

Public Affairs 397C

Advanced Empirical Methods for Policy Analysis

Program Evaluation — Fall 2026

Unique Number 66185
Instructor Jeff Denning
SRH 3.242
jeffdenning@utexas.edu
Meeting Time W 9-12
Classroom SRH 3.245
Office Hours W 1-4 must use <https://calendly.com/jeffdenning86/office-hours>.
If that does not work for you, email me to find another time
Prerequisites Introduction to Empirical Methods for Policy Analysis
Website jeffdenning.com/teaching

Course Description

This course focuses on how quantitative evidence is used to answer one of the most fundamental questions in public policy: what is the effect of this policy? Students examine modern empirical methods that allow researchers to draw causal inferences from real-world data, including regression analysis, instrumental variables, difference-in-differences, and regression discontinuity. Emphasis is placed on developing intuition for these techniques, understanding their assumptions, and recognizing their practical limitations. The course combines conceptual discussion with engagement in the applied research literature, featuring studies that estimate the effects of policies such as minimum wage increases and criminal justice policy. A collaborative project gives students the chance to evaluate a policy of their choosing and interpret their findings.

Required Text

Mastering 'Metrics: The Path from Cause to Effect by Joshua D. Angrist and Jörn-Steffen Pischke ISBN 978-0-691-15284-4

Reference Material

Causal Inference: The Mixtape <https://mixtape.scunning.com/>

Learning Outcomes

Students will learn how to use statistics to evaluate the effects of policy. Students will:

1. Demonstrate an understanding of the assumptions underlying commonly used empirical approaches for the identification of causal effects, including:
 - Ordinary least squares
 - Matching
 - Interrupted time series
 - Difference in differences

- Fixed effects
 - Instrumental variables
2. Read and understand contemporary academic literature in program evaluation. Students will provide written evaluations of selected academic papers, including a clear description and critique of the empirical methods used.
 3. Apply modern empirical methods using data analysis exercises.
 4. Complete a research project in which they identify a question, assemble a dataset, thoughtfully apply appropriate empirical methods, and clearly describe their methodology, assumptions, and findings.

Course Grading

Final grades will be calculated according to this weighting:

Homework	10%
Class Participation	5%
Quizzes	25%
Midterm	25%
Term Paper	35%

Grading for the semester will be done as follows: First, a total score for the semester will be calculated using the weights from above. Second, a distribution of grades will be determined based on a subjective evaluation by the instructor that determines grade cutoffs for each letter grade. Course grades will be regularly posted on Canvas

Homework

There will be several homework assignments. Each assignment may be done in groups of up to three individuals. The lowest homework grade will be dropped. Several of the homework assignments will require that you use STATA to complete them, hence STATA is required for this class. See below for more on how to get STATA. Homework will primarily be graded for completion and keys will be posted after the homework is due.

Homework (and relevant datasets) will be posted on my website jeffdenning.com/teaching

Ways to get Stata

As a graduate student, you can buy a 6-month grad license to use Stata BE which is all you'll need for \$48. This is what I strongly recommend.

You can use Stata on the StatApps server in the Department of Statistics and Data Science. See this [link](#) for more information. This has some downsides such as not allowing you to install new commands. I do not recommend relying on this for this class.

Stata is installed on all 15 computers in the computer lab in SRH 3.200. To use Stata, you need to use these computers in Windows mode (not Mac). If you use these machines, it will be harder to get help on problem sets and with your final project.

I also *strongly* recommend that you use an LLM to help you with your coding in STATA. We will discuss best practices in class.

Class Participation

You will also be expected to complete the midcourse evaluation and end of course evaluation. You should attend the course and participate in classroom discussions having read the prior day assignment. Points may be lost for violating the laptop/electronics policy (see below).

Quizzes

There will be several quizzes throughout the semester. These will be administered at the beginning of class (and will be handwritten). The lowest quiz scores will be dropped.

Term Paper

A ten page term paper (not including tables) is due on the last day of class. This paper must be written in groups of two or three individuals. A complete draft must be turned in at the assigned due-date in order to receive full credit on the paper. You are also required to submit a rough draft at an earlier date. You will present your paper on the second to last class day. The rough draft is worth 5 percent, the presentation is worth 10 percent, and the final paper is worth 20 percent. As part of your term paper you will turn in your code and log file (or equivalent).

Laptops/Electronics

In general, you may not use laptops, tablets, or any other electronic devices during class. I may make an exception to this policy when we work on Stata/data exercises in class. In that case, I will tell students the week before class and laptops will be put away after the Stata exercise is done.

