POL2578: Causal Inference for Political Scientists

Fall 2025

Instructor:	Chagai M. Weiss	**Time:**	W 15:00 – 17:00
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Office Hours: By appointment. Schedule via Calandly.

Course Overview: Does conflict reduce economic development? Can education increase national identification? Do majoritarian electoral rules reduce minority representation? Causal questions are central to political science research. But, providing credible empirical evidence on such questions is notoriously challenging. This course will provide graduate students with an in-depth and hands on introduction to the most popular methods of causal inference in the social sciences, with a particular focus on design-based causal inference. At the end of the semester, students should feel comfortable evaluating research papers employing methods of causal inference in political science, and using a broad range of causal inference methods in their own research.

POL2578 is an *applied methods course*. Throughout the semester, we will focus on understanding common design-based inference methods and learning about their application across all subfields in political science. Given the nature of the course, most meetings will include a 45 minute lecture (overviewing the method of the week), followed by a seminar discussion of various applications. Preparation and participation are essential for your success in this course!

Prerequisites: Most importantly this course requires an interest and willingness to work hard on learning possibly unfamiliar material. The course assumes basic familiarity with introductory statistics and probability, reasonably good knowledge of linear regression (e.g. POL2504 and POL2507), and basic competence in R for statistical computing and RMarkdown or LaTeX for drafting reports and papers.

Class Preparation and Conduct: For most weeks, reading materials will be a blend of methodological and applied readings. I expect students to thoroughly read *all* readings with close attention to details (as you will see throughout the course, the devil is in the details). Even after reading materials closely, it is very natural to be confused and have open questions. Therefore, it is essential that you come to class with your questions, raise them in the appropriate time, and engage with peer questions in a generous and open-minded way.

Assignments: A primary goal of this course is that each student produces a research paper using design-based inference methods covered during the semester. This can be a replication of published work that introduces a new substantive contribution, a meta re-analysis of an existing literature that considers the standard of evidence on a given question, or a novel research paper exploring a causal question in political science using methods learned in class. More generally, the course includes four primary assignments:

- One-page research proposal. Due October 1 before 22:00.
- Two peer-review exercises (Sign up here). Each peer-review should focus on an unpublished manuscript from the syllabus (market by an †), and is due the night before a relevant class by 22:00.
- Two direct replications (Sign up here). Each replication is due the night before a relevant class by 22:00.
- Final paper. Due in the last day of class by 22:00.

With the exception of unique circumstances, I will not accept late assignments. If you anticipate any issues with an assignment, please communicate your needs at least a week in advance.

Peer Review Expectations: Providing constructive and generous feedback is a central component of our work as political scientists. Peer review is one of various instances in which delivering such feedback is crucial. While this varies across contexts, a good review should be between 2-5 pages (double space), and include the following:

- A clear and brief description of the authors' argument, evidence, and contribution.
- A discussion of the papers core limitations and the ways in which they can be addressed (if you believe they cannot be addressed, this should be stated explicitly). Usually, this can be divided into conceptual, theoretical, and empirical limitations.
- A discussion of smaller points that should be addressed to improve the quality and impact of the paper (e.g. requests for robustness checks, changes to visualization, clarification of specific concepts).

When writing your reviews, please make sure you are generous, constructive, and assuming the best of the author. Your work is not to decide whether a paper will be accepted to journal X (for that, we have editors). Instead, you should aim to provide an expert opinion on the strengths and limitations of a scholarly contribution, and suggest various ways to improve the manuscript you are reviewing. For additional insights on reviewing, see:

- How to Critique, by Macartan Humphreys.
- How To Be a Peer Reviewer: A Guide for Recent and Soon-to-be PhDs, by Beth Miller, Jon Pevehouse, Ron Rogowski, Dustin Tingley, and Rick Wilson.
- How I Referee, by Andrew Little.

Direct Replication Expectation: These exercises are designed for you to get your hands dirty with data and learn about implementing the methods we discuss in class. After signing up to replicate a paper (two in total) you are expected to:

1. Download all replication files from the relevant repository (usually https://dataverse.harvard.edu/).
2. Describe the papers' primary question, identification strategy, and estimation approach in no more than 150 words.
3. Descriptively report the primary treatment and outcome through a clear descriptive statistics table or simple visualization (e.g., a barplot or histogram). Describe these outputs in no more than 100 words.
4. Report the main analysis from the paper in either table or figure format (this will usually be a single estimate and standard error). Describe the result in no more than 100 words.

