PP 5314 Causal Inference for Program Evaluation

Spring 2024

School of Public Policy

University of Connecticut

Class hours and location: Tuesday, 4:00 – 6:30 pm, HTB 138

Office hours: By appointment, see https://calendly.com/dmitre/officehours

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Overview

This course surveys the statistical methods and tools commonly used to evaluate causal claims about the impact of public policies and programs. The course will be structured around a series of lectures, technical demonstrations, empirical exercises, and class presentations that require students to apply the tools they learn in class to evaluate public policies and programs. The course will survey various techniques for making causal inferences about policy evaluation. Specific topics include randomized field trials, instrumental variables, regression discontinuity designs, difference-in-differences (fixed effects), and propensity score matching.

Course objectives

At the end of the semester, students should gain:

- An understanding of the logic of social research, systematic thinking
- Ability to apply evaluation research principles.
- Ability to employ advanced causal analysis and designs.

Textbooks

There are **no required textbooks**. Students looking for additional material beyond class content may find the following useful:

- Cunningham, S. (2021). Causal inference: The mixtape. Yale University Press. Authors' free online version: https://mixtape.scunning.com/

Use of technology and required software

We will use **Stata** for all the empirical exercises. Students are responsible for having **Stata installed** on their computers or electronic devices by **the third week of classes**. Students should refer to the UConn Software Catalog website for instructions on how to download and install it on their computers: https://software.uconn.edu/software/stata/

Unless specified for in-class exercises or students' particular circumstances, electronic devices such as laptops and smartphones are not permitted in the classroom. Evidence suggests electronic devices are likely to be used for non-class topics, distract your classmates, and affect your grades.[1]

[1] https://doi.org/10.1016/j.econedurev.2017.02.004, https://doi.org/10.1080/01443410.2018.1489046, https://doi.org/10.1177/1469787417721382

Course communication
All course announcements and materials will be posted on the course website on HuskyCT. For any class questions, please **email** me and **include "PP 5314" on the subject** for a timely response. Expect responses within 24 hours on weekdays and 48 hours on weekends. You are also welcome to come to office hours. Students are encouraged to contact me for advice on any class question.

Evaluation
Grades will be based on class presentations, problem sets, quizzes, a group project, and participation.

- **Problem sets**. There will be **two take-home problem sets**. Students can work individually or in pairs (submit only one problem set per group). The problem sets will consist of empirical exercises solvable using Stata. They will be an application of the knowledge learned in class.
- **Quizzes**. There will be **seven take-home, open-book quizzes**. Students will solve these quizzes individually. Students can take the quizzes twice until the due date; the highest grade will be counted. The quizzes will assess your understanding of key concepts and readings.
- **Article presentation**. The students will do a **12-minute presentation** of a summary of an academic article. Students will work in groups of two or three people. The presentation will evaluate the student's ability to read and communicate causal research effectively.
- **Group project**. The students will present a **group project at the end of the semester**. Students will work in groups of three or four. The project will involve presenting a causal research proposal evaluating a policy intervention. The project will allow students to apply the skills learned in class. It will include three components:
  - **Proposal**. The group will submit a one-page document explaining their proposed topic, motivation, relevance, and potential identification strategies and research design.
  - **Written report**. A four-page document providing a brief literature review, ideal experiment, potential data, and identification strategy.
  - **Presentation**. Students will communicate and present the project to the class.
- **Participation**. Effective participation involves reading assigned readings before class and being prepared to discuss the material. Students must be present to participate; therefore, absences will impede your ability to participate and thus harm your achievement.

