

QUANTITATIVE POLITICAL ANALYSIS

PL SC 309H
Fall 2017

TR 10:35 AM – 11:50 AM
Sparks Bldg. 009

Instructor

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(and by Appointment)

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COURSE DESCRIPTION

According to the course catalog, “This course introduces students to research design and quantitative analysis techniques used in political science. Students will learn how to construct theories and design studies, how to quantify concepts, and how to test theories using a variety of statistical techniques, including descriptive analysis, correlation, hypothesis testing, and regression analysis. The course will include classroom lectures and computer lab time to enable students to work hands-on with datasets. Basic math skills (algebra) are recommended.”

In other words, this course will give you the tools to understand quantitative political science studies. To that end, we’ll spend the first part of the course discussing how to generate hypotheses and design research in a way that allows you to test hypotheses using data. Then, we’ll learn—both by hand and with computer software—to use a number of different statistical techniques, including hypothesis testing and regression analysis to assess our hypotheses. Throughout the semester, you’ll design and carry out an independent research project to test your own theory about the political world. Along the way, we’ll discuss why statistical literacy is becoming increasingly important and how the statistical techniques we discuss in class can help you become a more conscientious consumer of polling, news, and current political events more generally.

The honors section of PLSC 309 includes additional preparation for independent research in political science with an eye toward students’ eventual senior thesis projects.

OBJECTIVES

By the end of this course, students will be able to:

1. Explain how political scientists use statistical methods to test theories about the political world.
2. Describe the use of major statistical techniques: measures of central tendency and dispersion, data visualization, hypothesis testing, linear regression, and logistic regression.
3. Implement each of these techniques by hand and using statistical software.
4. Interpret the results of each of these techniques in a manner that is accessible to lay audiences, both orally and in writing.
5. Apply these techniques as part of an original study that tests a theory about the political world.

HOW DO I SUCCEED?

Students come to this course with varied skills and interest in the design of research and (especially) statistics. The actual math that we do in this class will not require any skills that are harder than what you learned in middle school math. My goal as your instructor is to make this material as easy for you to understand as possible. But, I can’t do that without your help. To succeed in this class, you *must*:

- Do your best with the readings before class, and bring any questions that you have with you when you come to class. I'll devote the first portion of every class period to a discussion of any questions about the reading. If you ever have trouble with a reading, please don't hesitate to e-mail or come to my office hours.
- Do practice problems (both by hand and with R) outside of class.
- Participate in class
- Come to office hours. *Do not be shy about coming to office hours. Do not be shy about asking for help.* In past iterations of this course, the best predictor of students' final grades is the extent to which they came to my office to ask questions. Attending office hours doesn't mean you aren't smart; it means that you care enough about your performance to use the resources available to you!

COURSE MATERIALS

- 1) Epstein, Lee and Andrew D. Martin. 2014. *An Introduction to Empirical Legal Research*. Oxford University Press.
- 2) Wheelan, Charles. 2013. *Naked Statistics*. W.W. Norton & Company.
- 3) Monogan, Jamie. 2015. *Political Analysis Using R*. Springer. Available as a downloadable PDF through the library. [Use this link to get the book for free through our library. Once you log in, you can download the entire book as a PDF.]
- 4) A series of supplementary readings will be distributed to students on Canvas.

SUMMARY OF DEADLINES AND ASSESSMENTS

<i>Assignment</i>	<i>Due Date</i>	<i>Assignment</i>	<i>Due Date</i>
Describing Data Lab	September 19	Manipulating Data Lab	October 24
Checkpoint #1	September 26	Checkpoint #3	November 2
Visualizing Data Lab	September 28	Regression Lab	November 28
Hypothesis Testing Lab	October 5	Checkpoint #4	November 29
Checkpoint #2	October 10	Final Poster	December 3
Midterm Exam	October 12	Logit Lab	December 7
		Final Exam	Finals Week

COURSE REQUIREMENTS

The requirements for this course involve both (1) the completion of reading assignments, practice problems, and problem sets on your own outside of our class meetings and (2) your active and informed contributions to our course discussions when we meet. Our class time will be divided among lectures, in-class activities, and lab time.

