PSCI 3300.002 Political Science Research Methods

A. Jordan Nafa

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Term: Spring 2023

Course Description

This course serves as an introduction to research methods, causal inference, and applied Bayesian statistics for contemporary political research. Throughout the semester, we will cover formulating research questions, theory development, the logic of causal relationships, and approaches to answering questions about political phenomena. Although there is a modest amount of statistics involved, this is fundamentally an applied course where students will gain experience applying a range of different approaches to analyzing, visualizing, and interpreting data using the open-source statistical programming language R and the tidyverse. In practice, that means less of this

$$\text{Normal}(y|\mu,\sigma) = \frac{1}{\sqrt{2\pi}\,\sigma}\exp\left(-\frac{1}{2}\left(\frac{y-\mu}{\sigma}\right)^2\right)$$

and more hands-on stuff like this

```
# Simulate 10,000 random draws from a standard normal distribution
std_norm <- rnorm(n = 10e3, mean = 0, sd = 1)

# Print a summary
summary(std_norm)
```

Upon completion of this course, students should be able to understand and interpret most research published in political science journals, as well as public opinion polls, surveys, and research findings reported in the news. Students will formulate theoretical arguments and identify their testable implications, evaluate causal claims in principled and logically consistent ways, and provide vague answers to precise research questions. As a result, students who complete this course should be prepared for future coursework in the social sciences, pursuing their own research, and for a life as an educated and informed citizen.

Learning Objectives

Students who master the content of this course will be able to:

- Understand and interpret quantitative research published in political science journals
- Formulate political research questions and theories to explain causal relationships
- Compile data and conduct empirical analysis to answer a research question
- Understand and interpret descriptive and inferential statistics
- Utilize R to analyze, visualize, interpret, and communicate the results of empirical political analyses

Required Course Materials

There is one **required** textbook for this course which is available for free online or may be purchased in physical format from the UNT campus bookstore or Amazon

- Huntington-Klein, Nick. 2022. *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press. ISBN: 9781032125787

All additional readings for the course and various instructional resources for applied statistics and programming in R are provided via the course's Canvas page.

Course Expectations

A university course is a joint endeavor between instructor and students. We all have an important part to play. As the instructor in this course, I am responsible for

- Providing course materials that will give you the opportunity to achieve our course objectives and providing you with the tools to learn
- Providing timely feedback on your work and explaining concerns you may have with grading, and, being fair in my implementation of rules and policies in the course.

As a student in this course, you are responsible for

- Reading and completing all requirements of the course in a timely manner. Students are expected to come to class having done the assigned reading and failure to do so is likely to have an adverse impact on your grade in this course.
- Working to remain attentive and engaged in the course
- Assisting in maintaining a positive learning environment for everyone.

Technical Requirements

To complete the required assignments for this course you will need a stable internet connection and access to a laptop or desktop computer to view course materials on canvas and complete required assignments. If you have difficulty meeting this requirement, you can

access the internet from any building on the UNT campus or a local WIFI hotspot. If you encounter technical difficulties please contact the UNT helpdesk for assistance

Student Helpdesk:
UNT IT Helpdesk
Sage Hall 130
940-565-2324
helpdesk@unt.edu

I assume a basic familiarity with high-school algebra and a working knowledge of computers. If you are unfamiliar with downloading and installing software programs on your Mac or PC, **you will need to allocate additional time to make sure those aspects of the course go smoothly.** Note that installing the R language requires a modern version of Windows, Mac OSX, or Linux and **the Chrome OS operating system, tablets, mobile devices, and Windows ARM64 are not supported.** Detailed instructions on installing R and RStudio can be found on the course's Canvas page.

If you are unable to meet the installation requirements for R on your personal computer, I have made arrangements to ensure the latest versions of R, RStudio, and RTools are installed on the computers in the Political Science Lab in Wooten Hall 173. Unfortunately, I cannot guarantee that recent versions of R, RStudio, or RTools are installed or available at other locations on the UNT campus. Note certain features and packages we use in this course may be unavailable under older versions of R or RStudio.

Communication

The teaching assistant for this course and I are available via email or during office hours to answer any questions you may have about the course. I typically respond to emails within 48 hours Monday-Friday. If you send an email over the weekend, we cannot guarantee a response before Monday morning. Before reaching out, please double check that your question is not answered somewhere on the syllabus or Canvas–**we will not respond to inquiries that can be answered by simply reading the syllabus**.

In the event you need assistance related to some issue in R, be sure to attach a script containing all code necessary to reproduce the problem and a brief explanation of ways you have attempted to resolve it. You may also seek assistance from the UNT Learning Center or the dedicated R discord channel.

Course Requirements and Grading

It is extremely important that you read all materials before the assigned dates and attend class or view the lecture to understand how the readings from research articles complement material from the textbook. Additional materials may be posted to Canvas as circumstances arise. Grades for the course will be based upon assignments, a research project and presentation, and class participation.