Evaluation method
Your grade will be determined as follows:

Assignment	**Percentage**	**Due date**
Problem set 1 (RCT, IV)	15	2/25
Problem set 2 (RD)	15	3/10
Problem set 3 (DID, Synth)	15	4/7
Quizzes	15	1/29, 2/12, 2/26, 3/8, 4/1, 4/8, 4/15
Class presentations	10	2/6, 2/20, 3/5, 3/26, 4/2, 4/9
Group project		
Written report	10	4/17
Presentation	15	4/23
Participation	5	4/16
Total	**100**	

MPP Program Post-Test and Skills: Students must complete two surveys to successfully complete the course: 1) the Graduating Student Survey and 2) a skills survey. NASPAA-accredited programs, such as UConn's MPA program, must identify, operationalize, and assess mission-related competencies within five competency domains with the goal of demonstrating that the program leads to student learning. As a part of our accreditation process, NASPAA requires us to complete an assessment of our program, and these surveys are an important part of the assessment process. The surveys ask about skills and competencies related to our mission and the competency domains. They provide us with data that assist us in updating and further improving the program. The surveys will be distributed to graduating students during the semester. Students will earn an "incomplete" grade for the course if these surveys are not completed.

Late Assignments

All assignments are due at 11:59 pm EST on the due date. Late assignments will result in a 10% cumulative grade deduction per late day (e.g., 10% for one day late, 20% for two days late, 30% for three late days, etc.) up to a 100% deduction. Contact me ahead of time if there are any extenuating circumstances.

Re-grade policy

If you wish to have an assignment regraded, let me know within one week after you receive it. Re-grading an assignment can increase or decrease your grade. If there was an arithmetic error in adding points to your assignment, let me know immediately, and I will correct it.

Grading Scale

Grade	Letter Grade	GPA
93-100	A	4.0
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3.0
80-82	B-	2.7
77-79	C+	2.3
73-76	C	2.0
70-72	C-	1.7
67-69	D+	1.3
63-66	D	1.0
60-62	D-	0.7
<60	F	0.0

Students with disabilities

Please contact me to discuss academic accommodations needed during the semester due to a documented disability. The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately to discuss options. Students who require accommodations should contact

the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020 or http://csd.uconn.edu/.

Academic integrity
Plagiarism, cheating, and other forms of academic misconduct will not be tolerated. All work that you submit for credit during this course must represent your own work and no one else's. Students should be especially careful in their writing to properly cite material and ideas taken from other sources. A link to the policy on scholarly integrity for graduate students may be found at https://provost.uconn.edu/faculty-and-staff-resources/syllabi-references/.

You can use AI writing tools such as ChatGPT on assignments (I'll alert you when you cannot). Whenever you use them, you must include a brief acknowledgment stating that it and how you used them. Note that all large language models still tend to make up incorrect facts and fake citations. You will be responsible for any inaccurate, biased, offensive, or otherwise unethical content you submit, regardless of whether it originally comes from you or an AI tool.

Disclaimer
Syllabus information may be subject to change, except for materials for purchase. The most up-to-date syllabus is located on the course website on HuskyCT.

Weekly course plan

Week **Date**	**Topic**	**Readings** **** To be presented by the students in class.** **++ To be discussed in class or examined in the quizzes.** **All remaining readings are optional.**
Week 1 1/16	Introduction to causal inference	
Week 2 1/23		Angrist, J. D., & Pischke, J. S. (2010). The credibility revolution in empirical economics: How better research design is taking the con out of econometrics. *Journal of economic perspectives*, *24*(2), 3-30.++ Pirog, M. A. (2009). The Role of Random Assignment in Social Policy Research. *Journal of Policy Analysis and Management*, 28(1), 164-165. Athey, S., & Imbens, G. W. (2017). The state of applied econometrics: Causality and policy evaluation. *Journal of Economic perspectives*, *31*(2), 3-32.
Week 3 1/30	Randomized experiments	
Week 4 2/06		Heller, S. B. (2014). Summer jobs reduce violence among disadvantaged youth. *Science*, 346(6214), 1219-1223.** Ferraro, P. J., Miranda, J. J., & Price, M. K. (2011). The persistence of treatment effects with norm-based policy