LAB REPORTS (25%). I will assign several lab reports over the course of the semester. These assignments will assess your understanding of the course material in a setting that allows you to ask questions and seek help, both from your peers and from me, before you are asked to complete similar problems in an exam setting. These are due to me in hard copy at the beginning of class on the requested due date. These problem sets are no substitute for careful, at-home use of practice problems. **You will submit your lab reports in hard copy.**

EXAMS (25%). Students will take two in-class exams. The exams will assess your knowledge of material contained within the assigned readings, from lecture, and from our course discussions. The exams may

consist of short answer questions, problem solving, and essay questions. They will involve the use of R. I will provide more information as the exam dates approach. The second exam will not be cumulative.

PARTICIPATION (10%). The final portion of your grade is based on your ability and willingness to contribute to our class. Everyone's experience in this course is enhanced by regular attendance and active participation; conversely, everyone's experience suffers if individuals do not participate. Remember that a sincere question often adds as much (if not more) to our understanding of the course material as an explanation of the week's readings. So, don't be afraid to speak up!

Please remember that attending class and sitting silently is not, by definition, "participation." Also, please note that I do not penalize you directly for missing class (though multiple absences will adversely affect your grade through a lower participation score). During lab and in-class activity days, you will complete in-class activities; failure to submit several of those activities will adversely affect your participation grade.

FINAL PROJECT (40% Total). This course culminates with the production of a piece of original research, most likely using an observational design. You may choose any topic in political science that interests you, though I am happy to help you select a topic. Conducting individual research is a time-intensive process, and, to help you structure your time throughout the semester, you will complete a series of preliminary assignments. Late or unsatisfactory checkpoint assignments will detract from your final poster grade. **You will submit each Checkpoint assignment on Canvas.**

This is a class in political analysis. Your grade for your final project is determined by your ability to test a hypothesis and interpret the results of that hypothesis correctly. You may find that your hypothesis is not supported by your data. That is fine; your grade will not be adversely affected. The grade for your poster will be determined by its content (45%), design (25%), your presentation of your project (10%), the completion of your checkpoint assignments (10%), and your replication code (10%).

In terms of *content*, I will consider the following: Did you include all of the required elements on your poster (see above)? Did you conduct the correct statistical tests (e.g. did you run a linear regression with a dichotomous dependent variable)? Did you conduct those statistical tests correctly? Do you provide proper interpretations of p-values, test statistics, and predicted values?

In terms of *design*, I am looking for posters that are clear and easy to read (don't use paragraphs—use bullet points, do not copy and paste R output or R code on your slides, etc.), contain information graphically or through tables where possible (again, no paragraphs!), that those tables and figures have appropriate and self-contained captions, that your poster is a poster and not just a series of PowerPoint slides tacked together, and that your poster is clear enough that anyone in this class—someone who knows the material but not your research project—can look at your poster and understand it. The bottom line here is that you should be as simple and clear as possible.

When you *present*, I will assess whether you can explain why you've chosen to present the information that is on your poster, the accuracy and appropriateness of your interpretations of your graphs, tables, and statistical tests, and your responsiveness to questions. Remember that poster presentations are not formal presentations in the sense that you plan out a full presentation. Instead, you should have a short, paragraph-length (very quick) summary of your project that you can use to start a conversation with a viewer and then answer their questions from there. No one likes feeling trapped at a poster!

Your *checkpoint* assignments will be graded pass/fail. If you fail a checkpoint and do not submit a corrected checkpoint, your grade in this part of the final project will suffer. On the other hand, if your checkpoint needs improvement, you can submit a revised checkpoint before the poster is due without penalty. This way, your final poster reflects your accumulated learning over the semester.