In calculating your final grade for this course I use standard mathematical rounding but will otherwise make no further adjustment of grades. Please remember that your final grade

is the culmination of work you have done over the course of the semester. It is not the product of bargaining at the end of the term. Moreover, I cannot make an exception for one student without making it for all students and that is never practical. The University of North Texas relies on an A-F scale for grades and, taking into account basic rounding, each letter grade corresponds to the following range:

A: 89.5–100; B: 79.5–89.4; C: 69.5–79.4; D: 59.5–69.4; F: 59.4 or Less

Problem Sets

To get hands on experience writing R code, manipulating and modeling data, and thinking through the logic of cause and effect, you will complete a series of sets that ask you to apply the topics we cover in class using real or simulated data. These will account for 30% of your overall grade. Note that *you must demonstrate you have made a good faith effort to work through each question in order to receive partial credit for incorrect answers.* Instructions for problem sets 0 through 4 will be posted on the course's Canvas page at least two weeks before their respective due dates and the approximate subject of each and tentative due dates are listed in the table below.

Table 1: PSCI 3300 Problem Sets

Assignment	Topic	Due Date
Problem Set 0	Getting Started with R and Markdown	January 29th
Problem Set 1	Data Wrangling and Visualization	February 19th
Problem Set 2	Probability and Descriptive Statistics	March 5th
Problem Set 3	Regression and Inferential Statistics	April 2nd
Problem Set 4	Strategies for Causal Inference	April 23rd

Final Project

The final project for this course requires students to develop a research question relevant to political science or public policy, identify the necessary source(s) of data, and undertake an analysis in R to answer the question using the data and the tools we cover in this course. The final project will consist of two components, a research paper and a final presentation, and will account for 40% of your overall grade. **This is a group project and you will need to form groups of no more than 2-4 people no later than the due date for the research question assignment.**

- **Research Design** The research paper portion of the final project accounts for 70% of the final project grade and will be broken down into four separate assignments: a research question and brief overview of the **political science literature** on your topic, a theory outlining the causal relationship of interest, the research design, and a final draft combining each of these. Detailed instructions for each assignment and examples of what the content and structure are expected to resemble will be provided on the course's Canvas page.

- **Final Presentation** The presentation portion accounts for 30% of your final project grade and requires you to give an 10-12 minute presentation of your research project which should cover your research question, theory, and research design. Examples and templates to assist you with structure and preparation will be provided on the course's Canvas page.

Midterm Exam

The midterm exams will be administered online at the time specified in the course schedule section of the syllabus. The midterm exam will account for 20% of your overall grade in the course.

- Questions on the exams will be drawn from both the readings and the lectures. Answers should refer to the readings, content, and arguments discussed in class.
- Makeup exams will be given only for **documented absences**, with the exception of extended medical problems or family emergencies.

Class Participation

The remaining 10% of your grade in this course consists of participation. This means showing up to class, asking relevant questions, and completing occasional in-class activities.

