POST 8000: Foundations of Social Science Research for Public Policy

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Course Description

Quantitative public policy analysis shares important foundations with a standard upper-division or graduate-level course on inferential statistics, but the objectives have important differences. A statistics class may make greater emphasis of statistical inference from sample statistics to population parameters under known assumptions (e.g. random sampling, central limit theorem). A quantitative public policy analysis course may care more about causal inference and the scope of treatment effects. Both inform each other, but speak to different audiences. This class will bring in some foundation components of a statistics class and tailor it for a public policy audience. It starts with rudimentary statistics, assuming a policy audience may not be accustomed to thinking of policy analysis quantitatively. It proceeds to basic tests of difference and association. It builds toward more sophisticated research designs, like regression discontinuities and instrumental variables. It then discusses what to do when data are not normally distributed. It concludes with some finer, but important, points of interest to the professor but of value for the student (i.e. quantities of interest, replication, and Bayesian perspectives). This class aims to broadly prepare students for quantitative public policy analysis for research in and out the academy.

Course Objectives

1. Determine the merits of various claims to causality.
2. Identify a theory of politics and be able to determine its originality and importance within the existing literature.
3. Craft a political science research design to test the theory, including the derivation of hypotheses, conceptualization and measurement, sampling, various types of data collection, and statistical inference.
4. Identify weaknesses in existing published studies, and suggest ways of improving previous research and correcting errors.

5. Critically discriminate between reliable and less reliable information.
6. Understand the scientific method and critically evaluate scientific information.
7. Develop effective written communication skills.

Readings

I have the following two-pronged perspective to graduate-level methods instruction. One, the student should read and read widely. Two, no one reading will be sufficient to learn quantitative methods and students will need a bricolage approach to make sense of the material. With that perspective in mind, I split the book readings for this class into two categories. Article readings that appear in the syllabus will be mandatory but are easily obtained through the university's library and Google Scholar.

The first category is *(effectively) required* because I will lean on them a lot to discuss the material. I try to keep this minimal so as to not bog down the student with book purchases. I also offer "effectively" in parentheses because ambitious students can teach themselves lessons from these books through other means (e.g. the internet), but I think there is real value in reading the texts themselves. The second category is *recommended* because they are materials I used to teach myself these topics when I was in graduate school, or have discovered them along the way and found them potentially useful for graduate-level instruction. The students may find them useful as well. I highly recommend the Gelman and Hill (2007) book in particular. I owe much to this book (and my own stubborn persistence in teaching myself quantitative methods) even if much of the implementation they offer looks dated relative to recent advances in `R`. I also strongly recommend reading the Ziliak and McCloskey (2008) book to better appreciate what quantitative methods cannot tell us and how easy it is to misinterpret what these methods are doing for us as researchers. Interested students should first look at these books at the library or on Google Preview and decide if they'd like to learn from these. I have e-versions of almost all these books that I can share as well.

(Effectively) Required

Angrist, Joshua D. and Jorn-Steffen Pischke (2014). *Mastering 'Metrics: The Path from Cause to Effect*. Princeton, NJ: Princeton University Press.

King, Gary, Robert O. Keohane, and Sidney Verba (1994). *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, NJ: Princeton University Press.

Recommended

Angrist, Joshua D. and Jorn-Steffen Pischke (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton, NJ: Princeton University Press.

Crawley, Michael J. (2012). *The R Book*. 2nd. West Sussex, UK: Wiley.

Faraway, Julian J. (2006). *Extending the Linear Model with R: Generalized Linear, Mixed Effects and Nonparametric Regression Models*. Boca Raton, FL: Chapman & Hall/CRC.

Gelman, Andrew and Jennifer Hill (2007). *Data Analysis Using Regression and Multilevel/Hierarchical Models*. New York, NY: Cambridge University Press.

Gerring, John (2012). *Social Science Methodology: A Unified Framework*. 2nd. New York, NY: Cambridge University Press.

Kleiber, Christian and Achim Zeileis (2008). *Applied Econometrics with R*. New York, NY: Springer.