When I assess your data and R *code*, I may assess whether it runs without errors, whether it accurately replicates what is on your poster, whether you have commented your code, and whether the measurement and coding of your variables match what you've discussed on your poster.

CHECKPOINT #1: TOPIC AND HYPOTHESIS. You will propose a topic and explain a hypothesis regarding the relationship between an independent and dependent variable. This requires you to do three things. First, select a topic that interests you and for which you believe data are reasonably available. Second, compile at least 4 peer-reviewed social science articles related to your topic. Google Scholar (<http://scholar.google.com>) is a great place to find articles. Finally, write a 3-4 page literature review that proposes a testable hypothesis. Successful assignments will (1) summarize the current literature, (2) provide a theory that is motivated by the literature, and (3) propose a hypothesis that is implied by your theory. In other words, you should synthesize the arguments and findings from these studies together and explain how this prior literature leads you to your hypothesis.

CHECKPOINT #2: CODEBOOK. Explain how you will collect your data by compiling a codebook. "Collecting" your data may be as "simple" as finding a source of data (e.g. a survey) that contains the appropriate variables to test your theory or may require you to collect new data yourself. However, you must *do* something (combine datasets, recode variables, etc.) to the data if you do not collect it yourself. Regardless of how you gather the data, you will submit a codebook describing your dataset. For each variable, explain the level of measurement (e.g. interval, nominal, ordinal), the source of the variable, and how the variable is coded. Here are two examples of codebook entries (once for an interval-level variable and one for a categorical variable):

IDEOLOGY (variable name)

My measure of judicial ideology is categorical and based on the party of the appointing president. This requires the assumption that presidents appoint justices who share their ideology.

Categorical

Value = 1 if appointed by a Republican president; 0 if appointed by a Democratic president; . = missing data

Source: Epstein, Lee, Jeffrey A. Segal, Harold J. Spaeth, & Thomas G. Walker. 2012. *The Supreme Court Compendium: Data, Decisions, and Developments*. 5th ed. Washington, D.C.: Congressional Quarterly, Inc.

IDEOLOGY (variable name)

My measure of judicial ideology is Martin and Quinn's Bayesian measure of judicial ideology based upon the votes of U.S. Supreme Court justices. Lower values indicate more liberal justices.

Interval

Value = The Martin-Quinn (2002) measure of judicial ideology; . = missing data

Source: Andrew D. Martin and Kevin M. Quinn. 2002. "Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953-1999." *Political Analysis*. 10:134-153.

CHECKPOINT #3: PRELIMINARY ANALYSIS. You must have your data collected to complete this assignment! Write a 3-page memorandum describing your data. Depending on your topic and how you

measure your variables, the best way to summarize your data will vary, however, you should, at a minimum, provide the following information: (1) measures of central tendency (e.g. mean, median and/or mode) and dispersion for each variable in your dataset, (2) a measure of association (e.g. correlation or some sort of cross-tabulation) describing the relationship between your dependent variable and your key independent variable, (3) a hypothesis test evaluating the relationship between two variables (ideally the dependent and key independent variables), and (4) at least one figure (e.g. a histogram, scatterplot, etc.) that helps the reader to visualize your data. **This analysis should be discussed in paragraph form. There should be no R code or pasted output in your report.** Use the “Data” sections of some of the articles that we have read in class as examples.

This is a different type of paper than most that you have written. You will have no thesis, and the organization can be fairly disjointed. Your task in this checkpoint is to just tell me about your data: what does it look like? What is interesting about it?

CHECKPOINT #4: FINAL ANALYSIS. Before 11:59 PM on Wednesday, November 12, upload a single PowerPoint or Keynote slide to Canvas. In class on November 30, you will present your project for no more than 3 minutes, getting feedback from your peers that you can use as you finalize your poster over the weekend.