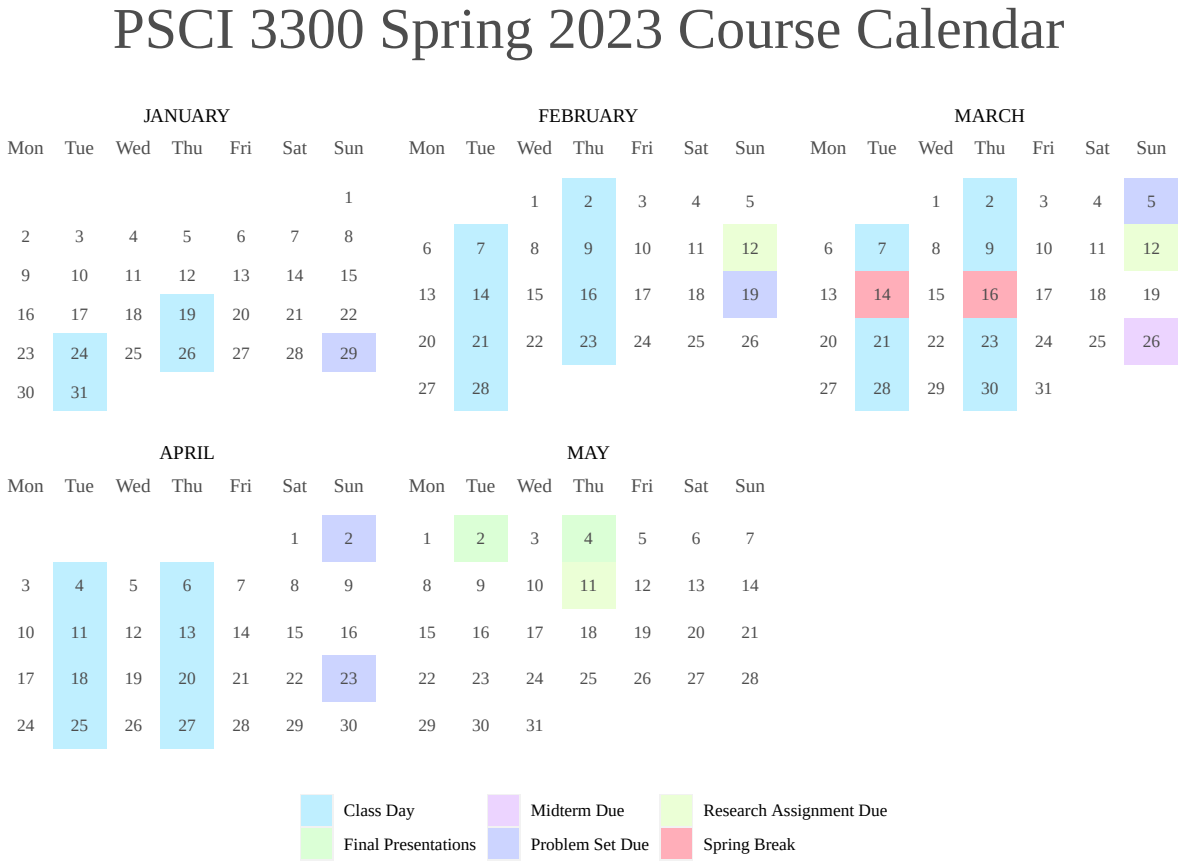
Academic Integrity and Plagiarism

The University of North Texas takes academic integrity very seriously and plagiarism–presenting the ideas or content of someone else as your own without providing proper attribution–of any kind is unacceptable. Proper attribution is expected on all assignments where necessary and should conform to the citation format of the American Political Science Association.

Penalties for plagiarism depend on the severity and will be decided on a case-by-case basis but may range from a 0 for the offending assignment to an automatic failing grade in the course. We will cover how to provide proper attribution, general citation formatting, and how to automatically generate a references section that conforms to APSA style guidelines in the second week of class. All work should be your own and **submitted assignments will be checked for plagiarism using TurnItIn.**

To ensure students are aware of proper citation practices to avoid plagiarism, I require all students complete the University of Indiana's online tutorial and certification.Upon completion of the tutorial, you will take the certification test for undergraduate college students and submit proof of your certification to the TA through the assignment on Canvas. **You must successfully complete and submit certification before the due date for the research question assignment on Sunday, February 12th. Failure to submit certification by this date will result in 20-point deduction for each subsequent assignment until certification has been submitted and points deducted will not be awarded retroactively.**

Tentative Course Schedule



Part I: Fundamentals of Political Research

Introduction to Empirical Political Research

As a discipline, political science consists of the empirical study of social and political phenomena. Yet, how we ought to study these phenomena is a contested subject with divides between descriptive analyses, causal inference, and prediction having long animated the discipline. In the first week of this course, we will begin by considering various approaches to contemporary political inquiry, the questions they are capable of answering, and their various trade-offs.

Tuesday, January 17th, 2023

- Course Introduction and Syllabus Overview
- Read through the "Getting Started with R and Stan" module on the course's Canvas page

Thursday, January 19th, 2023

- Samii, Cyrus. 2016. "Causal Empiricism in Quantitative Research." *Journal of Politics* 78(3): 941–955. doi: 10.1086/686690
- Gerring, John. 2012. "Mere Description." *British Journal of Political Science* 42(4): 721–746. doi: 10.1017/S0007123412000130

Formulating Political Research Questions

The first step in the process of political research is formulating a question. For instance, scholars of political representation have long pondered whether the interests of privileged social groups are disproportionately represented in policy outcomes and why such inequalities arise. This week's focus will be on formulating and narrowing an empirical research question. We will also cover how to survey existing research on a subject effectively and efficiently using Google Scholar and other resources.

Tuesday, January 24th, 2023

- Huntington-Klein, Nick. 2022. "Research Questions" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 1–18

Thursday, January 26th, 2023

- Huntington-Klein, Nick. 2022. "Describing Variables" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 19–43
- Lupu, Noam, and Zach Warner. 2022. "Affluence and Congruence: Unequal Representation around the World" *Journal of Politics* 84(1): 276–290. doi/dataverse: 10.1086/714930; 10.7910/DVN/DBNBEU
- Problem Set 0 is Due via Canvas by Sunday, January 29th, 2023 at 11:59 PM

Recommended Readings

- Geddes, Barbara. 2003. *Paradigms and Sand Castles: Theory Building and Research Design in Comparative Politics*. Ann Arbor: University of Michigan Press, 27–88

Causal Relationships in the Quantitative Social Sciences

In quantitative political research we are generally interested in explaining the causes of effects. This week introduces the basic logic of causal relationships, their formal representation through directed acyclic graphs (DAGs), and different types of estimands that aid us in answering our research questions and arriving at valid conclusions in political science.

Tuesday, January 31st, 2023

- Huntington-Klein, Nick. 2022. "Describing Relationships" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 46–66

- Rohrer, Julia M. 2018. "Thinking Clearly About Correlations and Causation: Graphical Causal Models for Observational Data." *Advances in Methods and Practices in Psychological Science* 1(1): 27–42. doi: 10.1177/2515245917745629.