Maindonald, John and W. John Braun (2010). *Data Analysis and Graphics Using R: An Example-Based Approach*. 3rd. New York, NY: Cambridge University Press.

Monogan III, James E. (2016). *Political Analysis Using R*. New York, NY: Springer.

Morgan, Stephen L. and Christopher Winship (2007). *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. New York, NY: Cambridge University Press.

Muenchen, Robert A. and Joseph M. Hilbe (2010). *R for Stata Users*. New York, NY: Springer.

Ziliak, Stephen T. and Deirdre N. McCloskey (2008). *The Cult of Statistical Significance*. Ann Arbor, MI: University of Michigan Press.

Course Policy

This section of the syllabus details multiple policies that will be implemented in this class through the semester. Continued enrollment in this class constitutes acceptance of the terms outlined in this document.

Grading Policy

- **20%** of your grade will be determined by your attendance and participation in class. Graduate-level seminars lean heavily on student participation since these classes are usually small in enrollment. Come prepared to participate in class. Occasional "homework" assignments I might assign at the end of a Tuesday class session will be incorporated into this section of your grade.
- **15%** of your grade will be determined by a midterm that is due in my mailbox (232 Brackett Hall) by **Friday, March 13, before 5 p.m.**. I will be out of town at the end of that week, hence why the midterm should be delivered to my mailbox.
- **20%** of your grade will be determined by five article summary papers that students will write throughout the course of the semester. These papers will concern readings from Weeks 5, 6, 7, 9, and 10 and will be due during Thursday's session of that week. I offer more information on these article summary papers later in the syllabus.
- **20%** of your grade will be determined by a final paper, due in hard copy in my mailbox (232 Brackett Hall) by **Friday, April 24**. The primary goal of this course is to help students develop expertise in quantitative policy analysis for the student's particular field of study. Thus, the final paper will encourage students to narrow their focus substantively to make the project manageable. Final papers are intended to be about 8,000-10,000 words (single-spaced please), all inclusive (i.e. including title page, abstract, references, etc), and its organization

should mirror the empirically-oriented articles the student will read in the class. While the ideal outcome of this project is a full empirical analysis, I understand the student may not feel comfortable doing such a paper or that data may not be available to do it in the course of a semester. Toward that end, students can offer research design papers in place of full research papers. Such papers should still strive for 8,000-10,000 words and the absence of an empirical analysis should come with much greater discussion of concept and measurement. It is in the student's best interest to talk about their ideas with me during the class to maximize their experience with this assignment.

- **25%** of your grade will be determined by a final exam. Clemson University has scheduled this final exam on **Thursday, April 30, 7-9:30 p.m.** There will be **NO** make-ups. Listen; I'm not happy about that time either.

Attendance and Participation Policy

A graduate-level seminar will typically have a small enrollment. This will allow me to get to know the students on a first-name basis. I will take attendance every class session and will know quickly who is not in class and when. You will be conspicuous by your absence. Students with valid excuses for missing a class session (e.g. illness, accident) should email me documentation about the nature of the absence.

Participation is broadly understood. Graduate-level seminars like these put a premium on student participation. Expect "cold calls" from me in class to answer a question based on the topic or reading. Come prepared to answer such questions (i.e. critically read the material before class). Feel free to ask questions based on the reading as well. Thursday's class sessions will have more of a "lab" feel, which permits plenty of time for students to participate in class. Please ask questions, and answer them.

"Lab" Policy

I will treat Thursday's class session as more of a "lab." In most cases, I will be teaching implementation of concepts from the week's reading. This will be done in the `R` programming language. Students should download this *free* software programming language at cran.r-project.org and install it on their personal computer. Scripts that I write for these sessions are designed to work with minimal maintenance. Students who are experiencing difficulty installing the `R` programming language or various packages that come with it should contact me immediately so that we can troubleshoot the problem. Consider getting a graphical user interface (GUI) front-end for `R` to learn it better. I recommend RStudio, available for free at www.rstudio.com.

While most Thursday sessions will involve going over code to discuss the implementation of methodological concepts, students are encouraged to ask any other question as it pertains to their research, the class material, and final projects. This is a valuable time for me to get to know the student and for the student to learn some finer points that may not otherwise be part of the class curriculum.

