THE UNIVERSITY OF CHICAGO
Harris Public Policy

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PPHA 34600: Program Evaluation
Section 02: International development focus
SYLLABUS

Instructor: Prof. Fiona Burlig
                   Email: burlig@uchicago.edu

Course logistics: Due to COVID-19, we are unable to meet in person. Instead, class will work as follows (subject to change):

- Lectures: I will post lecture recordings to the course's Canvas website. This is the majority of the course material; you are responsible for the content in these recordings. I will not hold live lecture.

- Open discussion/live Q&A sessions: I will hold Zoom open Q&A during the first half of our regularly-scheduled class time on Tuesdays (11:00-11:40A), beginning the second week of class. I will send out Zoom meeting details via Canvas.

- Office hours: I will hold Zoom office hours during the second half of our regularly-scheduled class time on Tuesdays (11:40A-12:20P), beginning the second week of class. If you are interested in joining for office hours, please sign up at this link. You may sign up alone, or in a group of up to 5. Please be respectful of your classmates when signing up for office hours. Any office hour sign-ups more than 2 weeks in advance without my prior permission will be deleted. I will admit you into the Zoom meeting when your scheduled time begins. I will send out Zoom meeting details via Canvas.

- Class happy hour: In order for us to have a little bit more time to interact with one another, I will hold Zoom happy hour three times throughout the quarter, from 7-8 PM Chicago time: 4/22, 5/14, 6/2. These are not mandatory, but you and your adult beverages are welcome! I will send out Zoom meeting details via Canvas.

TAs:
- *Head TA:* Terence Chau, terencechau@uchicago.edu
- Angel Aliseda, aaliseda@uchicago.edu
- Anna-Elise Smith, annaelise@uchicago.edu
- Borui Sun, boruis@uchicago.edu
- Daniella Choi, daniellac@uchicago.edu
- Jena Manilla, jmanilla@uchicago.edu
- Simon Park, simonpark@uchicago.edu
- Luis Recalde, luisrecalde@uchicago.edu
- Yumeng Wang, yumengwang@uchicago.edu
- Zhijie Yan, zhijiey@uchicago.edu

TA Sessions and office hours:
- TA sessions will include pre-recorded content, which will be posted to Canvas.

● The TAs will also hold office hours during your scheduled lab sections. The TAs will be in touch with Zoom details.

Course description: The goal of this course is to introduce students to program evaluation, provide an overview of current issues and methods for estimating treatment impacts, and prepare students to be effective consumers of empirical evaluations of real-world policies.

A note on course sections: This course is divided into three sections, each with a slightly different focus. PPHA 34600-01 (9:30-10:50A) will have a general focus. PPHA 34600-02 (11:00A-12:20P) will have an international development focus. PPHA 34600-03 (2:00-3:20p) will have an energy and environment focus. The three sections will share TAs, problem sets, final exams, due dates, and the majority of the course material, but we will read different papers (see below). Note that if you are taking this course to fulfill a certificate requirement in international policy and development or in energy and environmental policy, you must register for the section that corresponds with your certificate.

TA sessions: TA sessions are not mandatory, but will be extremely helpful. I will not have time to cover coding in class; instead, this will take place during TA sessions. I strongly encourage you to attend.

Prerequisites: PPHA31002 and PPHA31102 or equivalent coursework in statistics and economic theory. Students lacking these prerequisites should seek permission from the instructor.

Requirements and grading: Grades will be based on four problem sets and a final exam. Problem sets will count for a total of 75% and the final exam will count for 25%.

Problem sets: Problem sets must be typed and submitted electronically, and late problem sets will not be accepted. Each assignment will receive equal weight. You may work in groups of up to three on your problem sets, ask the course TAs, and get help from Harris' R consultants, but you must turn in your own problem set, with answers written in your own words. You may share code with other members of your group, but you may not share written answers with other students (including members of your own group). All coding in problem sets must be done in R. Due dates are as follows:
● Problem Set 1: Thursday, **April 23** at 9 pm.
● Problem Set 2: Thursday, **May 14** at 9 pm.
● Problem Set 3: Thursday, **May 21** at 9 pm.
● Problem Set 4: Thursday, **May 28** at 9pm.