		instruments: evidence from a randomized environmental policy experiment. *American Economic Review*, *101*(3), 318-322.** Hankinson, M. (2018). When do renters behave like homeowners? High rent, price anxiety, and NIMBYism. *American Political Science Review*, *112*(3), 473-493.++Da Bertrand, M. & Mullainathan, S. (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.
Week 5 2/13	Instrumental variables	
Week 6 2/20		Patterson, R. W., & Patterson, R. M. (2017). Computers and productivity: Evidence from laptop use in the college classroom. *Economics of Education Review*, *57*, 66-79.** Anderson, D. M., Crost, B., & Rees, D. I. (2018). Wet laws, drinking establishments and violent crime. *The Economic Journal*, *128*(611), 1333-1366.** Aizer, A., & Doyle Jr, J. J. (2015). Juvenile incarceration, human capital, and future crime: Evidence from randomly assigned judges. *The Quarterly Journal of Economics*, *130*(2), 759-803.++ Chalfin, A. (2014). What is the contribution of Mexican immigration to US crime rates? Evidence from rainfall shocks in Mexico. *American Law and Economics Review*, *16*(1), 220-268.
Week 7 2/27	Regression discontinuity	
Week 8 3/5		Crost, B., & Guerrero, S. (2012). The effect of alcohol availability on marijuana use: Evidence from the minimum legal drinking age. *Journal of health economics*, *31*(1), 112-121.** Tuttle, C. (2019). Snapping back: Food stamp bans and criminal recidivism. *American Economic Journal: Economic Policy*, *11*(2), 301-327.** Carpenter, C., & Dobkin, C. (2015). The minimum legal drinking age and crime. *Review of economics and statistics*, *97*(2), 521-524.++ Freedman, M. (2012). Teaching new markets old tricks: The effects of subsidized investment on low-income

		neighborhoods. *Journal of Public Economics*, *96*(11-12), 1000-1014.
Week 9 3/12	**No class - Spring recess**	
Week 10 3/19	Difference-in-differences	
Week 11 3/26		Bauer, T. K., Braun, S. T., & Kvasnicka, M. (2017). Nuclear power plant closures and local housing values: Evidence from Fukushima and the German housing market. *Journal of Urban Economics*, *99*, 94-106.** Gómez, S., Mejía, D., & Tobón, S. (2021). The deterrent effect of surveillance cameras on crime. *Journal of policy analysis and management*, *40*(2), 553-571.** Linden, L., & Rockoff, J. E. (2008). Estimates of the impact of crime risk on property values from Megan's laws. *American Economic Review*, *98*(3), 1103-1127.++ Card, D., & Krueger, A. B. (1993). Minimum wages and employment: A case study of the fast food industry in New Jersey and Pennsylvania.
Week 12 4/2	Synthetic control method	Abadie, A., Diamond, A., & Hainmueller, J. (2010). Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program. *Journal of the American statistical Association*, *105*(490), 493-505.** Bohn, S., Lofstrom, M., & Raphael, S. (2014). Did the 2007 Legal Arizona Workers Act reduce the state's unauthorized immigrant population? *Review of Economics and Statistics*, *96*(2), 258-269.** Mitre-Becerril, D., & Chalfin, A. (2021). Testing public policy at the frontier: The effect of the $15 minimum wage on public safety in Seattle. *Criminology & Public Policy*, *20*(2), 291-328.++ Abadie, A., Diamond, A., & Hainmueller, J. (2015). Comparative politics and the synthetic control method. *American Journal of Political Science*, *59*(2), 495-510.
Week 13 4/9	Matching estimators	Rabarison, K. M., Timsina, L., & Mays, G. P. (2015). Community health assessment and improved public health decision-making: a propensity score matching

		approach. *American journal of public health*, *105*(12), 2526-2533.** Brooks, L. (2008). Volunteering to be taxed: Business improvement districts and the extra-governmental provision of public safety. *Journal of Public Economics*, *92*(1-2), 388-406.** Loughran, T. A., Wilson, T., Nagin, D. S., & Piquero, A. R. (2015). Evolutionary regression? Assessing the problem of hidden biases in criminal justice applications using propensity scores. *Journal of Experimental Criminology*, *11*, 631-652.++ Liberman, A. M., Kirk, D. S., & Kim, K. (2014). Labeling effects of first juvenile arrests: Secondary deviance and secondary sanctioning. *Criminology*, *52*(3), 345-370.
Week 14 4/16	TBD ▪ Review session* ▪ Advanced topics* ▪ Group project work time* *Depending on class progress	
Week 15 4/23	Group presentations	