Thursday, February 2nd, 2023

- Huntington-Klein, Nick. 2022. "Identification" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 67–85
- Keele, Luke, and William Minozzi. 2013. "How Much Is Minnesota Like Wisconsin? Assumptions and Counterfactuals in Causal Inference with Observational Data." *Political Analysis* 21(2): 193–216. doi: 10.1093/pan/mps041.

Recommended Readings

- Keele, Luke, Randolph T. Stevenson, and Felix Elwert. 2020. "The Causal Interpretation of Estimated Associations in Regression Models." *Political Science Research and Methods* 8(1): 1-–13. doi: 10.1017/psrm.2019.31
- Westreich, Daniel, and Sander Greenland. 2013. "The Table 2 Fallacy: Presenting and Interpreting Confounder and Modifier Coefficients." *American Journal of Epidemiology* 177(4): 292-–298. doi: 10.1093/aje/kws412

Theory Building in Political Science

At the most basic level, a theory is a verbal or formal explanation that describes a causal relationship between two or more variables. That is, a theory is our proposed answer to the question of why and how some phenomena occurs; a data story about why we think a causal relationship such as $Race \longrightarrow Vote\ Choice$ or $Federalism_{j[t]} \longrightarrow Conflict_{j[t+1]}$ exists. This week we look at what makes a good theory, different ways of verbally and formally expressing theoretical relationships, and making explicit connections between research question, theory, and data.

Tuesday, February 7th, 2023

- Huntington-Klein, Nick. 2022. "Causal Diagrams" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 88–100
- Barnes, Tiffany D., and Mirya R. Holman. 2020. "Gender Quotas, Women's Representation, and Legislative Diversity." *Journal of Politics* 82(4): 1271-1286. doi/dataverse: 10.1086/708336; 10.7910/DVN/9TFMSG

Thursday, February 9th, 2023

- Huntington-Klein, Nick. 2022. "Drawing Causal Diagrams" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 101–116.

- Lundberg, Ian, Rebecca Johnson, and Brandon M. Stewart. 2021. "What Is Your Estimand? Defining the Target Quantity Connects Statistical Evidence to Theory." *American Sociological Review* 86(3): 532-565. doi/dataverse: 10.1177/00031224211004187; 10.7910/DVN/ASGOVU
- Research question assignment is due via Canvas on Sunday, February 12th by 11:59 PM.

Recommended Readings

- Claassen, Christopher. 2020. "Does Public Support Help Democracy Survive?" *American Journal of Political Science*, 64(1): 118-134. doi/dataverse: 10.1111/ajps.12452; 10.7910/DVN/HWLW0J

Conceptualization and Measurement

Once we've identified a research question and outlined a set of theoretical relationships, we need to either find or develop ways to measure or *operationalize* the underlying concepts. This week we'll consider questions of whether our measures adequately capture the concepts we claim they do, identifying the appropriate level at which to take measurements, and the trade-offs between parsimony and precision.

Tuesday, February 14th, 2023

- Munck, Gerardo L. 2009. *Measuring Democracy: A Bridge between Scholarship and Politics.* Baltimore: The Johns Hopkins University Press, 13–52
- McMann, Kelly et al. 2022. "Assessing Data Quality: An Approach and An Application." *Political Analysis* 30(3): 426–449. doi: 10.1017/pan.2021.27

Thursday, February 16th, 2023

- Coppedge, Michael, et al. 2011. "Conceptualizing and Measuring Democracy: A New Approach." *Perspectives on Politics* 9(2): 247–267. doi: 10.1017/S1537592711000880
- Problem Set 1 is Due via Canvas by Sunday, February 19th, 2023 at 11:59 PM

Recommended Readings

- Casper, Gretchen, and Claudiu Tufis. 2003. "Correlation Versus Interchangeability: The Limited Robustness of Empirical Findings on Democracy Using Highly Correlated Data Sets." *Political Analysis* 11(2): 196–203. doi: 10.1093/pan/mpg009

Part II: Foundations of Quantitative Social Science

Foundations of Probability and Statistics for Political Research

While we introduced the basics of descriptive statistics in prior classes, this week we'll turn our attention to the application of probability theory and statistical reasoning that provide a

foundation for the methods covered in the remainder of the course. We'll cover selection bias, the difference between samples and populations, and the basic logic of statistical inference as it relates to contemporary political science.

Tuesday, February 23rd, 2023

- Johnson, Alicia A., Miles Q. Ott, Mine Dogucu. 2022. "Chapters 1 and 2" in *Bayes Rules! An Introduction to Applied Bayesian Modeling*. Boca Raton, FL: CRC Press.
- Huntington-Klein, Nick. 2022. "Treatment Effects" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 143–159.

