

Introduction to Quantitative Political Analysis

or how I learned to stop worrying and love the stats

PSC 693—Fall 2020

Department of Political Science

Syracuse University

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Office Hours Zoom room: <https://syracuseuniversity.zoom.us/j/3780202535>

Office Hours via Zoom

Tuesday 3–4pm,

Thursday 2–3pm,

or by appointment

Seminar: Tuesday 12:30–2:30pm in Eggers 100

Seminar Zoom room: <https://syracuseuniversity.zoom.us/j/93033167835>¹

Stata Lab: Friday 10:35–11:30am in Life Sciences 215

Stata Lab Zoom room: <https://syracuseuniversity.zoom.us/j/97836470277>²

Course Overview

This course introduces students to the basic statistical methods used in the study of political science. In the seminars and labs, you will learn to describe and analyze social science data, such as national election surveys. Throughout the course, you will also learn to understand the importance of randomness in statistical research, conduct statistical tests, present your results, and evaluate the implications of quantitative analysis. You will learn to compute most of the techniques both ‘by hand’ and with Stata, a statistical software program commonly used in political science.

Contemporary political science research in all subfields utilizes statistical techniques and, consequently, a basic understanding of these methods is crucial. The goal of this course is to provide students with the statistical tools necessary to become a sophisticated consumer and producer of quantitative research.

Covid-19 Adjustments

This course will be taught in a hybrid format. Those who feel comfortable doing so will meet in person following all mask and social distancing protocols. Other students can join online via Zoom synchronously. The recordings will be made available after class in case there are issues with meeting synchronously, but given that it is a lecture format with Q&A, I encourage synchronous attendance whenever possible.

Labs will be handled similarly. Depending on how it works, I may adjust this to a flipped format, with a short video of the week’s lesson made available beforehand and the lab time used for support and Q&A.

¹Also available by telephone. Find your local number: <https://syracuseuniversity.zoom.us/j/93033167835>

²Also available by telephone. Find your local number: <https://syracuseuniversity.zoom.us/j/97836470277>

Homeworks and exams and papers will have deadlines. Given the circumstances, all of the deadlines will be negotiable. I encourage everyone to stick to the schedule for your own sake so you don't get behind. But I will be as flexible as needed.

Course Expectations and Requirements

Homework

Homework will be assigned at least three times during the semester, with each assignment worth 100 points. You will have one week to complete the assignments. Late assignments will receive a penalty of 10 points per day. You may work in groups when completing your assignments, but the finished assignments must reflect your own, individual interpretations of the results. You will also have occasional Stata lab assignments.

Exams

The mid-term and final exam will be take-home exams based on the material covered in class and the readings. The final exam will not be cumulative, although the second half of class clearly builds on the first half. These exams will be similar to the homeworks except that you are expected to work alone, *with* the aid of your notes and texts.

Project

In the research project, you will develop an interesting, testable hypothesis. You will need to obtain an appropriate data set and analyze this hypothesis using the statistical tools from class. You will not necessarily need to conduct extensive outside research or elaborate a full literature review. The focus of the paper should be describing and analyzing the data. The finished product should be no more than 10 – 15 pages but it can be part of a bigger project (e.g., for another class). We will have time to work on the projects in lab. I will hand out further instructions in class.

Participation

As a graduate seminar, each participant will be expected to attend class and be prepared to discuss the assigned readings. Active student participation is essential to a successful seminar.

Learning Outcomes

This course has three main goals:

- To help you understand the uses and importance of statistical methods in political science.
- To help you develop skills to analyze social science data using basic statistical methods.
- To help you improve the writing and presentation skills associated with quantitative methods.

Evaluation

Homeworks	25%	Mid-term Exam	25%
Final Exam	25%	Project	25%

Required Readings

Required books available at the SU bookstore. Other readings available in Blackboard.

Agresti, Alan. 2017. *Statistical Methods for the Social Sciences*. 5th ed. Pearson. [This book is also available as an ebook from [coursesmart.com](https://www.coursesmart.com) or [amazon.com](https://www.amazon.com), either as a rental or purchase.]

Pollock III, Philip H. 2019. *A Stata Companion to Political Analysis*. 4th ed. Washington D.C.: CQ Press.

Supplementary Books

These two books offer different approaches, with varying degrees of sophistication. These books are not required, but if you want to learn more about a specific topic, these are good resources.³

Achen, Christopher. 1977. *Interpreting and Using Regression*. Beverley Hills, CA: Sage.