By the assignment deadline, you should send me a zipped replication package that includes the following:

- read.me file describing all components of the replication package.
- Raw data for replication (including only relevant variables).
- Replication code creating all figures and tables for your report, and exporting them to a LaTeX or RMarkdown document. This code should be set up to run from any machine using R and include documentation that clarifies the main steps you take to produce all tables and figures.

- A final PDF (350 word limit, excluding tables and figures) produced by LaTeX or RMarkdown.

A Note on Final Papers: A primary goal of this course is to help students employ design-based causal inference methods in their own work. Students can choose to focus their final paper on a replication of a specific paper that includes a substantive extension of prior work (e.g. introducing additional data collection, alternative identification approaches), a meta-reanlysis of an existing literature employing a specific research design (e.g. studies examining effects of climate shocks on policy preferences using Difference-in-Differences designs), or an original paper.

Regardless of the path students choose, I encourage everyone to use this course as an opportunity to develop an exciting and rigorous research paper that leverages one of the approaches covered in the course to shed light on a substantively important question. In fact, some of the papers we will read were written by graduate students and eventually found a home in a leading journal (e.g. Bhavnani 2008, Peyton et al. 2019, Weiss 2021, Valentim 2021). With some creativity, effort, and support from your colleagues this can be you! To ensure you maximize this opportunity, please start planning your final paper on day 1 (or even earlier), and don't hesitate to discuss your paper with me and your advisor. Your final paper can focus on any question as long as it is:

- Addresses a theoretically informed question regarding the effect of a well defined cause.
- Employs an identification strategy covered in class.
- Uses data to answer one single research question.
  - Potential data sources: https://guides.lib.umich.edu/c.php?g=282769&p=1884138.

If you wish to answer a research question using an experiment or data that will be collected in future field work, please schedule a time to discuss this with me in office hours. You may be able to focus your final paper on a detailed research design that includes analyses of simulated or pilot data. However, I highly encourage all students to write papers using available data, that you can further develop throughout the year.

Grading Policy: Final grades are determined as follows: One-page research proposal (10%), peer-review exercise (10% each), direct replication exercise (10% each), final paper (40%), class participation (10%).

Books and Other Resources: We will be reading substantial parts of the following books:

1. Gerber, Alan S., and Donald P. Green. Field Experiments: Design, Analysis, and Interpretation. W.W. Norton & Company, 2012.
2. Cunningham, Scott. Causal inference: The Mixtape. Yale university press, 2021.
3. Cattaneo, Matias D., Nicolás Idrobo, and Rocío Titiunik. A practical introduction to regression discontinuity designs: Extensions. Cambridge University Press, 2024.

Gerber and Green 2012 can be found in the library (and I highly recommend purchasing it. I open it at least once for any paper I write). Cunningham 2021 and Cattaneo et. al. 2024 are available for free online (https://mixtape.scunning.com/). In addition, as your develop your interest in causal inference, you may find the following books helpful:

- Angrist, Joshua D., and Jörn-Steffen Pischke. Mostly harmless econometrics: An empiricist's companion. Princeton university press, 2009.
- Morgan, Stephen L., and Christopher Winship. Counterfactuals and causal inference: Methods and principles for social research. Cambridge University Press, 2014.

- Blair, Graeme, Alexander Coppock, and Macartan Humphreys. Research design in the social sciences: declaration, diagnosis, and redesign. Princeton University Press, 2023.
- Ashworth, Scott, Christopher R. Berry, and Ethan Bueno De Mesquita. Theory and credibility: Integrating theoretical and empirical social science. Princeton University Press, 2021.

I also highly recommend following online resources that clarify complex questions on causal inference and related topics in a accessible way:

- EGAP 10 Things to Know About.
- World Bank Development Impact Blog.

Important Dates:

No class	Sept. 24, 2025
Submit one-page proposal	Oct. 1, 2025
No class	Oct. 8, 2025
Study break	Oct. 29, 2025
TPBW	Nov. 7-8, 2025
Final presentations	Nov. 26, 2025
Make-Up Class/Final presentations	Dec. 2, 2025
Final paper due	Dec. 2, 2025

Tentative Course Outline:

- **Week 1 (Sep 3, 2025)**: Introduction
- **Week 2 (Sep 10, 2025)**: Potential outcomes framework
- **Week 3 (Sep 17, 2025)**: Experiments I
- **Week 4 (Sep 24, 2025)**: No class, schedule office hours to discuss final project
- **Week 5 (Oct 1, 2025)**: Experiments II
- **Week 6 (Oct 8, 2025)**: No class, make up session on December 2.
- **Week 7 (Oct 15, 2025)**: Selection on observables
- **Week 8 (Oct 22, 2025)**: Instrumental variables estimation
- **Week 9 (Oct 29, 2025)**: Regression discontinuity design
- **Week 10 (Nov 5, 2025)**: Study break. Work on final paper
- **Week 11 (Nov 12, 2025)**: Difference-in-differences
- **Week 12 (Nov 19, 2025)**: Advanced panel methods
- **Week 13 (Nov 26, 2025)**: External validity / Final presentations
- **Week 14 (Dec 2, 2025)**: Final presentations

Reading Materials: Most weeks will focus on a combination of methods-focused and applied readings. The list of readings may change throughout the semester. Please stay tuned for announcements regarding changes in the reading list. • denotes methods-focused readings, ⋆ denotes applied readings that are eligible for replication exercises, and † denotes readings that are eligible for a peer-review exercise.