Thursday, February 25th, 2023

- Johnson, Alicia A., Miles Q. Ott, Mine Dogucu. 2022. "Chapter 4: Balance and Sequentiality in Bayesian Analyses" in *Bayes Rules! An Introduction to Applied Bayesian Modeling*. Boca Raton, FL: CRC Press.

Probabilistic Reasoning and Applied Bayesian Inference

Continuing with our introduction to inferential statistics, this week we dive more concretely into the application of probability theory and Bayesian inference in the contemporary social sciences as a powerful and principled tool for expressing and quantifying uncertainty.

Tuesday, February 28th, 2023

- Johnson, Alicia A., Miles Q. Ott, Mine Dogucu. 2022. "Chapter 6: Approximating the Posterior" in *Bayes Rules! An Introduction to Applied Bayesian Modeling*. Boca Raton, FL: CRC Press.
- Allen, Michael A., et al. 2020. "Outside the Wire: U.S. Military Deployments and Public Opinion in Host States." *American Political Science Review* 114(2): 326–41. doi: 10.1017/S0003055419000868; dataverse: 10.7910/DVN/VCE7KN

Thursday, March 2nd, 2023

- Johnson, Alicia A., Miles Q. Ott, Mine Dogucu. 2022. "Chapter 8: Posterior Inference and Prediction" in *Bayes Rules! An Introduction to Applied Bayesian Modeling*. Boca Raton, FL: CRC Press.
- Problem Set 2 on Sunday, March 5th, 2023 by 11:59 PM

Recommended Readings

- Gelman, Andrew, Jennifer Hill, and Aki Vehtari. 2021. *Regression and Other Stories*. Cambridge University Press, pp. 113–182
- Western, Bruce, and Simon Jackman. 1994. "Bayesian Inference for Comparative Research." *American Political Science Review* 88(2): 412–423. doi: 10.2307/2944713

Multiple Regression I

Regression models are ubiquitous in political science and serve as the primary workhorse for statistical inference. This week we will continue our introduction to the foundations of applied statistics in political science and the use of regression as an approach to estimating and describing relationships. We'll also more concretely discuss the assumptions necessary for valid inference.

Tuesday, March 7th, 2023

- Huntington-Klein, Nick. 2022. "Regression" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, pp. 179–266.
- Johnson, Alicia A., Miles Q. Ott, Mine Dogucu. 2022. "Chapter 9: Simple Normal Regression" in *Bayes Rules! An Introduction to Applied Bayesian Modeling*. Boca Raton, FL: CRC Press.

Thursday, March 9th, 2023

- Aronow, Peter M., and Cyrus Samii. 2016. "Does Regression Produce Representative Estimates of Causal Effects?" *American Journal of Political Science* 60(1): 250–267. doi/dataverse: 10.1111/ajps.12185; 10.7910/DVN/29098
- Theory assignment is due via Canvas on Sunday, March 12th, 2023 by 11:59 PM

Recommended Readings

- Johnson, Alicia A., Miles Q. Ott, Mine Dogucu. 2022. "Chapters 10-11" in *Bayes Rules! An Introduction to Applied Bayesian Modeling*. Boca Raton, FL: CRC Press.

Spring Break

- No class or assignments for the week of March 13th–18th. Enjoy your Spring Break.

Multiple Regression II

Continuing our introduction to regression, this week we'll take a more detailed look at the logic of regression adjustment as a means of dealing with confounding. Moving beyond the framework of constant linear relationships, we'll explore more principled approaches to analyzing non-linear relationships and questions of classification that are distinct from regression.

Tuesday, March 21st, 2023

- Johnson, Alicia A., Miles Q. Ott, Mine Dogucu. 2022. "Chapter 13: Logistic Regression" in *Bayes Rules! An Introduction to Applied Bayesian Modeling*. Boca Raton, FL: CRC Press.

- A. Jordan Nafa. 2022. "These Are Not the Effects You Are Looking For: The Fallacy of Mutual Adjustment and How to Avoid It." https://www.ajordannafa.com/blog/2022/statistical-adjustment-interpretation.

Thursday, March 23rd, 2023

- Cinelli, Carlos, Andrew Forney, and Judea Pearl. 2022. "A Crash Course in Good and Bad Controls." *Sociological Methods & Research*: 1–34. doi: 10.1177/00491241221099552
- Midterm Exam will open at 8:00 AM on Wednesday, March 22nd and must be submitted via Canvas no later than Sunday March 26th at 11:59 PM.

Recommended Readings

- Mood, Carina. 2010. "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It." *European Sociological Review* 26(1): 67–82. doi: 10.1093/esr/jcp006
- Clarke, Kevin A., Brenton Kenkel, and Miguel R. Rueda. 2018. "Omitted Variables, Countervailing Effects, and the Possibility of Overadjustment." *Political Science Research and Methods* 6(2): 343–354. doi/dataverse: 10.1017/psrm.2016.46; 10.7910/DVN/BSKHUF

Part III: Research Design and Causal Inference

Experimental Designs and Baseline Randomization

The recognition that baseline random assignment of the treatment is the only way to achieve an unbiased estimate of a causal effect was perhaps one of the most important developments in twentieth century statistics. Although randomized controlled trials (RCT) are often held up as the gold standard for research design, they are not without limitations. This week we'll explore the basic logic of experimental design in the context of both traditional and natural experiments, ways random assignment can go wrong, and the trade-off between internal and external validity.