Article Summary Paper Policy

Each student will write an article summary paper that will be due in Thursday's class session in Weeks 5, 6, 7, 9, and 10. Students will pick one article from that week to do for their article summary, though each student is responsible for all the readings in that week. To ensure that all articles from that week are covered, I may assign a particular article to a particular student whether that article is the student's preference or not. I will keep track of which student has which article to summarize.

The article summary must accomplish the following.

1. First, the student should summarize the article in around 250 words. This amounts to a paragraph-level summary and, when done right, should mimic the abstract of the article.
2. Second, the student must summarize the research design section. Here, I expect the student to tell me what is (or are) the dependent variable(s), what is (or are) the primary independent variable(s) of interest to the author(s) of the article, what are the various variables to "control" for potential confounding effects, and what estimation/statistical tools the article employs in the analysis section. *Be thorough*. Articles without an empirical component can omit this section.
3. Finally, the student should close with a one-to-two paragraph discussion of the findings. The treatment here can be multiple things, but I encourage students to think of some limitations of the analysis and how the analysis might be improved. I will be flexible in how I evaluate this section, but students must put some effort into this part of the paper. This is where students must tell me they critically engaged with the article. Articles without an empirical component must take extra care in this section to think of extensions or implications of the article's main argument as it may apply to different problems of interest to the student.

Each student will do this five times for an assessment by the instructor, but I think students should do this for every article they read if they want to maximize their learning experience. This is how I started to learn the material at a similar stage in my graduate education.

Academic Dishonesty Policy

I take academic integrity seriously and will show no tolerance for any instances of academic dishonesty. The logic behind cheating or plagiarism may be self-interest, but this is too myopic. Penalties for being caught are severe and the consequences of being found culpable will extend well beyond the student's time as a college student at Clemson. In the interest of clarification, I provide the definitions of several types of academic dishonesty below, as understood by Clemson University. Avoid intentionally or inadvertently committing any of these acts:

- **Cheating**: Giving, receiving, or using unauthorized aid, including the inappropriate use of electronic devices, in any work submitted to fulfill academic requirements. In examination situations all electronic devices must be off and stowed unless otherwise authorized by the instructor.
- **Plagiarism**: The intentional or unintentional copying of language, structure, or ideas of another and attributing the work to one's own efforts.

- **Unlawful Access to Private Material**: Attempts to copy, edit, or delete computer files that belong to another person or use of computer accounts that belong to another person without the permission of the file owner or account owner.

Clemson University's Academic Integrity Statement broadly defines breaches of academic integrity as "lying, cheating, or stealing in any form." This broad definition of academic integrity that will be enforced in my classroom.

Disabilities Policy

Federal laws mandate the provision of services at the university level to qualified students with disabilities. If a student requires special provisions, I encourage that student to let me know *privately* as soon as possible (preferably within the first two weeks of the semester). Afterward, I am required to refer the student to the Student Disabilities Services (SDS), which will determine the necessary provisions that I must make. SDS will give its recommendations to the student, who must relay their recommendations to me. I, as the instructor, am responsible for providing the necessary accommodations, but only at the behest of SDS. The student maintains privacy rights on the matter, which I wholeheartedly will respect. That said, *it is the student's responsibility to initiate the provision process*. This can only be done, privately and securely, through SDS.

Students who require quiet test rooms or extended time for exams must take the initiative to schedule a room at the Test Proctoring Center on campus. These rooms must be scheduled by the student for the day of the exam as listed in the syllabus. Failure by the student to schedule a room at the Test Proctoring Center for the day of the exam will lead to a zero on the assignment.