I do make exceptions for students with disabilities, if you are in need of an exception please talk to me. There is good research to support this decision. If you would like to read more about the rationale for this policy see

- Sue Dynarski summarizing current research in the [New York Times](#)
- RCT run at West Point Carter, Greenberg, Walker (2017) "[The impact of computer usage on academic performance: Evidence from a randomized trial at the United States Military Academy](#)," Economics of Education Review

Generative AI use is permitted for academic work in this course, provided that students 1) use AI responsibly, 2) practice discernment and conduct meaningful human review of any output generated by AI, and 3) properly disclose use according to the disclosure policies in this syllabus. Quizzes and Midterms will be done in class with the use of pencil and paper and AI cannot be used on those. Using generative AI tools without proper adherence to the disclosure policy in this course, even when AI use is permitted, may constitute academic misconduct under UT Austin's Institutional Rules and may be referred to Student Conduct and Academic Integrity in the Office of the Dean of Students for resolution.

Students with Disabilities

If you are a student with a disability, or think you may have a disability, and need accommodations, please contact Disability and Access (D&A). Contact and more details are available on D&A's website:<http://disability.utexas.edu>.

If you are already registered with D&A, please share your accommodation letter with me as early as possible in the semester so we can discuss how your approved accommodations will be implemented in this course.

Inappropriate Use of Course Materials All course materials (e.g., outlines, handouts, syllabi, exams, quizzes, PowerPoint presentations, lectures, audio and video recordings, etc.) are proprietary. Students are prohibited from posting or selling any such course materials without the express written permission of the professor teaching this course.

Course Outline

		Topic	PS/Quiz
Aug	26	Causal Effects in Policy Analysis/Rubin Causal Model	
Sep	2	Randomized Controlled Trials	
	9	Regression	PS1 Q1
	16	<i>No Class (instructor traveling)</i>	
	23	Instrumental Variables	PS2
	30	Regression Discontinuity	PS3 Q2
Oct	7	Differences in Differences	PS4 Q3
	14	Fixed Effects/Inference	PS5 Q4
	21	Matching/Synthetic Control	
	28	Midterm (Interrupted Time Series)	
Nov	4	Prediction & Practice Hypotheticals	Rough Draft Due
	11	Program Evaluation in Practice	
	18	Present Papers	
	25	<i>Thanksgiving Break</i>	
Dec	2	Final Thoughts	Final Draft Due
		Final Drafts of Papers Due Beginning of Class Wed Dec 2	

Reading List (reference papers appear in italics)

- Causal Effects in Policy Analysis/Rubin Causal Model
 - Nothing
- Randomized Control Trials
 - Mastering Metrics Chapter 1
 - *Amy Finkelstein* [Ted Talk](#)
 - Carter Greenberg Walker (2017) “The Impact of Computer Usage on Academic Performance: Evidence from a Randomized Trial at the United States Military Academy”
- Regression
 - Mastering Metrics Chapter 2
- Instrumental Variables
 - Mastering Metrics Chapter 3
 - Angrist and Evans 1998 “Children and their parents labor supply: Evidence from exogenous variation in family size” *American Economic Review*
- Regression Discontinuity
 - Mastering Metrics Chapter 4
 - Hansen (2015) “Punishment and Deterrence: Evidence from Drunk Driving” *American Economic Review*
 - One paper TBD
 - “*Regression Discontinuity Designs: A Guide to Practice*” Imbens Lemieux *Journal of Econometrics* 2008
 - Calonico, Cattaneo, Titiunik see [website](#)
- Differences in Differences
 - Mastering Metrics Chapter 5
 - Card Krueger (1994) “Minimum Wages and Employment: A case study of the fast food industry in New Jersey and Pennsylvania” *American Economic Review*
 - Baker, A., Callaway, B., Cunningham, S., Goodman-Bacon, A., & Sant’Anna, P. H. (2025). *Difference-in-differences designs: A practitioner’s guide*. *Journal of Economic Literature*.
- Fixed Effects

- Denning (2017) “College on the Cheap: Consequences of Community College Tuition Reductions” *American Economic Journal: Economic Policy*
- Matching
 - Deming (2009) “Early Childhood Intervention and Life-Cycle Skill Development: Evidence from Head Start” *American Economic Journal: Applied Economics*
- Synthetic Control
 - Abadie Diamond (2010) “Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California’s Tobacco Control Program” *Journal of the American Statistical Association*
- Interrupted Time Series
 - Jensen (2007) “The Digital Divide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector” *Quarterly Journal of Economics*
- Inference
 - Bertrand, Duflo, Mullainathan (2004) “How Much Should We Trust Differences-In-Differences Estimates?” *Quarterly Journal of Economics*
- Prediction
 - Black, Sandra E., Jeffrey T. Denning, and Jesse Rothstein. 2023. “Winners and Losers? The Effect of Gaining and Losing Access to Selective Colleges on Education and Labor Market Outcomes.” *American Economic Journal: Applied Economics* 15 (1): 26–67.