

Empirical Methods for Policy Evaluation for MPP/MPA students

Fall 2024

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Office hours: by appointment

Course description. This course introduces MPP/MPA students to quasi-experimental research designs used by economists for policy evaluation. It starts with basic event study research designs, and covers traditional event study and difference-in-differences designs, triple difference-in-differences, and synthetic control methods. Then the course introduces students to regression discontinuity and instrumental variable studies. The course concludes with randomized control trials and select recent advances in difference-in-differences research designs that occurred after around 2019. The course draws examples of successful policy evaluations from top economics and policy journals with the emphasis on more recent studies published after 2019. After completing the course, students will be able to critically evaluate policy evaluation studies they might find in the academic literature and to conduct a simple policy evaluation study themselves.

Pre-requisites.

- (1) Coding experience with Stata, R, Python, or SAS;
- (2) At least one semester of advanced-level undergraduate econometrics

Learning outcomes. At the end of the course, students will be able to:

- (1) Differentiate between quasi-experimental and other research designs
- (2) Critically evaluate policy evaluation studies they might find in the academic and other literature
- (3) Design a policy evaluation study with a quasi-experimental research design

Course materials. The required texts for this course are *Causal Inference* by Paul R. Rosenbaum (2023) and *Mostly Harmless Econometrics: An Empiricist's Companion* by Joshua D. Angrist and Jörn-Steffen Pischke (2009). A highly recommended text is *Econometric Analysis* by William H. Greene, which can be used as a reference. All other required course readings will be posted on Canvas. **Please note that all readings listed in the course schedule are required.**

Course Schedule

Date	Readings due	Assignments due
Topic: The challenges of policy evaluation: possible types of bias and other issues		
08/29	Introduction to the course and course policies.	

09/03	Rosenbaum (2023). Chapters 1, 3, 4, 5.	
09/05	<p>Allcott, H. (2015). Site selection bias in program evaluation. <i>The Quarterly Journal of Economics</i> 130(3): pp. 1117–1165, https://doi.org/10.1093/qje/qjv015</p> <p>Plüddemann, A., & Heneghan, C. (2023). Catalogue of bias collaboration. https://catalogofbias.org/biases/review-biases/</p> <p>Soumerai, S., & Koppel, R. (2015). Avoiding expensive and consequential health care decisions based on weak research designs. <i>Health Affairs Forefront</i>. https://www.healthaffairs.org/content/forefront/avoiding-expensive-and-consequential-health-care-decisions-based-weak-research-designs</p>	
Topic: Difference-in-differences and event studies		
09/10	<p>Rosenbaum (2023). Chapter 6.</p> <p>Angrist & Pischke (2009). Chapter 5.</p> <p>Cengiz, D., Dube, A., Lindner, A., & Zipperer, B. (2019). The effect of minimum wages on low-wage jobs. <i>The Quarterly Journal of Economics</i> 134(3): 1405–1454, https://doi.org/10.1093/qje/qjz014</p>	
09/12	<p>Bailey, M.J., Hoynes, H.W., Rossin-Slater, M., & Walker, R. (2020). Is the social safety net a long-term investment? Large-scale evidence from the Food Stamps program. NBER Working Paper 26942. doi 10.3386/w26942</p> <p>Atwood, A. (2022). The long-term effects of Measles vaccination on earnings and employment. <i>American Economic Journal: Economic Policy</i> 14 (2): 34-60. doi: 10.1257/pol.20190509</p>	
09/17	<p>Hollingsworth, A., & Rudik, I. (2021). The effect of leaded gasoline on elderly mortality: Evidence from regulatory exemptions. <i>American Economic Journal: Economic Policy</i> 13 (3): 345-73. doi: 10.1257/pol.20190654</p> <p>Lundborg, P., Rooth, D., & Alex-Petersen, J. (2022). Long-term effects of childhood nutrition: Evidence from a school lunch reform. <i>The Review of Economic Studies</i> 89(2): 876–908, https://doi.org/10.1093/restud/rdab028</p>	
09/19	Review of the difference-in-differences and event study designs.	Assignment 1