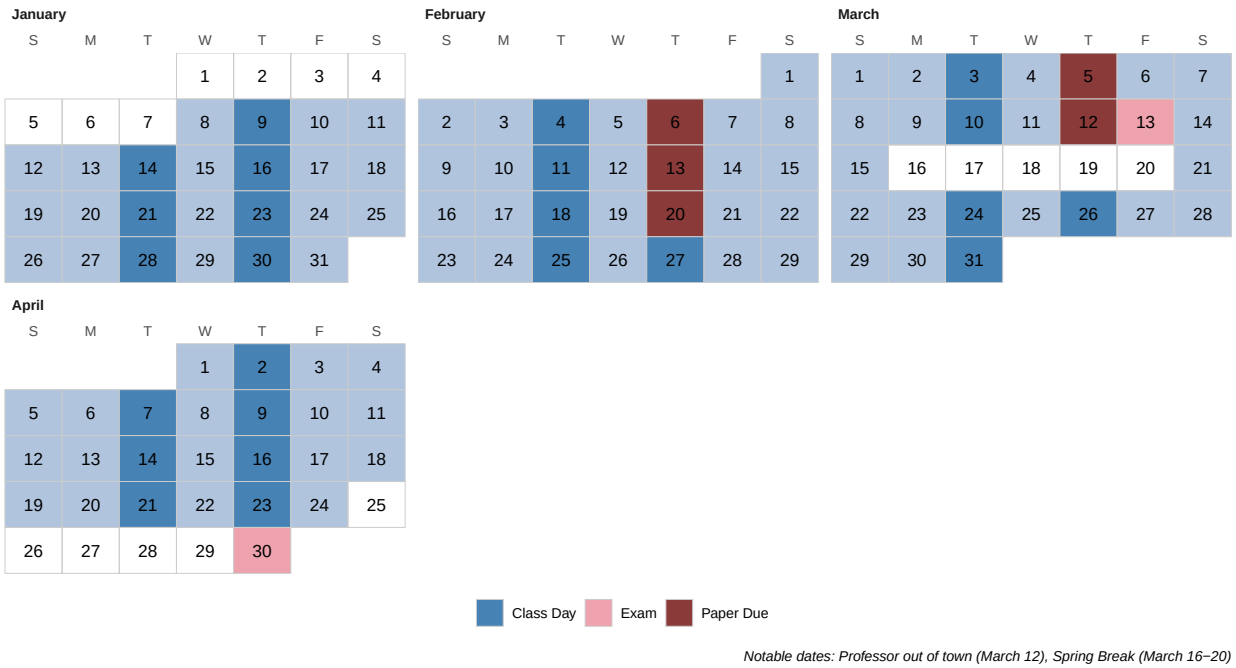

Figure 1: A Calendar for POST 8000 (Foundations of Social Science Research for Public Policy, Spring 2020)

Class Schedule

Students must read the following *before* Tuesday's class session each week. Important: class readings are subject to change, contingent on mitigating circumstances and the progress we make as a class. I may email the class with proposed new readings or other changes. Chapters from the Angrist and Pischke (2014) book are noted with `AP` in the section title for the week whereas chapters from the King, Keohane, and Verba (1994) book are noted with `KKV`. Readings from *The SAGE Handbook of Regression Analysis and Causal Inference* are available on the university's library website (and the Canvas module for the course).

Week 01, 01/06 - 01/10: Syllabus Day

Week 02, 01/13 - 01/17: Thinking About Theories in Political Science (KKV, 1)

Clarke, Kevin A. (2007). "The Necessity of Being Comparative: Theory Confirmation in Quantitative Political Science". *Comparative Political Studies* 40(7), 886–908.

Clarke, Kevin A. and David M. Primo (2007). "Modernizing Political Science: A Model-Based Approach". *Perspectives on Politics* 5(4), 741–753.

Granato, Jim, Melody Lo, and M.C. Sunny Wong (2010). "A Framework for Unifying Formal and Empirical Analysis". *American Journal of Political Science* 54(3), 783–797.

Granato, Jim and Frank Scioli (2004). "Puzzles, Proverbs, and Omega Matrices: The Scientific and Social Significance of Empirical Implications of Theoretical Models (EITM)". *Perspectives on Politics*

2(2), 313–323.

Week 03, 01/20 - 01/24: Descriptive Inference (KKV, 2)

Stevens, S.S. (1946). "On the Theory of Scales of Measurement". *Science* 103(2684), 677-680.