POSTER AND PRESENTATION. You will combine the three checkpoint assignments with a regression analysis to create an original piece of research presented in poster form. The poster should contain:

- An introduction that motivates your topic and tells the reader why your topic merits investigation.
- A literature review/theory section (see Checkpoint #1) that describes the previous literature and uses that literature to motivate a testable, falsifiable theory.
- A methods/data section (see Checkpoints #2 and #3) that explains
 - The measurement of the variables in your data
 - Basic information about your dataset: the unit of analysis, the time frame, the rule(s) used to select cases, etc.
 - Descriptive statistics that summarize your data
 - The source(s) of your variables
 - The statistical method you have selected to test your theory.
- A results section that presents and interprets both (1) a hypothesis test (a t- or chi-squared test) and (2) a multiple linear or logistic regression analysis. To be successful, the poster must include: (a) a regression table, (b) a discussion of model fit, (c) discussion of the statistical and substantive significance (e.g. predicted values or predicted probabilities) of the coefficients in your model
- A conclusion that (a) summarizes your results, (b) discusses the strengths and weaknesses of your chosen method and design, and (c) suggests topics for future research.
- You will also submit your dataset and a replication file, commented in a way that allows me to see what R commands produced the results discussed in your paper. I may replicate the results on your poster to check (a) the appropriateness of the tests you have conducted and (b) the voracity of the results you have reported.

How do I make a poster?

The easiest way to make a poster is to use PowerPoint or a similar program. Make your poster a single slide, change the size of that slide to a poster size (24” tall by 36” wide), and go wild. The internet is full of resources/templates.

How do I print my poster?

- On campus: You can print posters at the Engineering Copy Center. They told me that they print for any student for a small fee. It can take them up to 3 days to print. They prefer that you submit in person.
- Off Campus: Office supply and copying places (e.g. FedEx/Kinko's) will print your poster for you. This is the solution that most students have used in the past.
- **Printing in color can be extraordinarily expensive. You are *not* required to print your poster in color.** You do, however, need to make sure that your figures are legible in black and white (so, for example, if you have a line graph, make your lines different line types [dots, dashes, lines], and/or different shades of gray)
- You **DO NOT** need to print on foam core board. Your poster should be a big sheet of paper.
- **Poster printing people will try to upsell you. Do not fall for it. Under no circumstances should this cost more than \$10 (in the past, most people have spent less than \$8).** Tell the people you want to print “in black and white on architecture paper” to get the best rate.

Throughout this project, **back up your work!** Use e-mail, Dropbox, Google Drive, Box... something! At some point during the semester, someone in this class will have computer problems. Collecting data is time-consuming; back up your work so you only have to do it once!

EXPECTATIONS/PROCEDURES

RESPECT. In this course, we are all engaged in the endeavor of building a stronger understanding of Quantitative Methodology. Everyone comes to this course with a different background in the subject (particularly the statistics portion of the course). It is important that we all treat each other with the utmost respect.

OFFICE HOURS. Please come. I'm here to help. If my office hours conflict with another commitment, please e-mail me to find a time that works for both of us to meet. I'm really serious about this; coming to office hours with serious questions is the best predictor of success in this course.

SOFTWARE. In the lab sessions and to complete your homework assignment you will be using the R statistical package (<http://www.r-project.org/>). This package is widely used in political science, economics, psychology, sociology, and biostatistics. R is available for every computing platform, and most importantly, is free.

CALCULATORS. You are welcome (and encouraged) to use a scientific, or graphing calculator for the midterm and final exams. You may not use the calculator app on your cell phone as a calculator for the exam. If you do not bring a calculator, you may not share calculators on the exams. *You will want a scientific or graphing calculator for this course. A regular (four-function) calculator will not be able to do everything you need it to do for the final exam.*

WORKING TOGETHER. I encourage you to work together on lab reports. There is no better way to master this material than to work together on it. However, every keystroke of what you type and every mark you make with a pencil or pen must be your own work. You may not collaborate on the midterm and final exams, and you will complete your own final project (though you may—and should!—help each other with the project as we go).

