

Research Design in Political Science: Introduction to Quantitative Methods

790:533, Rutgers University, Fall 2015
Tuesdays, 3–5:40 p.m., Room 313, Hickman Hall

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Probability is the science of uncertainty.
— G. Grimmett

Doubt is the beginning, not the end, of wisdom.
— Anonymous, quoted in Wonnacott & Wonnacott, Introductory Statistics

Statistics are important to the study of political science in many ways. The word “statistics” originally referred to the collection of information for the state – government statistics were the first statistics. This class is thus an essential part of your graduate education, and not only for those of you who will go on to conduct quantitative research. The political philosophers among you should remember that Plato believed that that study of mathematics was an essential part of the education of the guardians. The postmodernists among you should remember that you must be able to understand an argument before you can deconstruct it. The practical graduate student who would prefer not to starve realizes that the best dissertations – and job talks – involve multiple methods, one of which is often quantitative. And all of you, no matter what type of research you expect to conduct, should know that without a basic understanding of the language and logic of probability and statistics it is difficult to comprehend even the simplest article in virtually any mainstream political science journal. As a side benefit, knowledge of statistics will make you a better-informed consumer of the myriad news stories that report the results of surveys and scientific studies from other disciplines.

My goal in this class is that each of you leaves with a knowledge of what the terminology and symbols of quantitative political science mean and with an intuitive understanding of the logic and rules that underlie those symbols and terms. You also should know how to construct a data set and do basic analyses. By the end of the class you will be ready to move on to the next course in our methods sequence, 790:633, which focuses on regression analysis and prepares you for any future methods courses you may take. For the final project, students will apply what they have learned in a paper that uses a data set related to their research interests.

Readings

Knoke, David, George W. Bohrnstedt, and Alisa Potter Mee. 2002. *Statistics for Social Data Analysis*, 4th edition. Itasca, Ill.: Peacock. [3rd edition is OK, although page references will be off slightly and homework will be from photocopied pages from the 4th edition]

Phillips, John L. 2000. *How to Think About Statistics*, 6th ed. New York: W.H. Freeman.
[optional but helpful]

All additional readings available on course website at <http://sakai.rutgers.edu>

Grades

Your grade will be based on weekly homework assignments, three 30-minute exams, and a final project. Attendance is required. If you miss class for an excusable reason, please let me know.

Grade formula

Attendance/participation	10%
Homework assignments:	15
Exams	25
<u>Final project:</u>	<u>50</u>
	100%

Participation

This is mostly a lecture class, but you are encouraged to ask questions and offer suggestions throughout. Being prepared for class (that is, doing the assigned readings) is part of your participation grade. During class we also will work out problems from the book together and practice SPSS analysis in the lab. For most weeks I will assign journal articles to read for their methods content, in addition to the assigned chapters from the textbook.

Homework

Homework is due at midnight on MONDAY, the day before class. This is so that I can see whether there are any problems that I should discuss in class on Tuesday. Please upload all homework to the course Sakai site. **Late homework assignments will be penalized an entire letter grade** unless the lateness is excused because of illness, family emergency, court appearance, or some equally appropriate reason. To get the most out of this class, it is important that you work out the problems yourself, run your own programs, and write your own interpretations of your output. However, this does not mean that you cannot work with others on the homework. On the contrary, I *encourage* group efforts on the homework as helpful to the learning process. Get help from your fellow students, but think for yourself.

Final project

For your final project, you will write a research paper that uses any publicly available data set to demonstrate your ability to conduct basic data analysis using SPSS and to interpret the output from that analysis. The Inter-University Consortium for Political and Social Research (ICPSR) at the University of Michigan has copies of data sets from hundreds of studies: www.icpsr.umich.edu. Many researchers also make their data sets publicly available on their own websites. Ideally this project helps teach you something about your potential dissertation research or provides some fodder for your second year paper. Details to come.

Exams

The exams are designed to make sure that everyone learns the vocabulary and rules necessary to be literate consumers of the statistical methods we are learning. They will emphasize definitions, identification of whether a statistical technique is appropriate for a particular type of data, and interpretation of SPSS output.

Weekly topics and reading assignments

You should complete the reading for the week before coming to class on Thursday.

Week 1. Sept. 1. Introduction to the class and to the datasets

How do we know what isn't so? How can a knowledge of probability and simple statistics (and good research design – which is covered in the next semester of this course) help us avoid reaching erroneous conclusions?

Readings:

Gilovich, Thomas. 1991. *How We Know What Isn't So: The Fallibility of Human Reason in Everyday Life*. New York: Free Press. Ch. 1-3 (on Sakai).

PLEASE NOTE: Sept. 8 is a University Redefined Day. Monday classes will meet and this class will NOT meet.

Week 2. Sept. 15. Describing Variables

Central tendency, dispersion, and other ways of summarizing variables. Also, a bit on measurement.

Readings:

Phillips, Ch. 1.

Knoke, Bohrnstedt, and Mee, Ch. 1 & Ch 2

DUE Monday, Sept. 14: KBM Ch. 1 problems 4-9. Look for a data set.

The full syllabus, with week by week assignments, will be available on Sakai during the first week of class.