POLS 5020: Research Metthods

Spring 2019 – Wednesday 7:15-10:00 pm, McGannon 118
Professor Matthew Nanes
matthew.nanes@slu.edu
Office Hours: W 3-4 pm, Th 11 am-12 pm, and by appointment (McGannon 123)

Course Description and Introduction
This course presents the fundamental tools that social science researchers use to ask and answer questions about the world. While the class is geared towards Political Science MA students, early-stage graduate students in any social science discipline should find it useful and are welcome to enroll. I also welcome undergraduate students who want to dig a bit deeper into the basic toolkit of social science research and are up for a small challenge (really, just a small one!).

The course takes as a starting point that the scientific method should be used to answer questions about politics and build knowledge about the way political actors operate and interact with one another. THIS IS NOT A MATH CLASS. You can succeed in this class without doing any math by hand, though you will learn how to tell a computer to do complex math on your behalf. Similarly, THIS IS NOT A STATISTICS CLASS. Rather, I hope to explain how scientific methods of inquiry can be used for research on politics, present a basic toolkit that you can use to develop and answer questions you care about, and train you to use those tools productively.

This course will cover qualitative and quantitative methods. Many the topics we cover – theory building, accuracy and precision, hypothesis testing, and field research – transcend any division between the two methods. The course does not set out to teach you to do statistics; it teaches you to do evidence-based research.

For the portions of the class which do involve statistics, we will use Stata. There is no "best" software; Stata is one of several programs that is "good enough" for the tasks at hand. It is freely available on most campus computers at SLU. I will use examples from Stata in class, and you are expected to turn in assignments completed in Stata.

Course Goals
By the end of this course, you will:
- Produce knowledge using scientific methods and empirical evidence
- Identify the limitations of statistics presented in the media and communicate those limitations effectively to a non-specialist audience
- Understand and evaluate the claims, strengths, and weaknesses of qualitative and quantitative evidence in contemporary social science research
- Use statistical methods appropriately to draw inferences about politics
- Interpret and evaluate evidence presented in political science research

A Note on Learning Methods

Statistical analysis involves a lot of judgement calls. There is very rarely a single, clear-cut "right" way to test a hypothesis using quantitative methods. The messier the data, the truer this

statement. This can be frustrating because, as a student, you want someone to tell you when you've arrived at the right answer. Unfortunately, there can be more than one right answer, and varying degrees of what's "right." Expect to have to justify the decisions you make. If you can do that convincingly, then you have probably arrived at **a** right answer.

Programming is like a foreign language. It will to look like complete gibberish at first. Until you learn the basic syntax of the language, you won't be able to tell the difference between a variable and a command, which makes sample code unhelpful. Be patient, trust that it gets easier, and if you don't understand an example, ASK!

Everyone learns differently. This course exposes you to four sets of voices on any given topic: the voice of your professor, that of the textbook author, those of the supplementary reading authors, and those of your classmates. This repetitive approach is by design. If my explanations aren't working for you, it does not mean you're doing anything wrong (nor does it mean I'm a bad teacher, though it might if the entire class thinks my explanations are useless). It simply means that you need the explanation from another voice. Some of you will appreciate verbose explanations, others will prefer formalized econometric equations, and the rest might like to see applications in action. The key is to find out what style works for you and seek it out.

Students come to this class with widely-varied experiences. You should never, ever be afraid to admit you don't understand something, even if your classmates appear to understand it. Ask questions, and keep asking until you are fully satisfied.

Attendance Policy
Attendance and active participation are critical if you are to get anything useful out of this class. Classroom discussions constitute a major portion of the course, and you cannot make up for missed sessions by doing the readings or reviewing notes. Given that we meet only once per week, you are allowed 1 unexcused absence with no penalty. Additional absences will be excused only with documentation of a genuine need that is beyond your control. Each unexcused absence will result in a 5 point penalty on your final course grade.

Grading and Assignments
The assignments evaluate you based on the course goals listed above, with an emphasis on the appropriate use of a wide range of tools to ask and answer questions about politics using scientific methods and empirical evidence.
- 15% Active classroom participation. Needless to say, you cannot actively participate if you (a) are not present, or (b) have not done the assigned reading and assignments. Feel free to check in with me beginning in week 5 for an update on how you are doing.
- 35% Homework Assignments. I will assign three types of homework.
  1. Problem sets in which you apply concepts we have already covered. I will grade you based on a) your demonstrated mastery of the concept, and b) your ability to apply it in practice.
  2. Identifying, interpreting, and evaluating the use of data in the media
  3. A series of tasks which build towards your baby research paper, including choosing and justifying a theoretical argument, proposing a reasonable strategy for testing that theory, and identifying the data you will use. Thus, by the time you

       sit down to write the research paper, you will already have all the components ready to go.
- 25% Midterm Exam. In class on March 6.
- 20% Baby Research Paper. Details to follow.

