- Swirl (<http://swirlstats.com>)
- R for Data Science (<http://r4ds.had.co.nz>)

Homework Assignments

Homework will be assigned, graded, and discussed on a regular basis. Exercises will be available on

Canvas. Late homework will not be accepted.

Exam

There will be an exam at the end of P SC 5923. Students will work alone to demonstrate their mastery of the concepts and methods that are covered in P SC 5923.

Research Paper

For this paper, you will work in groups of 2 or 3 to write a short research paper that demonstrates your mastery of the concepts and methods that are covered in P SC 5923 and P SC 5933. The paper will include the following sections:

1. Introduction (250 words)
2. Theory and Hypothesis (500 words)
3. Data and Methods (1000 words)
4. Findings (1000 words)
5. Conclusion/Discussion (500 words)

Grades

P SC 5923	P SC 5933
Homework assignments - 40%	Homework assignments - 40%
Exam - 50%	Research Paper - 50%
Participation - 10%	Participation - 10%

Reasonable Accommodations

Students requiring academic accommodation should contact the Disability Resource Center for assistance at (405) 325-3852 or TDD: (405) 325-4173. For more information please see the Disability Resource Center website <http://www.ou.edu/drc/home.html>. Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

Religious Beliefs Accommodations

It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty.

Academic Integrity

All students are expected to conform to college-level standards of ethics, academic integrity, and academic honesty. By enrolling in this course, you agree to be bound by the Academic Misconduct Code published in The University of Oklahoma Student Code (www.ou.edu/studentcode/OUStudentCode.pdf). For further clarification please see: www.ou.edu/provost/integrity-rights/. All members of the community recognize the necessity of being honest with themselves and with others. Cheating in class, plagiarizing, lying and employing other modes of deceit diminish the integrity of the educational experience. None of these should be used as a strategy to obtain a false sense of success. The need for honest relations among all members of the community is essential.

Auditing

Students may audit P SC 5923 or 5933. However, students that audit the course are required to read the assigned material, participate in class discussions, and complete all homework assignments. The exam and research paper are recommended, but not required.

Schedule (**Warning!** This schedule is *approximate* and may be adjusted)

P SC 5923

August 21: Social Research

August 23: Research Design

- QRM Ch. 1 & 2
- CPR Ch. 1 & 2, 6 & 7

August 28: Measurement

- CPR Ch. 3, 4, & 5
- Lipset, Seymour Martin. 1959. "Some Social Requisites of Democracy: Economic Development and Political Legitimacy." *American Political Science Review* 53(1):69–105.

August 30 & September 6: R Bootcamp

- DataCamp: Introduction to R (all but Lists), Importing Data into R (Importing Data from Flat Files), & Cleaning Data in R (Introduction to Exploring Raw Data)
- Swirl: R Programming (<http://swirlstats.com>)

September 11 & 13: Describing & Visualizing Data

- QRM Ch. 3
- Jensen, Carsten, & Michael Bang Petersen. 2016. "The Deservingness Heuristic & the Politics of Health Care." *American Journal of Political Science*.

September 18 & 20: Probability & Distributions

- QRM Ch. 4
- OIS Ch. 3
- Jones, Bryan D., Tracy Sulkin, and Heather Larsen. 2003. "Policy Punctuations in American Political Institutions." *American Political Science Review* 97(1): 151–169.

September 25 & 27: Foundations for Inference

- QRM Ch. 5
- OIS Ch. 4 (videos: <https://www.openintro.org/stat/videos.php>)
- White, Ismail K., Chryl N. Laird, and Troy D. Allen. 2014. "Selling Out?: The Politics of Navigating Conflicts between Racial Group Interest and Self-Interest." *American Political Science Review* 108(04): 783–800.

October 2 & 4: Inference for Two Populations

- OIS Ch. 5 & 6
- McBeth, Mark K., Elizabeth A. Shanahan, Molly C. Arrandale Anderson, and Barbara Rose. 2012. "Policy Story or Gory Story? Narrative Policy Framework Analysis of Buffalo Field Campaign's YouTube Videos." *Policy & Internet* 4(3-4): 159–183.