Topic: Synthetic controls in difference-in-differences and event study settings		
09/24	<p>Jardim, E., Long, M.C., Plotnick, R., van Inwegen, E., Vigdor, J., & Wething, H. (2022). Minimum-wage increases and low-wage employment: Evidence from Seattle. <i>American Economic Journal: Economic Policy</i> 14 (2): 263-314. doi: 10.1257/pol.20180578</p> <p>Jones, D., & Marinescu, I. (2022). The labor market impacts of universal and permanent cash transfers: Evidence from the Alaska Permanent Fund. <i>American Economic Journal: Economic Policy</i> 14 (2): 315-40. doi: 10.1257/pol.20190299</p>	
Topic: Triple difference-in-differences		
09/26	<p>Zuo, G. W. 2021. Wired and hired: Employment effects of subsidized broadband internet for low-income Americans. <i>American Economic Journal: Economic Policy</i> 13 (3): 447-82. doi: 10.1257/pol.20190648</p> <p>Jacome, E. (2022). Mental health and criminal involvement: Evidence from losing Medicaid eligibility. https://sites.google.com/view/elisajacome/research</p>	
10/01	Midterm review	
10/03		Midterm
Topic: Instrumental variable studies		
10/08	<p>Angrist & Pischke (2009). Chapter 4.</p> <p>Rosenbaum (2023). Chapter 7.</p>	
10/10	<p>Porter, S.R. (2012). Using instrumental variables properly to account for selection effects. https://files.eric.ed.gov/fulltext/ED531905.pdf</p> <p>Orosz, K., Proteasa, V. & Crăciun, D. (2020). The use of instrumental variables in higher education research. In Huisman, J., & Tight, M. (Ed.) <i>Theory and Method in Higher Education Research</i> (Vol. 6), Emerald Publishing Limited, Bingley, pp. 61-80. https://doi.org/10.1108/S2056-375220200000006005</p>	
10/15	Goodman-Bacon, A. (2021). The long-run effects of childhood insurance coverage: Medicaid implementation, adult health, and labor market outcomes . <i>American Economic Review</i> 111 (8): 2550-93. doi: 10.1257/aer.20171671	

	Soumerai, S. B, & Koppel, R. (2017). <i>The reliability of instrumental variables in health care effectiveness research: Less is more.</i> <i>Health Services Research</i> 52(1): 9-15. doi: 10.1111/1475-6773.12527 .	
10/17	Johnson, R. C., & Jackson, C. K. (2019). <i>Reducing inequality through dynamic complementarity: Evidence from Head Start and public school spending.</i> <i>American Economic Journal: Economic Policy</i> 11 (4): 310-49. doi: 10.1257/pol.20180510 Jackson, C. K., Wigger, C., & Xiong, H. (2021). <i>Do school spending cuts matter? Evidence from the Great Recession.</i> <i>American Economic Journal: Economic Policy</i> 13 (2): 304-35. doi: 10.1257/pol.20180674	
10/22	Ballis, B., & Heath, K. (2021). <i>The long-run impacts of special education.</i> <i>American Economic Journal: Economic Policy</i> 13(4): 72-111. doi: 10.1257/pol.20190603 Angrist, J. D., & Krueger, A. B. (1991). <i>Does compulsory school attendance affect schooling and earnings?</i> <i>The Quarterly Journal of Economics</i> 106(4), 979–1014. https://doi.org/10.2307/2937954	
10/24	Stephens, M. Jr., & Yang, D. (2014). <i>Compulsory education and the benefits of schooling.</i> <i>American Economic Review</i> 104 (6): 1777-92. doi: 10.1257/aer.104.6.1777 . Harmon, C. (2017). <i>How effective is compulsory schooling as a policy instrument?</i> IZA World of Labor 348. doi: 10.15185/izawol.348	
10/29	Review of the instrumental variable design.	Assignment 2
Topic: Regression discontinuity studies		
10/31	Angrist & Pischke (2009). Chapter 6.	
11/05	Asher, S., & Novosad, P. (2020). <i>Rural roads and local economic development.</i> <i>American Economic Review</i> 110(3): 797-823. doi: 10.1257/aer.20180268 Alix-Garcia, J., McIntosh, C., Sims, K. R. E., & Welch, J. R. (2013). <i>The ecological footprint of poverty alleviation: Evidence from</i>	