Final exam: The take-home final exam will be assigned on May 31st, and due at **9 PM on June 3rd**. You must do your own work and may not discuss the exam with anyone before it is due. Your exam must be typed and submitted electronically. all coding on the exam must be done in R. Late exams will receive a zero.

Re-grade policy: : If you think that there is an error in the grading of your work, you must submit a typed written statement of the details of the problem in question to a TA attached to the assignment in question. The TAs will review both your reasoning and the problem and respond

within one week. We reserve the right to re-grade the assignment in its entirety. If you are requesting a re-grade based on other students' grades, you must submit your own problem set and the other student's problem set with your request in order to receive a re-grade. Regrades must be submitted within a week of problem sets being returned.

Readings: Materials for this course consist of two main items: (1) my recorded lectures, and the accompanying slides, which will be focused on theory, and (2) a variety of papers that will be available from the course website, which will provide examples of each method. Instruction on and practice with coding will take place in TA sessions. See the schedule and reading list below for topics and associated readings.

Additional policies:
Piazza: The course will have a Piazza site, accessed through Canvas, and maintained by the TAs. If you have content-related questions, please post them on Piazza. Note that neither I nor the TAs will respond to Piazza questions submitted within 24 hours of a problem set deadline or the exam deadline.

Email: Please use Piazza over email for questions related to course content. If your non-content-related email cannot be answered in a paragraph or less, I'll ask you to come to office hours or make an appointment so that we can discuss it in person. I will do my best to respond to emails within 48 hours (M-F). If you haven't heard from me within 48 hours, please re-send your email. To greatly increase the likelihood that I (or the TAs) see your email, please be sure to include [PPHA 34600] in the subject line. Neither I nor the TAs will respond to emails sent within 24 hours of a problem set deadline or the exam deadline.

Statistical software: Data work for this class, including problem sets and/or the final exam, will be done in R. I recommend that you use RStudio in conjunction with the tidyverse.

Academic honesty: The Harris School has a formal policy on academic honesty that you are expected to adhere to. Examples of academic dishonesty include (but are not limited to) turning in someone else's work as your own, turning in the same written text as someone else on a problem set/exam, copying solutions to past years' problem sets, and receiving any unapproved assistance on exams. This course has a zero-tolerance policy for academic dishonesty. Any student found in violation of this academic honesty policy will receive an automatic F in the class. I will also refer all cases of cheating to the office of the Dean of Students. They may in turn impose further penalties as per the Harris School Disciplinary Procedures, including probation and expulsion. If you have any questions regarding what would or would not be considered academic dishonesty in this course, please do not hesitate to ask. Note that this policy extends to online class.

ADA accommodations: Any student who believes they may need assistance should inform the Office of Student Disability Services by the end of the first week of class. Once you have received an accommodation letter, it should be presented to the course instructor immediately. For more information, see https://disabilities.uchicago.edu/.

Tentative list of lecture topics and deadlines (subject to adjustments):

4/7: Why program evaluation?
4/9: Treatment parameters and regression
4/14: Randomized controlled trials I
4/16: Randomized controlled trials II
4/21: Randomized controlled trials III
- **4/22: Zoom happy hour!**

4/23: Evaluation of evaluations
- **Problem set #1 due**

4/28: Selection on observables
4/30: Instrumental variables I
5/5: Instrumental variables II
5/7: Instrumental variables III
5/12: Panel data I
5/14: Panel data II
- **Problem set #2 due**
- **5/14: Zoom happy hour!**

5/19: Panel data III
5/21: Regression discontinuity I
- **Problem set #3 due**

5/26: Regression discontinuity II
5/28: Big data and machine learning
- **Problem set #4 due**

6/2: Policy lab I
- **6/2: Zoom happy hour!**

6/4: Policy lab II
- **Final exam due on 6/3**

Reading list: Readings will be made available through the course website. I am not asking you to read much, so all readings are mandatory unless otherwise noted. Please read the version from the course website to make sure we are all on the same page.

Why program evaluation?
- No readings for the first meeting.