Tuesday, March 28th, 2023

- Gelman, Andrew, Jennifer Hill, and Aki Vehtari. 2021. "Causal Inference and Randomized Experiments" in *Regression and Other Stories*. Cambridge University Press, pp. 339–356
- Bos, Angela L., et al. 2022. "This One's for the Boys: How Gendered Political Socialization Limits Girls' Political Ambition and Interest." *American Political Science Review* 116(2): 484–501. doi/dataverse: 10.1017/S0003055421001027; 10.7910/DVN/YABNFF

Thursday, March 30th, 2023

- Graham, Matthew H. and Milan W. Svolik. 2020. "Democracy in America? Partisanship, Polarization, and the Robustness of Support for Democracy in the United States." *American Political Science Review* 114(2): 392–409. doi/dataverse: 10.1017/S0003055420000052; 10.7910/DVN/EEARKA
- Holman, Mirya R., Jennifer L. Merolla, and Elizabeth J. Zechmeister. 2022. "The Curious Case of Theresa May and the Public That Did Not Rally: Gendered Reactions to Terrorist Attacks Can Cause Slumps Not Bumps." *American Political Science Review* 116(1): 249—264. doi/dataverse: 10.1017/S0003055421000861; 10.7910/DVN/VHNPUO
- Problem Set 3 is due via Canvas on Sunday, April 2nd, 2023 by 11:59 PM

Recommended Readings

- Muñoz, Jordi, Albert Falcó-Gimeno, and Enrique Hernández. 2020. "Unexpected Event during Survey Design: Promise and Pitfalls for Causal Inference." *Political Analysis* 28(2): 186—206. doi/dataverse: 10.1017/pan.2019.27; 10.7910/DVN/RDIIVL

Hypothesis Testing and Theory Evaluation

The dominant approach to evaluating theories of politics quantitatively often takes the form of *hypothesis testing*. Despite its persistence in the field, the most common manifestation, Null Hypothesis Significance Testing (NHST), is plagued by logical inconsistencies that remain poorly understood. This week we will look at the basic logic of hypothesis testing in political science, the questions it can and cannot answer, and alternative approaches that are better suited to answering the questions social scientists are interested in.

Tuesday, April 4th, 2023

- Gill, Jeff. 1999. "The Insignificance of Null Hypothesis Significance Testing." *Political Research Quarterly* 52(3): 647–674. doi: 10.1177/106591299905200309
- Gross, Justin H. 2015. "Testing What Matters (If You Must Test at All): A Context-Driven Approach to Substantive and Statistical Significance." *American Journal of Political Science* 59(3): 775–788. doi: 10.1111/ajps.12149

Thursday, April 6th, 2023

- Krcmaric, Daniel. 2022. "Does the International Criminal Court Target the American Military?" *American Political Science Review*: 1–7. doi/dataverse: 10.1017/S0003055422000478; 10.7910/DVN/HHNZGT
- Rainey, Carlisle. 2014. "Arguing for a Negligible Effect." *American Journal of Political Science*, 58(4): 1083-1091. doi/dataverse: 10.1111/ajps.12102; 10.7910/DVN/23818

Recommended Readings

- Gabriel S. Lenz and Alexander Sahn. 2022. "Achieving Statistical Significance with Control Variables and Without Transparency." *Political Analysis* 29 (3): 356–369. doi/dataverse: 10.1017/pan.2020.31; 10.7910/DVN/XIEJCR8
- Bernardi, Fabrizio, Lela Chakhaia and Liliya Leopold. 2017. " 'Sing Me a Song with Social Significance': The (Mis)Use of Statistical Significance Testing in European Sociological Research." *European Sociological Review* 33(1): 1-15. doi: 10.1093/esr/jcw047

Quasi-Experimental Designs I

In many if not most cases in political science and economics, baseline random assignment of the treatment is either impractical or infeasible due to ethical, financial, or other considerations. Faced with this reality, social scientists often rely on quasi-experimental approaches to estimate causal effects. This week we will explore alternatives to experimental designs that attempt to achieve baseline random assignment, their core assumptions, and some of their limitations focusing on difference in difference and regression discontinuity designs in particular.