	Mexico's Oportunidades program. <i>The Review of Economics and Statistics</i> 95 (2): 417–435. doi: https://doi.org/10.1162/REST_a_00349	
11/07	Daysal, N. M, Simonsen, M., Trandafir, M., & Breining, S. (2022). Spillover effects of early-life medical interventions. <i>The Review of Economics and Statistics</i> 104 (1): 1–16. doi: https://doi.org/10.1162/rest_a_00982 Bünnings, C., & Schiele, V. (2021). Spring forward, don't fall back: The effect of Daylight Saving Time on road safety. <i>The Review of Economics and Statistics</i> 103(1): 165–176. doi: https://doi.org/10.1162/rest_a_00873	
11/12	Review of the regression discontinuity study design.	
Topic: Randomized control trials		
11/14	Angrist & Pischke (2009). Chapter 2. Rosenbaum (2023). Chapter 2.	
11/19	Wozny, N., Balser, C., & Ives, D. (2018). Low-cost randomized controlled trials in education. <i>AEA Papers and Proceedings</i> 108: 307-11. doi: 10.1257/pandp.20181054 Londoño-Vélez, J., & Querubín, P. (2022). The impact of emergency cash assistance in a pandemic: Experimental evidence from Colombia. <i>The Review of Economics and Statistics</i> 104 (1): 157–165. doi: https://doi.org/10.1162/rest_a_01043	
11/21	Cohen, J., Dupas, P., & Schaner, S. (2015). Price subsidies, diagnostic tests, and targeting of malaria treatment: Evidence from a randomized controlled trial. <i>American Economic Review</i> 105(2): 609-45. doi: 10.1257/aer.20130267 Crépon, B., Duflo, E., Gurgand, M., Rathelot, R., & Zamora, P. Do labor market policies have displacement effects? Evidence from a clustered randomized experiment. <i>Quarterly Journal of Economics</i> 128(2): 531–580. https://doi.org/10.1093/qje/qjt001	
11/26	Review of the randomized control trial design.	
11/28	No class - Thanksgiving break	
Topic: Select latest advances in difference-in-differences and event study designs		

12/03	<p>Naqvi, A. (2020-2022). <i>Repository on the recent developments and innovations in the Difference-in-Difference (DiD) literature</i>. https://asjadnaqvi.github.io/DiD/</p> <p>Callaway, B., & Sant'Anna, P.H.C. (2021). <i>Difference-in-Differences with multiple time periods</i>. <i>Journal of Econometrics</i> 225(2): 200-230. https://doi.org/10.1016/j.jeconom.2020.12.001</p> <p>Sun, L., & Abraham, S. (2021). <i>Estimating dynamic treatment effects in event studies with heterogeneous treatment effects</i>. <i>Journal of Econometrics</i> 225(2): 175-199, https://doi.org/10.1016/j.jeconom.2020.09.006</p> <p>Chaisemartin, C. & D'Haultfœuille, X. (2023). <i>Two-way fixed effects and differences-in-differences with heterogeneous treatment effects: A survey</i>. <i>The Econometrics Journal</i> 26(3): C1-C30. https://doi.org/10.1093/ectj/utac017</p>	
Course Wrap-up and Review		
12/05	Final Review	Assignment 3
12/18		Final Exam

Evaluation. In this course, you will be evaluated based on the midterm, the final exam, and three assignments. Please refer to the course schedule for exam dates and assignment due dates. However, note that in case of unexpected circumstances, these dates might change - in such a case, all students will be notified via a Canvas announcement.

Grade breakdown

Midterm: 15%
 Final exam: 25%
 Assignment 1: 10%
 Assignment 2: 20%
 Assignment 3: 30%

Midterm and final exam. The midterm and the final exam will test your understanding of the concepts and readings covered in class. Your midterm and final exams **will be graded anonymously** - you will receive the relevant instructions on the exam day. **Please note:** You will have the option of completing either the final exam or the midterm at home, but one of them must be completed in class (i.e., you choose whether you will complete the final exam or the midterm in class; you may also choose to complete both of the exams in class). The take-home

version of the midterm and final exam will be different - more detail will be provided on the first day of classes.

Assignment 1. You will need to choose a policy you would like to evaluate and develop a detailed 12-15 page research proposal that you will submit on the Assignment 3 due date. To complete Assignment 1, you will need to develop a few sections of that proposal. In particular, you must describe the policy, your study motivation and research question, the data you will use in your evaluation, and the empirical method you would like to use. The page limit for Assignment 1 is 3-4 pages (single-spaced). Your 3-4-page research proposal must also include a brief literature review. If you are unsure about what policy you might want to evaluate, please talk to me well in advance of the Assignment 1 due date. Please do not hesitate to talk to me about potential research questions, data sources, suitable empirical methods, or any other questions you might have.

Assignment 2. Your Assignment 2 will build on Assignment 1. To complete Assignment 2, you need to obtain data for your policy evaluation study and conduct a preliminary analysis. For example, if you intend to use an event study design, you are not expected to have results from the event study yet, but you are expected at this stage to explore the data and show summary statistics for the treatment and control group. The page limit for Assignment 2 is 3-4 pages (single-spaced) including graphs or tables (please include at least one table and at least one graph).

Assignment 3. Your Assignment 3 will build on Assignments 1 and 2. Using what you have learned from Assignments 1 and 2, critically analyze potential sources of selection bias and other limitations of your study design, as well as potential policy implications of your anticipated findings (3-4 pages single-spaced). Combine Assignments 1, 2, and 3, and ensure that the combined document has the following sections: 1) Motivation and research question; 2) Brief literature review; 3) Description of the empirical strategy; 4) Data sources and summary statistics; 5) Potential sources of selection bias and other limitations; 6) Policy implications.