1. **Week 1: Introduction to Causal Inference**
   - Gerber, Alan S., et al. "The illusion of learning from observational research." Field experiments and their critics: Essays on the uses and abuses of experimentation in the social sciences (2014): 9-32.
   - Samii, Cyrus. "Causal empiricism in quantitative research." The Journal of Politics 78.3 (2016): 941-955.
   - Lundberg, Ian, Rebecca Johnson, and Brandon M. Stewart. "What is your estimand? Defining the target quantity connects statistical evidence to theory." American Sociological Review 86.3 (2021): 532-565.
   - Imbens, Guido, and Yiqing Xu. "Comparing Experimental and Nonexperimental Methods: What Lessons Have We Learned Four Decades After LaLonde (1986)?" Journal of Economic Perspectives, forthcoming.

2. **Week 2: Potential Outcomes**
   - Cunningham, Scott. Causal inference: The Mixtape. Yale university press, 2021. **Chapters 3-4**.
   - ⋆ Bhavnani, Rikhil R. "Do electoral quotas work after they are withdrawn? Evidence from a natural experiment in India." American Political Science Review 103.1 (2009): 23-35.
   - ⋆ Hangartner, Dominik, et al. "Does exposure to the refugee crisis make natives more hostile?." American political science review 113.2 (2019): 442-455.
   - ⋆ Boix, Carles. "Political Emancipation and Modern Jewish National Identity." American Political Science Review (2025): 1-21.
   - † Hager, Anselm, et al. "Does Rent Control Turn Tenants into Nimbys?." OSF Preprints, 26 Oct. 2022. Web.

3. **Experiments I**
   - Gerber, Alan S., and Donald P. Green. Field Experiments: Design, Analysis, and Interpretation. W.W. Norton & Company, 2012. **Chapters 2 and 3**
   - ⋆ Peyton, Kyle, Michael Sierra-Arévalo, and David G. Rand. "A field experiment on community policing and police legitimacy." Proceedings of the national Academy of sciences 116.40 (2019): 19894-19898.
   - ⋆ Toth, Aliz, Nikhar Gaikwad, and Kolby Hanson. "Bringing Autocracy Home? How Migration to Autocracies Shapes Migrants' Support for Democracy." Forthcoming World Politics.
   - ⋆ Broockman, David E., and Joshua L. Kalla. "Consuming cross-cutting media causes learning and moderates attitudes: A field experiment with Fox News viewers." The Journal of Politics 87.1 (2025): 000-000.
   - † Margalit, Yotam, and Shir Raviv. When Your Boss Is an Algorithm: The Effect of Algorithmic Management on Worker Performance. 28 Mar. 2024.

4. **Experiments II**
   - Gerber, Alan S., and Donald P. Green. Field Experiments: Design, Analysis, and Interpretation. W.W. Norton & Company, 2012. **Chapters 4, 5 and 7**.
   - ⋆ López-Moctezuma, Gabriel, et al. "Policy deliberation and voter persuasion: Experimental evidence from an election in the Philippines." American Journal of Political Science 66.1 (2022): 59-74.
   - ⋆ Jha, Saumitra, and Moses Shayo. "Valuing peace: the effects of financial market exposure on votes and political attitudes." Econometrica 87.5 (2019): 1561-1588.

† Weiss, Chagai M., Donald P. Green, and Robb Willer. "Politicians' Bipartisan Appeals to Civility and Partisan Divides A Field Experiment with US Governors." (2025).

† Chakraborty, Anujit, et al. "Learning about outgroups: The impact of broad versus deep interactions." (2024).

5. **Selection on Observables**

- Cunningham, Scott. Causal inference: The Mixtape. Yale university press, 2021. **Chapters 5**.

⋆ Lyall, Jason. "Does indiscriminate violence incite insurgent attacks? Evidence from Chechnya." Journal of Conflict Resolution 53.3 (2009): 331-362.