LATE ASSIGNMENTS. Assignments not submitted by the assigned due date and time are late. Late submissions will be accepted; however, they will be subject to a one-half grade (5%) per day (including weekends) late penalty. All assignments must be completed in order to pass this course. I do not accept assignments over e-mail.

EXTENSIONS. Extensions will be granted in only the most severe circumstances. If you foresee the need for an extension, one needs to be requested and granted at least 24 hours before the due date. No one is entitled to an extension; they will be offered only at my discretion.

ACADEMIC DISHONESTY. I take violations of the University's academic dishonesty policy very seriously; it is printed on the next page. Please review the policy and let me know if you have any questions.

GRADING SCALE. The course will follow a standard grading scale:

93-100	A	87-89	B+	77-79	C+
90-92	A-	83-86	B	70-76	C
		80-82	B-	60-69	D

REGARDING GRADES. I do not *give* grades. You *earn* grades. It is essential that you are proactive regarding your performance in this course; *do not wait* until grades are posted and then ask how your grade could be improved. At that point, barring a mathematical error on my part, it cannot be. If, at any point, you are unsure of your current standing in the course, please come to my office hours. I may (or may not) offer extra credit assignments to the entire class during the semester. I am sometimes asked about extra-credit or additional assignments after the final grades have been tallied by students who are unhappy with their grades. I will not offer such assignments to the class or individual students.

ACADEMIC DISHONESTY. The Department of Political Science, along with the College of the Liberal Arts and the University, takes violations of academic dishonesty seriously. Observing basic honesty in one's work, words, ideas, and actions is a principle to which all members of the community are required to subscribe.

All course work by students is to be done on an individual basis unless an instructor clearly states that an alternative is acceptable. Any reference materials used in the preparation of any assignment must be explicitly cited. Students uncertain about proper citation are responsible for checking with their instructor.

In an examination setting, unless the instructor gives explicit prior instructions to the contrary, whether the examination is in-class or take-home, violations of academic integrity shall consist but are not limited to any attempt to receive assistance from written or printed aids, or from any person or papers or electronic devices, or of any attempt to give assistance, whether the one so doing has completed his or her own work or not.

Lying to the instructor or purposely misleading any Penn State administrator shall also constitute a violation of academic integrity.

In cases of any violation of academic integrity it is the policy of the Department of Political Science to follow procedures established by the College of the Liberal Arts. More information on academic integrity and procedures followed for violation can be found at: <http://www.la.psu.edu/current-students/student-services/academic-integrity/academic-integrity>

NOTE TO STUDENTS WITH DISABILITIES. Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. The Student Disability Resources Web site provides [contact information for every Penn State campus](#). For further information, please visit the [Student Disability Resources Web site](#).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, [participate in an intake interview, and provide documentation](#). If the documentation supports your request for reasonable accommodations, your [campus's disability services office](#) will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodations.

COUNSELING AND PSYCHOLOGICAL SERVICES. Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

[Counseling and Psychological Services at University Park \(CAPS\)](#): 814-863-0395

Penn State Crisis Line (24 hours/7 days/week): 877-229-6400

Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

EDUCATIONAL EQUITY AND REPORTING BIAS INCIDENTS. State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the [Report Bias webpage](#). You may also contact one of the following offices:

University Police Services, University Park: 814-863-1111

Multicultural Resource Center, Diversity Advocate for Students: 814-865-1773

Office of the Vice Provost for Educational Equity: 814-865-5906

Office of the Vice President for Student Affairs: 814-865-0909

Affirmative Action Office: 814-863-0471

Call 911 in cases where physical injury has occurred or is imminent.

STUDENT CARE & ADVOCACY OFFICE. College presents a number of challenges for students, and Penn State maintains an office of Student Care & Advocacy that can point you in the right direction if you are facing any of the following issues:

- Death of an immediate family member
- Family crisis
- Mental health concern
- Self-injurious behavior
- Food insecurity
- Housing insecurity
- Medical emergency and/or hospitalization
- Local natural disaster

- Academic distress
- Unexpected events or challenges

If you have questions, concerns, or need more information, please do not hesitate to contact that office by phone at 814-863-2020 or by email at StudentCare@psu.edu. They encourage you to call or e-mail ahead.