I will convert your numeric grades to a letter course grade using this scale:

A	93-100	B+	87-89	C+	77-79	D	60-70
A-	90-92	B	83-86	C	73-76	F	below 60
		B-	80-82	C-	70-72		

Academic Integrity:
I take academic integrity very seriously. It is my intention to make the guidelines for each assignment crystal clear with regard to collaboration and the use of outside help. If you are not sure what is allowed on a particular assignment, it is your responsibility to contact me for clarification. Unless I specify otherwise, assignments should be completed on your own with no input from anyone else. Also unless otherwise specified, all assignments are closed-book and you may not use any resources to help complete them. Any violation of academic integrity will result in an <u>automatic F in the class</u> AND a referral to the Associate Dean's office.

You should familiarize yourself with the university's general guidelines on academic integrity found here: http://www.slu.edu/arts-and-sciences/student-resources/academic-honesty.php

Students with Disabilities
Students with a documented disability who wish to request academic accommodations are encouraged to contact Disability Services to discuss accommodation requests and eligibility requirements. Please visit the Office of Disability Services website (http://www.slu.edu/life-at-slu/student-success-center/disability-services) for details. Please also contact me as soon as possible if you wish to discuss any of these options.

Books

The two **required** books for this class are:
- Kellstedt, Paul M. and Guy D. Whitten, *The Fundamentals of Political Science Research.* Cambridge University Press. The current version is the 3rd edition. If you have an older version I will do my best to accommodate, though there may be times when you have to compare notes with a classmate.
- King, Gary, Robert Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research.*

There will also be a number of required supplemental readings, listed below. These are either available online or I will post them on Blackboard.

If…
1. You used Kellstedt and Whitten in a previous course, or
2. You have a background in economics and prefer to have material displayed in econometric notation, or

3. You prefer more technical explanations (though still aimed at an introductory audience), then I **recommend** that you supplement Kellstedt and Whitten with the following text. I've noted the corresponding replacement chapters in the outline where applicable.

- Wooldridge, Jeffrey M. *Introductory Econometrics: A Modern Approach.* Cengage Learning.

Finally, I **recommend** that you have a reference guide to working with Stata. All the information will be provided in class and there are many free tutorials available online, but you can save yourself a lot of googling by having everything in one place.

- Pollock, Philip H. *A Stata Companion to Political Analysis,* 3rd addition. CQ Press. I <u>do not</u> recommend using an older version.

Outline

1. "Why is it called political <u>science</u>?"
    a. Philosophy of science
    b. What is a theory and where do I find one?
    c. Designing research questions
    d. STATA: Introduction, the data editor, do files (`help, preserve, restore`)
    e. READING:
        i. KKV Chapter 1: The *Science* in Social Science
        ii. K&W Chapter 1: The Scientific Study of Politics (skim)
        iii. Waldman, Chapman, and Robertson (2018), "Palantir Knows Everything About You." *Bloomberg Businessweek.*
    f. Homework Assignment: "Theory-Building, Hypotheses, and Causal Inference" on Scandinavian Crime Fiction article (details TBA, due at beginning of Class 2)
2. Theory building and hypotheses
    a. Predicting relationships
    b. The absence of evidence versus evidence of absence
    c. Selecting cases
    d. STATA: Data management (`gen, drop, egen, collapse`)
    e. READING
        i. K&W Chapter 2: The Art of Theory Building
        ii. K&W Chapter 3: Evaluating Causal Relationships (sub Wooldridge 1)
    f. Homework Assignment: "Collapsing Data" (due at beginning of Class 3)
3. Describing your data
    a. Measures of central tendency: mean, median, and mode
    b. Measures of uncertainty: variance, standard errors, confidence intervals
    c. Issues of measurement: Accuracy and precision
    d. STATA: Summary stats (`sum, tab, hist`)
    e. READING:
        i. K&W Chapter 5: Measuring Concepts of Interest (skim)
        ii. KKV Chapter 2: Descriptive Inference
        iii. K&W Chapter 6: Getting to Know Your Data (sub Wooldridge B3)
    f. Homework / Baby research paper: Two paragraphs explaining your theory and specifying the hypotheses you will test (due at the beginning of Class 4)
4. Sampling and Distributions

      a. "The Average Person"

      b. Normal distribution and the Central Limit Theorem

      c. Sources of uncertainty: sampling and measurement

      d. Sample size and error

      e. READING:

            i. K&W Chapter 7: Probability and Statistical Inference (sub Wooldridge B1-B2, B5, C1)

