

POLS 703: ADVANCED POLICY ANALYSIS

NORTH DAKOTA STATE UNIVERSITY, FALL 2022, 3 CREDITS

Basic Information

Professor: Dan Pemstein
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Class Location: TBA
Class Time: TBA
Office Location: Putnam 12
Office Hours: TBA

Course Description

Bulletin Description

Advanced topics in causal and statistical inference for policy evaluation. Covers randomized controlled trials, survey experiments, and quasi-experimental designs. Addresses problems with measurement and sampling, randomization errors, non-compliance, and spillovers. Emphasizes practical issues in designing policy program evaluations to use these tools to produce causal conclusions.

Course Objectives

Students who complete this course will develop a toolkit for evaluating policy effectiveness using experimental and quasi-experimental methods. In particular, they will understand how to design and analyze randomized controlled trials, survey experiments, and quasi-experimental studies that use instrumental variables, regression discontinuity, and differences-in-differences methods to estimate causal effects from observational data. They will learn the advantages and limitations of these different designs and practice methods for addressing common problems that arise when one applies these tools to policy evaluation. Finally, students will learn how to pre-register studies and develop pre-analysis plans to improve the quality and credibility of their policy analyses and program evaluations.

Required Student Resources

You should buy the following textbooks. All other readings will appear on Blackboard.

- Gelman, A., J. Hill, and A. Vehtari. 2021. *Regression and Other Stories*. Cambridge University Press.
- Gerber, A.S. and D.P Green. 2012. *Field Experiments: Design & Interpretation* W.W. Norton.
- Morgan, S.L. and C. Winship. 2015. *Counterfactuals and Causal Inference: Methods and Principles for Social Research, 2nd Ed.* Cambridge University Press.

Schedule

1 Causal Inference for Public Policy Evaluation

Gerber, Green & Kaplan (2014); Stokes (2014); Dunning (2012) Ch. 1;
Morgan & Winship (2015) Ch. 1

2 Statistical Computing & Regression Refresher

Wickham & Grolemund (2017) Ch. 1–8; Ismay & Kim (2021) Ch. 1; Gelman, Hill, & Vehtari (2021) Ch. 6–8, 10–11; Ismay & Kim Ch. 5–6

3 The Potential Outcomes Framework

Morgan & Winship (2015) Ch. 2; Rubin (1974); Freedman (1971)

4 Conditioning and Causal Identification

Morgan & Winship (2015) Ch. 3–4

5 Experiments: Basics

Shadish, Cook, & Campbell (2002); Gerber & Green (2012) Ch. 2–3; Gelman, Hill, & Vehtari (2021) Ch. 18; Montgomery & Nyhan (2018)

6 Experimental Designs: RCTs

Banerjee & Duflo (2014); Deaton (2014); Duflo, Glanester & Kremer (2008) Parts 3, 5;
Bruhn & McKenzie (2009); Glennerster & Takavarasha (2013) Ch. 9

7 Experimental Designs: Survey Experiments

Gaines, Kulinski & Quirk (2007); Hainmueller, Hopkins, & Yamamoto (2014); Barabas & Jerit (2010); Mumolo & Peterson (2019)

8 Experiments: Complications

Gerber & Green (2012) Ch. 5–8; Glennerster & Takavarasha (2013) Ch. 7–8

9 Power Analysis for Designing Program Evaluations

Glennerster & Takavarasha (2013) Ch. 6; Duflo, Glanester & Kremer (2008) Part 4; Gelman, Hill, & Vehtari (2021) Ch. 16; Blair, Cooper, Coppock & Humphreys (2019)

10 Pre-Registration & Analysis Plans

J-PAL Research Resources Section 3.8–9; EGAP's [10 Things to Know About Pre-Analysis Plans](#); [Pre-Analysis Plans with DeclareDesign](#)