⋆ Sekhon, Jasjeet S., and Rocio Titiunik. "When natural experiments are neither natural nor experiments." American Political Science Review 106.1 (2012): 35-57.

⋆ Arceneaux, Kevin, Alan S. Gerber, and Donald P. Green. "Comparing experimental and matching methods using a large-scale voter mobilization experiment." Political Analysis 14.1 (2006): 37-62.

† Gazmararian, Alexander F., and Helen Milner. "Experience and Self-interest: Diverging Responses to Global Warming." OSF Preprints, 1 Apr. 2024.

6. **Instrumental Variables**

- Cunningham, Scott. Causal inference: The Mixtape. Yale university press, 2021. **Chapter 7**.

⋆ Lal, Apoorva, et al. "How much should we trust instrumental variable estimates in political science? Practical advice based on over 60 replicated studies." arXiv preprint arXiv:2303.11399 (2023).

⋆ Gerber, Alan S., and Donald P. Green. "The effects of canvassing, telephone calls, and direct mail on voter turnout: A field experiment." American political science review 94.3 (2000): 653-663.

⋆ Grossman, Guy, Devorah Manekin, and Dan Miodownik. "The political legacies of combat: Attitudes toward war and peace among Israeli ex-combatants." International Organization 69.4 (2015): 981-1009.

⋆ Bhavnani, Rikhil R., and Bethany Lacina. "The effects of weather-induced migration on sons of the soil riots in India." World Politics 67.4 (2015): 760-794.

7. **Regression Discontinuity Design**

- Cattaneo, Matias D., Nicolás Idrobo, and Rocío Titiunik. A practical introduction to regression discontinuity designs: Extensions. Cambridge University Press, 2024.

⋆ Valentim, Vicente. "Parliamentary representation and the normalization of radical right support." Comparative political studies 54.14 (2021): 2475-2511.

⋆ Emeriau, Mathilde, et al. "'Welcome to France.' Can mandatory integration contracts foster immigrant integration?." American Journal of Political Science (2022).

⋆ Mo, Cecilia Hyunjung, and Katharine M. Conn. "When do the advantaged see the disadvantages of others? A quasi-experimental study of national service." American Political Science Review 112.4 (2018): 721-741.

† Kuipers, Nicholas, Gareth Nellis, and Drew Stommes. "Forging Social Cohesion Through Mass Education: Evidence from a Nationwide Policy Reform in India." (2025).

8. **Difference-in-Differences**

- Cunningham, Scott. Causal inference: The Mixtape. Yale university press, 2021. **Chapter 9**.

⋆ Alrababah, Ala, et al. "The Free Movement of People and the Success of Far-Right Parties: Evidence from Switzerland's Border Liberalization." American Political Science Review (2024): 1-20.

- ⋆ Fouka, Vasiliki. "How do immigrants respond to discrimination? The case of Germans in the US during World War I." American Political Science Review 113.2 (2019): 405-422.
- ⋆ Heddesheimer, Vincent, Hanno Hilbig, and Erik Voeten. "The Green Transition and Political Polarization Along Occupational Lines." OSF Prepr (2024).
- † De Juan, Alexander, et al. "Revisiting History, Reshaping Memory: The Effects of Confronting Ingroup Atrocities." OSF Preprints, 1 July 2024. Web.

9. **Advanced Panel Methods**

- Cunningham, Scott. Causal inference: The Mixtape. Yale university press, 2021. **Chapter 9**.
- Chiu, Albert, et al. "Causal Panel Analysis under Parallel Trends: Lessons from a Large Reanalysis Study." American Political Science Review, First View, 2025, pp. 1–22.
- ⋆ Esberg, Jane, and Alexandra A. Siegel. "How exile shapes online opposition: Evidence from Venezuela." American Political Science Review 117.4 (2023): 1361-1378.
- ⋆ Paglayan, Agustina S. "Education or indoctrination? The violent origins of public school systems in an era of state-building." American Political Science Review 116.4 (2022): 1242-1257.

10. **External Validity**

- Egami, Naoki, and Erin Hartman. "Elements of external validity: Framework, design, and analysis." American Political Science Review 117.3 (2023): 1070-1088.
- Slough, Tara, and Scott A. Tyson. "External Validity and Meta-Analysis." American Journal of Political Science 67.2 (2023): 440-455.
- ⋆ Bassan-Nygate, Lotem, et al. "The Generalizability of IR Experiments beyond the United States." American Political Science Review (2024): 1-16.
- ⋆ Coppock, Alexander, Thomas J. Leeper, and Kevin J. Mullinix. "Generalizability of heterogeneous treatment effect estimates across samples." Proceedings of the National Academy of Sciences 115.49 (2018): 12441-12446.

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