Johnson, David Richard and James C. Creech (1983). "Ordinal Measures in Multiple Indicator Models: A Simulation Study of Categorization Error". *American Sociological Review* 48(3), 398–407.

Knapp, Thomas R. (1990). "Treating Ordinal Scales as Interval Scales: An Attempt to Resolve the Controversy". *Nursing Research* 39(2), 121–123.

Velleman, Paul F. and Leland Wilkinson (1993). "Nominal, Ordinal, Interval, and Ratio Typologies are Misleading". *The American Statistician* 47(1), 65–72.

Kampen, Jarl and Marc Swyngedouw (2000). "The Ordinal Controversy Revisited". *Quality & Quantity* 34(1), 87–102.

Norman, Geoff (2010). "Likert Scales, Levels of Measurement, and the 'Laws' of Statistics". *Advances in Health Sciences Education* 15(5), 625–632.

Liddell, Torrin M. and John K. Kruschke (2018). "Analyzing Ordinal Data with Metric Models: What Could Possibly Go Wrong?" *Journal of Experimental Social Psychology* 79(1), 328–348.

Week 04, 01/27 - 01/31: Causality (KKV, 3)

Holland, Paul W. (1986). "Statistics and Causal Inference". *Journal of the American Statistical Association* 81(396), 945–960.

Freedman, David (1999). "From Association to Causation: Some Remarks on the History of Statistics". *Statistical Science* 14(3), 243–258.

Dunning, Thad (2008). "Improving Causal Inference: Strengths and Limitations of Natural Experiments". *Political Research Quarterly* 61(2), 282–293.

Week 05, 02/03 - 02/07: What To Observe (KKV, 4; AP, 1)

Strayer, David L. and William A. Johnston (2001). "Driven to Distraction: Dual-Task Studies of Simulated Driving and Conversing on a Cellular Telephone". *Psychological Science* 12(6), 462–466.

Johnson, Jeffrey G., Patricia Cohen, Elizabeth Smailes, Stephanie Kasen, and Judith S. Brook (Apr. 2002). "Television Viewing and Aggressive Behavior During Adolescence and Adulthood". *Science* 295, 2468-71.

Bertrand, Marianne and Sendhil Mullainathan (2004). "Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination". *American Economic Review* 94(4), 991–1013.

Lawlor, Debbie A., George Davey Smith, K. Richard Bruckdorfer, Devi Kundu, and Shah Ebrahim (2004). "Those Confounded Vitamins: What Can We Learn from the Differences Between Observational Versus Randomised Trial Evidence". *The Lancet* 363(9422), 1724–1727.

Uchikoshi, Yuuko (2005). "Narrative Development in Bilingual Kindergarteners: Can Arthur Help?" *Developmental Psychology* 41(3), 464–478.

Chetty, Raj, John N. Friedman, Nathaniel Hilger, Emmanuel Saez, Diane Whitmore Schanzenbach, and Danny Yagan (2011). "How Does Your Kindergarten Classroom Affect your Earnings? Evidence from Project Star". *Quarterly Journal of Economics* 126(4), 1593–1660.

Duflo, Esther, Pasqualine Dupas, and Michael Kremer (2015). "Education, HIV, and Early Fertilty: Experimental Evidence from Kenya". *American Economic Review* 109(9), 2257–97.

Week 06, 02/10 - 02/14: Mesurement Error (KKV, 5)

Sullivan, John, George Marcus, and James Pierson (1979). "An Alternative Conceptualization of Political Tolerance: Illusory Increases, 1950s-1970s". *American Political Science Review* 73(3), 781–794.

Green, Donald Philip, Susan Lee Goldman, and Peter Salovey (1993). "Measurement Error Masks Bipolarity in Affect Ratings". *Journal of Personality and Social Psychology* 64(6), 1029–1041.

Davis, Darren W. (1997). "Nonrandom Measurement Error and Race of Interviewer Effects Among African Americans". *Public Opinion Quarterly* 61(1), 183–207.

Clarke, Kevin A. (2005). "The Phantom Menace: Omitted Variable Bias in Econometric Research". *Conflict Management and Peace Science* 22, 341–352.