Tuesday, April 11th, 2023

- Huntington-Klein, Nick. 2022. "Difference-in-Differences" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 435–467.
- Latura, Audrey and Ana Catalano Weeks. 2022. "Corporate Board Quotas and Gender Equality Policies in the Workplace." *American Journal of Political Science*. doi/dataverse: 10.1111/ajps.12709; 10.7910/DVN/WJINZP

Thursday, April 13th, 2023

- Huntington-Klein, Nick. 2022. "Regression Discontinuity" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 506–554.
- Sevi, Semra. 2022. "Is Incumbency Advantage Gendered?" *Legislative Studies Quarterly*. doi/dataverse: 10.1111/lsq.12376; 10.7910/DVN/VHFO7V

Recommended Readings

- Huntington-Klein, Nick. 2022. "Event Studies" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 406–434.
- Liu, Licheng, Ye Wang, and Yiqing Xu. 2022. "A Practical Guide to Counterfactual Estimators for Causal Inference with Time-Series Cross-Sectional Data." *American Journal of Political Science*: 1–17. doi/dataverse: 10.1111/ajps.12723; 10.7910/DVN/ZVC9W5
- Huntington-Klein, Nick. 2022. "Matching" in *The Effect: An Introduction to Research Design and Causality*. Boca Raton, FL: CRC Press, 227–326.

Quasi-Experimental Designs II

The approaches to estimating causal effects we've examined thus far rest upon the assumption of *strict exogeniety* which tends to fail spectacularly in the context of observational data and inhibits our ability to make causal claims outside of experimental settings. This week we turn our focus to recent developments in political science that draw on a set of weaker identifying assumptions known as *sequential ignorability* to identify treatment effects and examine causal mechanisms. We'll also cover alternatives to difference in difference designs that relax the parallel trends assumption.

Tuesday, April 18th, 2023

- Kurtz, Marcus J., and Adam Lauretig. 2022. "Does Free-Market Reform Induce Protest? Selection, Post-Treatment Bias, and Depoliticization." *British Journal of Political Science* 52(2): 968-–976. doi/dataverse: 10.1017/S0007123420000605; 10.7910/DVN/WU2WSE
- Ladam, Christina, Jeffrey J. Harden, Jason H. Windett. 2018. "Prominent Role Models: High-Profile Female Politicians and the Emergence of Women as Candidates for Public Office." *American Journal of Political Science*, 62 (2): 369–381. doi/dataverse: 10.1017/10.1111/ajps.12351; 10.7910/DVN/D5DEHM

Thursday, April 20th, 2023

- Pang, Xun, Licheng Liu, and Yiqing Xu. 2022. "A Bayesian Alternative to Synthetic Control for Comparative Case Studies." Political Analysis 30(2): 269–88. doi: 10.1017/pan.2021.22.
- Pinkney, Sean. 2020. "An Improved and Extended Bayesian Synthetic Control." arXiv: 2103.16244v1
- Problem Set 4 is due via Canvas on Sunday, April 23rd, 2023 by 11:59 PM

Recommended Readings

- Xu, Yiqing. 2017. "Generalized Synthetic Control Method: Causal Inference with Interactive Fixed Effects Models." *Political Analysis* 25(1): 57–76. doi: 10.1017/pan.2016.2.
- Blackwell, Matthew and Adam Glynn. 2018. "How to Make Causal Inferences with Time-Series Cross-Sectional Data under Selection on Observables." *American Political Science Review* 112 (4): 1067–1082. doi/dataverse: 10.1017/S0003055418000357; 10.7910/DVN/SFBX6Z
- Acharya, Avidit, Matthew Blackwell, and Maya Sen. 2016. "Explaining Causal Findings Without Bias: Detecting and Assessing Direct Effects." *American Political Science Review* 110(3): 512—29. doi: 10.1017/S0003055416000216

Prediction and Forecasting for Political Research

We've covered a great deal over the course of the semester, focusing mainly on strategies for causal inference and probabilistic reasoning. To conclude this course, we'll briefly turn our attention to a somewhat different inferential goal and discuss the use of predictive modeling and machine learning in the quantitative social sciences. Topics include extensions of leave-one-out cross-validation, multilevel regression and post-stratification, and sensitivity analysis.

Tuesday, April 25th, 2023

- Nafa, A. Jordan. 2022. "An Introduction to Being Less Wrong: Bayesian Hypothesis Testing and Model Averaged Marginal Effects for the Social Sciences" https://www.ajordannafa.com/blog/2022/being-less-wrong
- Nafa, A. Jordan, Meredith Walsh Niezgoda, P. Deanne Roark, and Valerie Martinez-Ebers. "Stronger Together? Linked Fate and Voter Preferences in the 2020 Election." Paper presented at the American Political Science Association's Annual Meeting in Montreal, Quebec, September 15–18, 2022. github: ajnafa/linked-fate-paper

Thursday, April 27th, 2022

- Cranmer, Skyler J., and Bruce A. Desmarais. 2017. "What Can We Learn from Predictive Modeling?" *Political Analysis* 25(2): 145—66. doi: 10.1017/pan.2017.3
- Fariss, Christopher J., and Zachary M. Jones. 2018. "Enhancing Validity in Observational Settings when Replication Is Not Possible." *Political Science Research and Methods* 6(2): 365—80. doi/dataverse: 10.1017/psrm.2017.5; 10.7910/DVN/O2BK85

Recommended Readings

- Blackwell, Matthew. 2014. "A Selection Bias Approach to Sensitivity Analysis for Causal Effects." *Political Analysis* 22(2): 169–82. doi: 10.1093/pan/mpt006.
- Plümper, Thomas, and Richard Traunmüller. 2020. "The Sensitivity of Sensitivity Analysis." Political Science Research and Methods 8(1): 149–59. doi: 10.1017/psrm.2018.30.
- Ward, Michael D, Brian D Greenhill, and Kristin M Bakke. 2010. "The Perils of Policy by P-Value: Predicting Civil Conflicts." *Journal of Peace Research* 47(4): 363–75. 10.1177/0022343309356491.