11 Matching for Causal Inference

Morgan & Winship (2015) Ch. 5

12 Causal Inference with Regression

Morgan & Winship (2015) Ch. 6–7; Gelman, Hill, & Vehtari (2021) Ch. 19–20

13 Instrumental Variables

Morgan & Winship (2015) Ch. 9; Dunning (2012) Ch. 4; Gelman, Hill, & Vehtari (2021) Ch. 21

14 Regression Discontinuity Designs

Morgan & Winship (2015) Ch. 11; Dunning (2012) Ch. 3; Angrist & Pischke (2009) Ch. 6; Stommes, Aronow, Sävje (2021)

15 Differences in Differences

Angrist & Pischke (2009) Ch. 5; Wooldridge (2010) Ch. 10; Bertrand, Duflo, & Mullainathan (2004); Jakiela (2021)

16 Policy Design Project Workshop

Evaluation

Summary

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| Homework | 48% |
| Policy Evaluation Design Project | 32% |
| Participation | 20% |

Homework

Assignments are due in weeks 1–14. The 12 highest-scoring assignments contribute to your grade, with each of those assignments weighed equally (4% ea).

Policy Evaluation Design Project

Students will design a policy evaluation using one of the methods that we cover in this course. Students will choose an existing policy, or potential intervention, to evaluate, design a data collection and analysis strategy, run a full analysis of simulated data to test and validate the analysis strategy, and codify their design in a pre-analysis plan. Projects will be due on the last day of finals exam week.

Participation

Participation includes engagement in class, participation in classroom exercises, and activities outside of class, such as organizing study groups and discussing course-related issues on Slack. Students will write a short (1–2 page) essay assessing their own participation. I will hand out a rubric for self-assessment in the first few weeks of class. Each student will evaluate their own participation with the rubric, explain their suggested grade, and justify their choice with evidence. The instructor will revise grades, if necessary, based on the strength of the evidence presented.

Grades

I use a flat grade scale: $A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$. If you have a complaint about a grade you must type a formal appeal describing the problem. Your appeal should clearly explain why you believe your grade is incorrect and make a cogent argument for improving your grade.

Class Policies

Attendance

According to NDSU Policy 333 (<http://www.ndsu.edu/fileadmin/policy/333.pdf>), attendance in classes is expected. In this course attendance is mandatory unless you have a valid reason to miss a session.

Veterans and student service members with special circumstances or who are activated are encouraged to notify the instructor as soon as possible and are encouraged to provide Activation Orders.

Academic Honesty

The academic community is operated on the basis of honesty, integrity, and fair play. [NDSU Policy 335: Code of Academic Responsibility and Conduct](#) applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the [Office of Registration and Records](#). Informational resources about academic honesty for students and instructional staff members can be found at <http://www.ndsu.edu/academichonesty>.

Please make sure that you understand common standards of academic integrity and plagiarism and consult the instructor if you are ever in doubt. I have a no tolerance policy for academic misconduct and students who commit such misconduct should expect, at minimum, to receive a failing grade for this class.

Students with Special Needs

Any students with disabilities or other special needs, who need special accommodations in this course, are invited to share these concerns or requests with the instructor and contact the Disability Services Office (<http://www.ndsu.edu/disabilityservices>) as soon as possible.

Discrimination and Harassment

NDSU is committed to providing a safe and non-discriminatory learning, living, and working environment for all members of its university community. NDSU's policy on discrimination and harassment is available [here](#) and the equity office provides information about filing complaints [here](#). Any form of violence or harassment, including sexual assault, relationship violence, and stalking is unwelcome at the University. NDSU provides a Sexual and Gender-Based Harassment and Sexual Assault [Resource Guide](#).

Low-grade discrimination and harassment can be especially pernicious in a classroom setting. Please read this [blog post](#) and work to avoid the behaviors that the post describes.

Please note that the instructor has a mandatory responsibility to report instances of discrimination, harassment, sexual assault, and retaliation, as described [here](#). What this means is that as your professor, I am required to report any incidents of such misconduct that I observe, or that students or others report to me.