Clarke, Kevin A. (2009). "Return of the Phantom Menace: Omitted Variable Bias in Political Research". *Conflict Management and Peace Science* 26(1), 46–66.

Blackwell, Matthew, James Honaker, and Gary King (2017). "A Unified Approach to Measurement Error and Missing Data: Overview and Applications". *Sociological Methods & Research* 46(3), 303–341.

Gallop, Max and Simon Weschle (2019). "Assessing the Impact of Non-Random Measurement Error on Inference: A Sensitivity Analysis Approach". *Political Science Research and Methods* 7(2), 367–384.

Week 07, 02/17 - 02/21: OLS Regression (AP, 2)

Newhouse, Joseph P. (1977). "Medical-Care Expenditure: A Cross-National Survey". *Journal of Human Resources* 12(1), 115–125.

Alozie, Nicholas O. and Lynne L. Manganaro (1993). "Black and Hispanic Council Representation: Does Council Size Matter?" *Urban Affairs Quarterly* 29(2), 276–298.

Gelman, Andrew and Gary King (1994). "Enhancing Democracy Through Legislative Redistricting". *American Political Science Review* 88(3), 541–559.

Bryson, Bethany (1996). "'Anything but Heavy Metal': Symbolic Exclusion and Musical Dislikes". *American Sociological Review* 61(5), 884–899.

Hunter, Kenneth G. (2001). "An Analysis of the Effect of Lobbying Efforts and Demand-Side economic Development Policies on State Economic Health". *Public Administration Quarterly* 25(1), 49–78.

Jaffee, Sara R., Terrie E. Moffitt, Avshalom Caspi, and Alan Taylor (2003). "Life With (or Without) Father: The Benefits of Living With Two Biological Parents Depend on the Father's Antisocial Behavior". *Child Development* 74(1), 109–126.

Week 08, 02/24 - 02/28: OLS Regression Diagnostics

Brunk, Gregory G. (1989). "The Role of Statistical Heuristics in Public Policy Analysis". *Cato Journal* 9(1), 165–190.

Lohmann, Henning (2014). "Non-Linear and Non-Additive Effects in Linear Regression". In: *The SAGE Handbook of Regression Analysis and Causal Inference*. Ed. by Henning Best and Christof Wolf. London, UK: SAGE Publications Ltd. Chap. 6.

Meuleman, Bart, Geert Loosveldt, and Viktor Edmonds (2014). "Regression Analysis: Assumptions and Diagnostics". In: *The SAGE Handbook of Regression Analysis and Causal Inference*. Ed. by Henning Best and Christof Wolf. London, UK: SAGE Publications Ltd. Chap. 5.

Week 09, 03/02 - 03/06: Instrumental Variables (AP, 3)

Rouse, Cecilia Elena (1995). "Democratization or Diversion? The Effect of Community Colleges on Educational Attainment". *Journal of Business & Economic Statistics* 13(2), 217–224.

Levitt, Steven D. (1996). "The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation". *Quarterly Journal of Economics* 111(2), 319–51.

Newhouse, Joseph P. and Mark McClellan (1998). "Econometrics in Outcomes Research: The Use of Instrumental Variables". *Annual Review of Public Health* 19, 17–34.

Greenland, Sander (2000). "An Introduction to Instrumental Variables for Epidemiologists". *International Journal of Epidemiology* 29, 722–729.

Dee, Thomas S. (2004). "Are There Civics Returns to Education?" *Journal of Public Economics* 88, 1697–1720.

Sovey, Allison J. and Donald P. Green (2011). "Instrumental Variables Estimation in Political Science: A Readers' Guide". *American Journal of Political Science* 55(1), 188–200.

Week 10, 03/09 - 03/13: Regression Discontinuity, Differences-in-Differences (AP, 4-5)

No class Thursday. Deliver your midterm and your article summary paper to my office at 232 Brackett Hall on their respective due dates.

Thistlethwaite, Donald L. and Donald T. Campbell (1960). "Regression Discontinuity Analysis: An Alternative to the Ex Post Facto Experiment". *Journal of Educational Psychology* 51(6), 309–317.