5. Relationships and hypothesis testing with "perfect" data

      a. r^2

      b. t tests, chi square

      c. STATA: `cor, ttest, by, chi2`

      d. READING:

            i. K&W Chapter 8: Bivariate Hypothesis Testing (sub Wooldridge C6)

6. Qualitative hypothesis testing

      a. READING:

            i. Fearon, James and David Laitin, "Integrating Qualitative and Quantitative Methods." In *Oxford Handbook of Political Methodology.*

      b. Baby research paper: Two to three paragraphs explaining the data you will use, where it comes from, and how the variables of interest map on to the constructs in your hypotheses. Send me the data along with this assignment. (Due at the beginning of class)

7. Working with imperfect qualitative and quantitative data

      a. Bias versus noise

      b. Threats to inference: omitted variables, directionality, missing data, measurement error

      c. READING:

            i. KKV Chapter 5 "Understanding What to Avoid"

           ii. Pape (2003), "The Strategic Logic of Suicide Terrorism." *American Political Science Review.* 97(3).

          iii. Ashworth, Meirowitz, and Ramsay (2008), "Design, Inference, and the Strategic Logic of Suicide Terrorism." *American Political Science Review* 102(2).

      d. Baby research paper: Table of summary statistics (mean, median, standard deviation, and number of observations) for each of your key variables

8. Linear Multivariate Regression I

      a. It's all Greek to Me: Notation in regression

      b. STATA: `reg`

      c. READING:

            i. K&W Chapter 9: Two-Variable Regression Models (sub Wooldridge 2)

           ii. K&W Chapter 10: Multiple Regression – The Basics (sub Wooldridge 3-4)

9. Linear Multivariate Regression II

      a. READING:

            i. Meier, Wrinkle, and Polinard (1999), "Representative Bureaucracy and Distributional Equity: Addressing the Hard Question." *Journal of Politics* 61(4).

        ii. Nielsen and Wolf (2001), "Representative Bureaucracy and Harder Questions: A Response to Meier, Wrinkle, and Polinard." *Journal of Politics* 63(2).

10. Torturing your data
    a. Transformations
    b. Matching
    c. STATA: `log, ln,` and other basic functions
    d. READING: TBA
        i. (sub Wooldridge A4)
    e. Baby research paper: Specify the tools you will use to analyze your data, either in words or by writing out the model specification in econometric notation (your choice). If you are conducting a quantitative analysis, specify the stata code you intend to use.

11. Time series and panels
    a. Trends and lags
    b. Autocorrelation
    c. Fixed effects
    d. Difference-in-difference
    e. Being realistic with errors: clustering, "robust"
    f. STATA: `tsset, L.(var), xtset, fe, robust, cluster, i.(var)`
    g. READING:
        i. K&W pages 282-295 (sub Wooldridge 10)
        ii. Beck and Katz (1995), "What to do (and not to do) with Time-Series Cross-Sectional Data." *American Political Science Review.*
        iii. Vanden Eynde, Kuhn, and Moradi (2018), "Trickle-Down Ethnic Politics: Drunk and Absent in the Kenya Police Force." *American Economic Journal: Economic Policy* 10(3).

12. Non-linear multivariate regression
    a. Menu of common models and their applications
    b. STATA: `logit, probit, nbreg, mlogit, ologit`

13. Intro to field research
    a. Survey design and sampling
    b. Interviews, focus groups
    c. Reading:
        i. Shestarinina, Anastasia (2016), "Collective Threat Framing and Mobilization in Civil War." *American Political Science Review* 110:3.
        OR
        Fair, Shapiro, and Malhotra (2012), "Faith or Doctrine? Religion and Support for Political Violence in Pakistan." *Public Opinion Quarterly*
    d. Baby research paper: Report preliminary findings from your analysis, most likely in the form of a regression table with a couple of paragraphs of explanation. Explain (a) what you did, and (b) the conclusions you can draw from your results. State explicitly how your results relate to your hypotheses.

14. Back to basics: Experiments
    a. The power of randomization
    b. Lab, field, survey, and "natural" experiments

    c.   READING:
- i. K&W pages 77-92
- ii. Banerjee et al (2012), "Can Institutions be Reformed from Within? Evidence from a Randomized Experiment with the Rajasthan Police." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2034087
- iii. Yeh et al (2018), "Parachute use to prevent death and major trauma when jumping from aircraft: randomized controlled trial." https://doi.org/10.1136/bmj.k5094