Research Project Presentations

Tuesday, May 2nd, 2023

- Final Research Project Presentations

Thursday, May 4th, 2023

- Final Research Project Presentations

Finals Week

Thursday, May 11th, 2023

- Finishing any remaining final research project presentations. See the final exam schedule for the meeting time.
- Final research paper is due via Canvas by 11:59PM on Thursday, May 11th, 2023

Acknowledgments and License Information

The content of this class relies in part on materials from courses designed by Andrew Heiss, Matthew Blackwell, and Thomas J. Leeper and I thank the authors for making their course materials publicly available. Acknowledgment should not be construed as endorsement of any of the content or materials herein.

Course Policies

- **Canvas:** Canvas is an online course information and management program. All course documents (syllabus, assignments, etc.) will be posted on or via Canvas. You should check it regularly, and read all of the announcements carefully. Canvas also facilitates e-mail communication among class members and between class members and the instructor. Please use your UNT email address for communication about this class and check it frequently. If you do not you could miss important course information.
- **Late Work, Illness and Family Emergencies:** It is expected that all work will be submitted at the scheduled times. **Late assignments will be docked 10% per day** after missing the deadline. **After 3 days they will not be accepted.** If you are unable to turn in work on time because of an emergency, you must contact me prior to the deadline. All illnesses and family emergencies must be documented with appropriate evidence.
- **COVID-19:** While completing work is expected as outlined above, it is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. Please contact me if you are impacted due to a related issue regarding COVID-19. It is important that you communicate with me prior to being late as to what may be preventing you from completing your work

so I may make a decision about accommodating your request to turn in late work. If you are experiencing cough, shortness of breath or difficulty breathing, fever, or any of the other possible symptoms of COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider.

- **Americans with Disabilities Act Statement:** The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation.

Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website at http://www.unt.edu/oda. You may also contact ODA by phone at (940) 565-4323.

- **Academic Misconduct:** Academic Integrity is defined in the UNT Policy on Student Standards for Academic Integrity. Any suspected case of Academic Dishonesty will be handled in accordance with the University Policy and procedures. Possible academic penalties range from a verbal or written admonition to a grade of "F" in the course. Further sanctions may apply to incidents involving major violations. For policy and procedures: http://facultysuccess.unt.edu/academic-integrity.
- **Emergency Notification & Procedures:** UNT uses a system called Eagle Alert to quickly notify you with critical information in an event of emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). The system sends voice messages (and text messages upon permission) to the phones of all active faculty staff, and students. Please make certain to update your phone numbers at my.unt.edu. Some helpful emergency preparedness actions include: 1) ensuring you know the evacuation routes and severe weather shelter areas, determining how you will contact family and friends if phones are temporarily unavailable, and identifying where you will go if you need to evacuate the Denton area suddenly. In the event of a university closure, your instructor will communicate with you through Canvas regarding assignments, exams, field trips, and other items that may be impacted by the closure.
- **Acceptable Student Behavior:** Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable

and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Center for Student Rights and Responsibilities to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at www.unt.edu/csrr. In short, please be considerate of others.

- **Sexual Discrimination, Harassment, & Assault:** The University has procedures in place that aim to be aware of the needs of those who make an institutional report of sexual assault, domestic violence, dating violence, and stalking. Procedures include informing individuals about their right to file criminal charges as well as the availability of counseling, health, mental health, victim advocacy, legal assistance, visa and immigration assistance and other services on and/or off campus, as well as additional remedies to prevent contact between a complainant and a respondent, such as housing, academic, transportation and working accommodations, if reasonably available. The University will make such accommodations, if the victim requests them and if they are reasonably available, regardless of whether the complainant chooses to report the crime to the UNTPD or local law enforcement.

Anyone can report prohibited conduct by notifying the Dean of Students Office (940.565.2648), the Title IX Coordinator (940.565.2759) or the UNT Police Department (940.565.3000). The online reporting form is found at http://report.unt.edu.

Important Notice for F-1 Students taking Distance Education Courses

- **Federal Regulation:** To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the Electronic Code of Federal Regulations website at http://www.ecfr.gov/. The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G). The paragraph reads: (G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

- **University of North Texas Compliance:** To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in

advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course. If such an on-campus activity is required, it is the student's responsibility to do the following:

(1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.
(2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.