SCHEDULE

Below, you'll find a list of all class meetings, the topic we'll discuss, and the reading assignment. You should complete the reading assignment before you come to class and bring any questions that you have with you to class. In the event that deviations from this schedule are necessary, they will be announced in class.

Week 1 (Aug. 22)

Tuesday: Introduction to Class

- Recommended: Wheelan, Ch. 1

Thursday: How Empirical Research Works

- Readings:
 - Lupia et al. "Why State Constitutions Differ in their Treatment of Same-Sex Marriage"
- Recommended:
 - Pain, Elisabeth. 2016. "How to (Seriously) Read a Scientific Paper." *Science* <<http://www.sciencemag.org/careers/2016/03/how-seriously-read-scientific-paper>>.

Week 2 (Aug. 29)

Tuesday: Measurement

- Readings:
 - Howard, Christopher. 2017. "What Happened?" in *Thinking Like a Political Scientist*. University of Chicago Press.
 - Reed, John Shelton. 1993. "The South: What is it? Where is it?" in *My Tears Spoiled My Aim and Other Reflections on Southern Culture*.

Thursday: No Class. American Political Science Association meeting.

- Meet with me sometime next week to discuss ideas for your final project.
- Readings:
 - E&M Ch. 1-3 [I'll tell you in class what to focus on]

Week 3 (Sept. 5)

Tuesday: Introduction to R

- Readings: Monogan, Ch. 1.1-1.4; 2.1-2.2
- **Bring your computer to class today if possible!**

Thursday: Collecting and Coding Data

- Readings:
 - E&M Ch. 4-5
 - Wheelan Ch. 7

Week 4 (Sept. 12)

Tuesday: Measures of Central Tendency; Discuss Final Projects

- Readings:
 - Wheelan Ch. 2
 - Burden et al. 2017. “Reassessing Support for a Female President.” *Journal of Politics* Forthcoming.

Thursday: Describing Dispersion

- We will complete an in-class early-term course evaluation today.
- Readings:
 - E&M Ch. 6.4
 - Wheelan Ch. 3

Week 5 (Sept. 19)

Tuesday: Visualizing Data in R

- **Describing Data Lab Due** (Hard copy, in class)
- Readings:
 - E&M Ch. 6.1-6.3
 - Monogan 3-3.2.2

Thursday: Confidence Intervals and One-Sample t-Tests

- Readings:
 - E&M Ch. 6.1-7.3.2
 - Wheelan, Ch. 8-10

Week 6 (Sept. 26)

Tuesday: Two-Sample Tests

- **Checkpoint #1 Due** (Electronic copy, to Canvas by 11:59 PM)
- Readings:
 - E&M Ch. 7.3.3
 - Burden et al. 2017. “Reassessing Support for a Female President.” (Again)

Thursday: Two-Sample Tests

- **Visualizing Data Lab Due** (Hard copy, in class)
- Readings:
 - Butler, Daniel and David Broockman. 2011. “Do Politicians Racially Discriminate Against Constituents? A Field Experiment on State Legislators” *American Journal of Political Science* 55 (3): 463-477.