Griffiths, William E., R. Carter Hill, and George G. Judge. 1993. *Learning and Practicing Econometrics*. NY: Wiley & Sons Publishers.

Statistical software

In this course, we will be learning and using *Stata*. *Stata* is available in the grad bays, in the Eggers 100 office, and in our Friday lab classroom. This semester, some of these options will be less accessible. You are welcome to buy the software yourself to use on your personal laptops or computers via *Stata* for \$48 for a 6-month license at <https://www.stata.com/order/new/edu/gradplans/student-pricing/>.

Another option is to use the (free) MAXLab Student Cluster (ict.syr.edu/research-computing-at-maxwell/maxlab-student-cluster/). The MAXLab Student Cluster is designed for Maxwell graduate and undergraduate students to remotely access *Stata*.

If you are interested in using *R*, I recommend starting with this book, but there are many other tutorials online and training available sometimes in Maxwell and every summer at ICPSR.⁴

Pollock, Philip H. and Barry C. Edwards. 2017. *An R Companion to Political Analysis*. 2nd edition. CQ Press.

³Increasingly, there are open-source and free textbook options, including <http://www.openintro.org>. This website offers video lectures too, in case you are interested in another view on a topic.

⁴A few free and online examples: *R for Data Science* at <https://r4ds.had.co.nz> or Kaplan's *Crime by the Numbers* at crimebythenumbers.com

Seminar Schedule

Seminar 1. Introductions and Overview (Tuesday, 25 August)

Achen, Christopher. 2002. "Advice for Students Taking a First Political Science Graduate Course in Statistical Methods." *The Political Methodologist* 10.2 (Spring): 10–12.

King, Gary. N.d. "So You're a Grad Student Now? Maybe You Should Do This." Forthcoming in the *Sage Handbook of Research Methods in Political Science*, eds. Robert J. Franzese, Jr. and Luigi Curini. Sage Publications.

Lab 1. Hello Stata (Friday, 28 August)

Pollock Ch. 1

part of Pollock Ch. 11 "Inputting Data," pp. 225–231.

Seminar 2. Statistical Methodology, Sampling and Measurement (Tuesday, 1 September)

Agresti Chs. 1–2

Lab 2. Descriptive Statistics (Friday, 4 September)

Pollock Ch. 2

Seminar 3. Descriptive Statistics (Tuesday, 8 September)

Agresti Ch. 3

Bakker, Ryan, Seth Jolly, and Jonathan Polk. 2020. "Multidimensional Incongruence, Political Disaffection, and Support for Anti-Establishment Parties." *Journal of European Public Policy*.

Lab 3. Transforming Variables (Friday, 11 September)

Pollock Ch. 3

Seminar 4. Probability Distributions (Tuesday, 15 September)

Agresti Ch. 4

Dwidar, Maraam. 2020. "Diverse Lobbying Coalitions and Influence in Notice-and-Comment Rulemaking." *working paper*.

Homework 1 passed out in Seminar 4.

Lab 4. Making Comparisons (Friday, 18 September)

Pollock Ch. 4

Seminar 5. Statistical Inference: Estimation (Tuesday, 22 September)

Agresti Ch. 5

Homework 1 due in Seminar 5.

Lab 5. Making Controlled Comparisons (Friday, 25 September)

Pollock Ch. 5

Seminar 6. Statistical Inference: Significance Tests (Tuesday, 29 September)

Agresti Ch. 6

Research topic paragraphs due in Seminar 9.

Homework 2 passed out in Seminar 6.

Lab 6. Inferences about Sample Means (Friday, 2 October)

Pollock Ch. 6

Seminar 7. Review and Mid-Term (Tuesday, 6 October)

Zeira, Yael. 2019. "From the Schools to the Streets: Education and Anti-Regime Resistance in the West Bank." *Comparative Political Studies* 52.8: 1131–1168.

Homework 2 due in Seminar 7.

Take-home mid-term passed out in Seminar 7. Exam due on Friday, 10/9. No Lab 7.

Seminar 8. Comparison of Two Groups (Tuesday, 13 October)

Agresti Ch. 7

Jackson, Jenn M. and Ana E. Jones. "How Race and Gender Shape Young People's Attitudes about Belonging and Citizenship." Working Paper.

Lab 8. Measures of Association (Friday, 16 October)

Pollock Ch. 7

Dataset selection for paper.