Academic Integrity

As a partner in your learning, it is important to both of us that any assignment submission is a pure reflection of your work and understanding. The introduction of artificial intelligence options to complete academic work jeopardizes my ability to evaluate your understanding of our course content and robs you of the ability to master the subject matter.

Suspensions of use of artificial intelligence aids will be referred to the Office of Academic Integrity as alleged violations of Cheating, defined as “unauthorized assistance in connection with any academic work” and/or Falsification, which includes “Misrepresenting or misleading others with respect to academic work or misrepresenting facts for an academic advantage”.

You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation will result in a minimum academic penalty of your failing the assignment

and will result in additional disciplinary measures. This includes improper citation of sources, using another student's work, and any other form of academic misrepresentation.

Plagiarism

Using the words or ideas of another as if they were one's own is a serious form of academic dishonesty. If another person's complete sentence, syntax, key words, or the specific or unique ideas and information are used, one must give that person credit through proper citation.

Laptop/Smartphone Policy

The use of laptops in class is allowed but should not be disruptive to other students' learning. Cell phones should be placed on silent and should be put away in your pocket or bag.

Attendance Policy

There is no attendance requirement. However, when you miss class, you miss important information. If you are absent, you are responsible for learning material covered in class.

Late Work/Make-up Policy

Makeup assignments and exams will be given without penalty if you have an excused absence. Unexcused absences from assignments and exams will result in a significant point deduction. You are allowed to make up one assignment without penalty one time this semester. Review the course schedule for all assignment due dates.

Diversity and Inclusion

The university is committed to a campus environment that is inclusive, safe, and respectful for all persons. To that end, all course activities will be conducted in an atmosphere of friendly participation and interaction among colleagues, recognizing and appreciating the unique experiences, background, and point of view each student brings. You are expected at all times to apply the highest academic standards to this course and to treat others with dignity and respect.

Accessibility, Disability, and Triggers [credit to Dr. David Moscovitz]

I am committed to ensuring course accessibility for all students. If you have a documented disability and expect reasonable accommodation to complete course requirements, please notify me at least one week before accommodation is needed. Please also provide Student Disability Services documentation to me before requesting accommodation. Likewise, if you are aware of cognitive or emotional triggers that could disrupt your intellectual or mental health, please let me know so that I can be aware in terms of course content.

Title IX and Gendered Pronouns [credit to Dr. David Moscovitz]

This course affirms equality and respect for all gendered identities and expressions. Please let me know your preferred gender pronouns in the survey distributed on the first day of class (a copy of the survey will also be available on Canvas and can be submitted through Canvas). Likewise, I am committed to nurturing an environment free from discrimination and harassment. Consistent with Title IX policy, please be aware that I as a responsible employee am obligated to report information that you provide to me about a situation involving sexual harassment or assault.

Disability Services

The Student Disability Services (<https://sds.cornell.edu/>) empowers students to manage challenges and limitations imposed by disabilities. Students with disabilities are encouraged to contact me to discuss the logistics of any accommodations needed to fulfill course requirements (within the first week of the semester). In order to receive reasonable accommodations from me, you must be registered with the Student Disability Services (SDS). Any student with a documented disability should contact the SDS to make arrangements for appropriate accommodations.

Mental Health

If stress is impacting you or getting in the way of your ability to do your schoolwork, maintain relationships, eat, sleep, or enjoy yourself, please reach out to any of our mental health resources. Most of these services are offered at no cost as they are covered by the Student Health Services tuition fee. For all available mental health resources, check out Cornell Mental Health Resources at <https://health.cornell.edu/services/mental-health-care/resources-students>

Writing Center Resources

The Cornell's Writing Centers provide support for individuals at any stage of the writing process. It is a free resource available to all of Cornell—undergraduate students, pre-freshman and high schoolers in summer programs, graduate students, staff, faculty, and alumni—for nearly any kind of writing project: applications, presentations, lab reports, essays, papers, and more. Tutors (highly trained undergraduate students) serve as responsive listeners and readers who can address questions about the writing process or about particular pieces of writing. They will ask questions that foster critical thinking about your writing, and they will also consider questions of confidence, reading, analytic thought, imagination, and research. All tutors have training in supporting multilingual writers, working with writers remotely online, and in supporting writers working on application materials. Appointment can be made at <https://knight.as.cornell.edu/wc>

English Language Support

A division of the Knight Institute for Writing in the Disciplines, English Language Support Office's mission is to offer writing and speaking tutoring to multilingual and international graduate and

professional students that meets the needs of students in diverse programs, from diverse linguistic backgrounds, and at diverse points in their graduate careers. Appointment can be made at <https://elso.as.cornell.edu/>