Week 7 (Oct. 3)

Tuesday: Difference of Proportion Tests

- Readings:
 - Review Butler and Broockman

Thursday: Chi-Squared Tests

- **Hypothesis Testing Lab Due** (Hard copy, in class)
- Readings:
 - E&M Ch. 7.4; Monogan Ch. 5.2
 - Review Butler and Broockman

Week 8 (Oct. 10)

Tuesday: Hypothesis Testing Wrap-Up

- **Checkpoint #2 Due** (Electronic copy, to Canvas by 11:59 PM)
- Readings: None

Thursday: **Midterm Exam**

Week 9 (Oct. 17)

Tuesday: Manipulating Data Lab

- We will complete an in-class midterm course evaluation today.
- Readings: None

Thursday: Correlation

- Readings:
 - Pollock on Correlation
 - Wheelan, Ch. 4 (Recommended)
 - Inglehart, Ronald. "How Solid is Mass Support for Democracy—And How Can We Measure It?" *PS: Political Science and Politics*

Week 10 (Oct. 24)

Tuesday: Regression: A Conceptual Overview

- **Manipulating Data Lab Due** (Hard copy, in class)
- Readings: E&M Ch. 8

Thursday: Regression: A Statistical Overview

- Readings:
 - Wheelan, Ch. 11
 - Lyall, Jason. 2009. "Does Indiscriminate Violence Incite Insurgent Attacks? Evidence from Chechnya" *Journal of Conflict Resolution* 53(3): 331-362.

Week 11 (Oct. 31)

Tuesday: Multivariate Regression

- Readings:
 - E&M Ch. 9.1 and Wheelan, Ch. 12
 - Canelo et al. 2017. "The Paradoxical Effect of Speech-Suppressing Appeals to the First Amendment" *Journal of Politics* Forthcoming.

Thursday: Statistical Control

- **Checkpoint #3 Due** (Electronic copy, to Canvas by 11:59 PM)
- Readings:
 - Kestelledt and Whitten Ch. 10
 - Butler, Daniel M. and Margit Tavits. 2017. "Does the Hijab Increase Representatives' Perceptions of Social Distance?" *Journal of Politics* 79(2): 727-731.

Week 12 (Nov. 7)

Tuesday: Model Specification

- Readings:
 - Manning, Kenneth L, Bruce A. Carroll, and Robert A. Carp. 2004. Does Age Matter? Judicial Decision Making in Age Discrimination Cases." *Social Science Quarterly* 85 (1): 1-18.
 - Epstein, Lee and Andrew D. Martin. 2004. "Does Age (Really) Matter? A Response to Manning, Carroll, and Carp." *Social Science Quarterly* 85 (1): 19-30.

Thursday: Predicted Values and Presenting Results

- Readings:
 - E&M Ch. 9-10
 - Getmansky, Anna and Thomas Zeitzoff. 2014. "Terrorism and Voting: The Effect of Exposure to Rockets on Voting in Israeli Elections." *American Political Science Review*.

Week 13 (Nov. 14)

Tuesday: Regression Lab

- Readings:
 - Long, Abby. 2016. 10 Things to Know About Reading a Regression Table. <http://egap.org/methods-guides/10-things-know-about-reading-regression-table>.

Thursday: Estimating Logistic Regression

- Readings: E&M Ch. 9.3
- Fearon, James D. and David Latlin, "Ethnicity, Insurgency, and Civil War" *American Political Science Review* 97 (1): 75-90.

Week 14 (Nov. 28)

Tuesday: Logistic Regression Lab

- Readings: None
- **Regression Lab Due** (Hard copy, in class)

Before 11:59PM on Wednesday, November 29:

- Upload Checkpoint #4 (1 slide) to Canvas.

Thursday: Checkpoint #4 (Final Analysis) Presentations

Before 11:59PM on Sunday, December 3:

- Upload to Canvas:
 - Your poster [the file from which you will print your poster]
 - Your data
 - Your (clean, commented) R code (a .R file)

Week 15 (Dec. 5)

Tuesday: Poster Presentations

Thursday: Research Ethics and Final Review

- **Logit Lab Due** (Hard copy, in class)
- Readings:
 - LaCour, Michael J. and Donald P. Green. 2014. "When Contact Changes Minds: An Experiment on Transmission of Support for Gay Equality." *Science*
 - Aschwanden, Christine. 2015. "Science Isn't Broken." *FiveThirtyEight* <<http://fivethirtyeight.com/features/science-isnt-broken/>>.