Seminar 9. Analyzing Associations (Tuesday, 20 October)

Agresti Ch. 8

Lab 9. Correlation and Linear Regression (Friday, 23 October)

Pollock Ch. 8

Seminar 10. Linear Regression & Correlation (Tuesday, 27 October)

Agresti Ch. 9

Bartels, Larry M. 1990. "Five Approaches to Model Specification." *Political Methodologist* 3.2: 2–6.

Lab 10. Dummy Variables and Interaction Effects (Friday, 30 October)

Pollock Ch. 9

Seminar 11. Multiple Regression & Correlation (Tuesday, 3 November)

Agresti Ch. 10–11 (skim pages 331–337)

Supplementary: Brambor, Thomas, William Roberts Clark and Matt Golder. 2006. “Understanding Interaction Models: Improving Empirical Analyses.” *Political Analysis* 14.1: 63–82.

Final project outline due in Seminar 11, including dataset choice.

Homework 3 passed out in Seminar 11.

Lab 11. Tables and Figures (Friday, 6 November)

Kastellec, Jonathan and Eduardo L. Leoni. 2007. “Using Graphs Instead of Tables in Political Science.” *Perspectives on Politics* 5.4 (December): 755–771. Also see tables2graphs.com.

For more on data visualization, see Kieran Healy’s *Data Visualization: A Practical Introduction* (Princeton University Press, 2018).

Friday classes meet on Sunday, 8 November. Research paper consultations available by appointment.

Seminar 12. Multiple Regression & Correlation (cont’d) (Tuesday, 10 November)

Agresti Ch. 13–14

King, Gary. 1986. “How Not to Lie with Statistics: Avoiding Common Mistakes in Quantitative Political Science.” *American Journal of Political Science* 30.3 (August): 666–687.

Luskin, Robert C. 1991. “Abusus Non Tollit Usus: Standardized Coefficients, Correlations, and R^2 s.” *American Journal of Political Science* 35.4 (November): 1032–1046.

King, Gary. 1991. “‘Truth’ Is Stranger than Prediction, More Questionable than Causal Inference.” *American Journal of Political Science* 35.4 (November): 1047–1054.

Supplementary: Green, Donald P. 1990. “On the Value of Not Teaching Students to Be Dangerous.” *The Political Methodologist* 3.2: 7–9.

Homework 3 due in Seminar 12.

Lab 12. Research Paper work (Friday, 13 November)

Will be available in the lab and via Zoom for paper consultations. Everyone should resolve dataset issues by this week.

Seminar 13. Logistic Regression (Tuesday, 17 November)

Agresti Chs. 15 and 16 (skim pages 480–484)

Lab 13. Logistic Regression (Friday, 20 November)

Pollock Ch. 10

Seminar 14. Review (Tuesday, 24 November)

Final Exam passed out in Seminar 14. Final Exam due Tuesday, 1 December.

Optional project work (Friday, 4 December)

Final Project due at 12:00pm on 9 December via turnitin.

University Policies

Academic Integrity

Syracuse University's academic integrity policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The university policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same written work in more than one class without receiving written authorization in advance from both instructors. The presumptive penalty for a first instance of academic dishonesty by an undergraduate student is course failure, accompanied by a transcript notation indicating that the failure resulted from a violation of academic integrity policy. The presumptive penalty for a first instance of academic dishonesty by a graduate student is suspension or expulsion. SU students are required to read an online summary of the university's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. For more information and the complete policy, see academicintegrity.syr.edu.

Academic dishonesty will not be tolerated. If I suspect academic dishonesty or plagiarism, I will submit formal reports to the Dean of the College of Arts and Sciences. Also, www.plagiarism.org is a useful website for tips on citations and other writing resources.

Statement Regarding Disability-Related Accommodations

If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), disabilityservices.syr.edu, located in Room 309 of 804 University Avenue, or call (315) 443-4498, TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Diversity and Disability

Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. My goal is to create learning environments that are useable, equitable, inclusive and welcoming. If there are aspects of the instruction or design of this course that result in barriers to your inclusion or accurate assessment or achievement, I invite any student to meet with me to discuss additional strategies beyond accommodations that may be helpful to your success.

Religious Observances Policy

SU's religious observances notification and policy, found at <http://hendricks.syr.edu/spiritual-life/index.html>, recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes and by the submission deadline for flexibly formatted classes.

For fall and spring semesters, an online notification process is available for students in **My Slice/StudentServices/Enrollment/MyReligiousObservances/Add a Notification**.

Last updated: September 21, 2020.