October 9 & 11: Covariance, Correlation, & Bivariate Linear Regression

- QRM Ch. 7, 8, & 9
- OIS Ch. 7 (videos: <https://www.openintro.org/stat/videos.php>)
- Hopkins, Vincent. 2016. "Institutions, Incentives, and Policy Entrepreneurship." *Policy Studies Journal* 44(3): 332–48.

P SC 5933

October 16 & 18: Multiple Linear Regression I: Intro to Multiple Linear Regression

- QRM Ch. 11 & 12
- Rigby, Elizabeth, & Gerald C. Wright. 2013. "Political Parties & Representation of the Poor in the American States." *American Journal of Political Science* 57(3): 552–65.

October 23 & 25: Multiple Linear Regression II: Inference for Multiple Linear Regression

- QRM Ch. 13
- Garretson, Jeremiah. 2014. "Exposure to the Lives of Lesbians and Gays and the Origin of Young People's Greater Support for Gay Rights." *International Journal of Public Opinion Research*.

October 30 & Nov. 1: Multiple Linear Regression III: Categorical Explanatory Variables & Interactions

- QRM Ch. 14
- Brambor, Thomas, William Roberts Clark, & Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 14(1): 63–82.
- Fridkin, Kim, Patrick J. Kenney, & Amanda Wintersieck. 2015. "Liar, Liar, Pants on Fire: How Fact-Checking Influences Citizens' Reactions to Negative Advertising." *Political Communication* 32(1): 127–51.

November 6 & 8: Multiple Linear Regression IV: Non-normality, Non-linearity, & Multicollinearity

- QRM Ch. 10 & 15
- Hicklin, Alisa, Laurence J. O'Toole, & Kenneth J. Meier. 2008. "Serpents in the Sand: Managerial Networking and Nonlinear Influences on Organizational Performance." *Journal of Public Administration Research and Theory* 18(2): 253–73.

November 13 & 15: Multiple Linear Regression V: Outliers, Heteroskedasticity, & Autocorrelation

- Jasso, Guillermina. 1985. "Marital Coital Frequency and the Passage of Time: Estimating the Separate Effects of Spouses' Ages and Marital Duration, Birth and Marriage Cohorts, and Period Influences." *American Sociological Review* 50(2): 224–41.
- Kahn, Joan R., & J. Richard Udry. 1986. "Marital Coital Frequency: Unnoticed Outliers and Unspecified Interactions Lead to Erroneous Conclusions." *American Sociological Review* 51(5): 734–37.
- Jasso, Guillermina. 1986. "Is It Outlier Deletion or Is It Sample Truncation? Notes on Science and Sexuality." *American Sociological Review* 51(5): 738–42.

November 20: Logistic Regression I: Binary Logistic Regression

- QRM Ch. 16
- Haspel, M., & Knotts, H. G. (2005). Location, Location, Location: Precinct Placement and the Costs of Voting. *Journal of Politics*, 67(2): 560–573.

November 27 and 29: Logistic Regression II: Ordered & Multinomial Logistic Regression

- Ripberger, J. T., Silva, C. L., Jenkins-Smith, H. C., & James, M. (2015). The Influence of Consequence-Based Messages on Public Responses to Tornado Warnings. *Bulletin of the American Meteorological Society*, 96(4): 577–590.

December 4: Causal Inference

- Gailmard, Sean. (2014). "Causal Inference: Inferring Causation from Correlation" in *Statistical Modeling and Inference for Social Science* (pp. 335-357). New York, NY: Cambridge University Press.
- Carlson, Deven, and Jared E. Knowles. (2016). "The Effect of English Language Learner Reclassification on Student ACT Scores, High School Graduation, and Postsecondary Enrollment: Regression Discontinuity Evidence from Wisconsin." *Journal of Policy Analysis and Management* 35(3): 559–586.

December 6: Presentations