Card, David (1990). "The Impact of the Mariel Boatlift on the Miami Labor Market". *Industrial and Labor Relations Review* 43(2), 245–257.

Card, David and Alan B. Krueger (1994). "Minimum Wages and Employment: A Case Study of the Fast Food Industry in New Jersey and Pennsylvania". *American Economic Review* 90(5), 1397–1420.

Black, Sandra E. (1999). "Do Better Schools Matter? Parental Valuation of Elementary Education". *Quarterly Journal of Economics* 114(2), 577–599.

Dynarski, Susan M. (2003). "Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion". *American Economic Review* 93(1), 279–288.

Caughey, Devin and Jasjeet S. Sekhon (2011). "Elections and the Regression Discontinuity Design: Lessons from Close U.S. House Races, 1942-2008". *Political Analysis* 19(4), 385–408.

Basten, Christoph and Frank Betz (2013). "Beyond Work Ethic: Religion, Individual, and Political Preferences". *American Economic Journal: Economic Policy* 5(3), 67–91.

Week 11, 03/16 - 03/20: SPRING BREAK

Week 12, 03/23 - 03/27: Beyond the Linear Model: Logistic Regression

Morgan, S. Philip and Jay D. Teachman (1988). "Logistic Regression: Description, Examples, and Comparisons". *Journal of Marriage and Family* 50(4), 929–936.

DeMaris, Alfred (1995). "A Tutorial in Logistic Regression". *Journal of Marriage and Family* 57(4), 956–68.

Best, Henning and Christof Wolf (2014). "Logistic Regression". In: *The SAGE Handbook of Regression Analysis and Causal Inference*. Ed. by Henning Best and Christof Wolf. London, UK: SAGE Publications Ltd. Chap. 8.

Week 13, 03/30 - 04/03: Beyond the Linear Model: Ordinal Regression

McCullagh, Peter (1980). "Regression Models for Ordinal Data". *Journal of the Royal Statistical Society* 42(2), 109–127.

Anderson, J.A. (1984). "Regression and Ordered Categorical Variables". *Journal of the Royal Statistical Society* 46(1), 1–30.

Long, J. Scott (2014). "Regression Models for Nominal and Ordinal Outcomes". In: *The SAGE Handbook of Regression Analysis and Causal Inference*. Ed. by Henning Best and Christof Wolf. London, UK: SAGE Publications Ltd. Chap. 9.

Week 14, 04/06 - 04/10: Making the Most of Regression

King, Gary, Michael Tomz, and Jason Wittenberg (2000). "Making the Most of Statistical Analyses: Improving Interpretation and Presentation". *American Journal of Political Science* 44(2), 347-361.

Gelman, Andrew (2008). "Scaling Regression Inputs by Dividing by Two Standard Deviations". *Statistics in Medicine* 27(15), 2865–2873.

Week 15, 04/13 - 04/17: A Bayesian Approach

Western, Bruce and Simon Jackman (1994). "Bayesian Inference for Comparative Research". *American Political Science Review* 88(2), 412–423.

Shikano, Susumu (2014). "Bayesian Estimation of Regression Models". In: *The SAGE Handbook of Regression Analysis and Causal Inference*. Ed. by Henning Best and Christof Wolf. London, UK: SAGE Publications Ltd. Chap. 3.

Baldi, Pierre and Babak Shahbaba (2019). "Bayesian Causality". *The American Statistician*. Forthcoming.

DeCrescenzo, Michael G. (2019). "Bayesian Causal Inference in Political Science". https://github.com/mikedecr/causal-bayes.

Week 16, 04/20 - 04/24: Replication

Reinhart, Carmen M. and Kenneth S. Rogoff (2010). "Growth in a Time of Debt". *American Economic Review* 100(2), 573–578.

Herndon, Thomas, Michael Ash, and Robert Pollin (2014). "Does High Public Debt Consistently Stifle Economic Growth? A Critique of Reinhart and Rogoff". *Cambridge Journal of Economics* 38(2), 257–279.

Week 17, 04/27 - 05/01: FINAL EXAMS