Treatment parameters and regression
- Angrist, Joshua D. and Jorn-Steffen Pischke. 2015. *Mastering 'Metrics,* Princeton University Press: Princeton, NJ: pp 82-97.
- Angrist, Joshua D. and Jorn-Steffen Pischke. 2009. *Mostly Harmless Econometrics,* Princeton University Press: Princeton, NJ: pp 27-64.

Randomized controlled trials I

- Christensen, Darin, Oeindrila Dube, Johannes Haushofer, Bilal Siddiqi, and Maarten Voors. 2020. "Building resilient health systems: Experimental evidence from Sierra Leone and the 2014 Ebola outbreak," *Working paper*.

Randomized controlled trials II
- Fowlie, Meredith, Catherine Wolfram, C. Anna Spurlock, Annika Todd, Patrick Baylis, and Peter Cappers. 2017. "Default Effects and Follow-on Behavior: Evidence from an Electricity Pricing Program," *NBER Working Paper w23553*.

Randomized controlled trials III
- Bergquist, Lauren, Marshall Burke, and Edward Miguel. 2019. "Sell low and buy high: Arbitrage and local price effects in Kenyan markets," *The Quarterly Journal of Economics,* 134(2): 785--842.
- *Optional reading:* Baird, Sarah, J. Aislinn Bohren, Craig McIntosh, and Berk Ozler. 2014. "Designing experiments to measure spillover effects," *IIEP working paper*.

Evaluation of evaluations
- Spurlock, Anna, Peter Cappers, Jing Lin, Annika Todd, and Patrick Baylis. 2016. "Go for the silver? Evidence from field studies quantifying the difference in evaluation results between 'gold standard' randomized controlled trial methods versus quasi-experimental methods," *ACEEE Summer Study on Energy Efficiency in Buildings*, 2-1--2-13.

Selection on observables
- Davis, Lucas W., Alan Fuchs, and Paul Gertler. 2014. "Cash for coolers: Evaluating a large-sale appliance replacement program in Mexico," *American Economic Journal: Economic Policy,* 6(4): 207--238.

Instrumental variables I
- Miguel, Edward, Shanker Satyanath, and Ernest Sergenti. 2014. "Economic shocks and civil conflict: An instrumental variables approach," *Journal of Political Economy*, 112 (4): 725--753.

Instrumental variables II
- Maccini, Sharon and Dean Yang. 2009. "Under the weather: Health, schooling, and economic consequences of early-life rainfall," *American Economic Review,* 99(3): 1006--1026.

Instrumental variables III
- No new reading. Review Fowlie, Wolfram et al.

Panel data I
- Jensen, Robert. 2007. "The digital provide: Information (technology), market performance, and welfare in the South Indian fisheries sector," *The Quarterly Journal of Economics,* 122(3): 879--924.

Panel data II

- Hsiang, Solomon M. and Amir S. Jina. 2014. "The causal effect of environmental catastrophe on long-run economic growth: Evidence from 6,700 cyclones," NBER Working Paper w20352.
- *Optional reading:* Goodman-Bacon, Andrew. 2018. "Difference-in-differences with variation in treatment timing," *Working paper.*

Panel data III
- Muralidharan, Karthik and Nishith Prakash. 2017. "Cycling to school: Increasing secondary school enrollment for girls in India," *American Economic Journal: Applied Economics*, 9 (3): 321--350.

Regression discontinuity I
- Dell, Melissa and Paulo Querubin. 2018. "Nation building through foreign intervention: Evidence from discontinuities in military strategies," *The Quarterly Journal of Economics*, 133 (2): 701--764.

Regression discontinuity II
- Chen, Yuyu, Avraham Ebenstein, Michael Greenstone, and Hongbin Li. 2013. "Evidence on the impact of sustained exposure to air pollution on life expectancy from China's Huai River Policy," *Proceedings of the National Academy of Sciences*, 110(32): 12936--12941.
- *Optional reading:* Ebenstein, Avraham, Maoyong Fan, Michael Greenstone, Guojun He, and Maigeng Zhou. 2017. "New evidence on the impact of sustained exposure to air pollution on life expectancy from China's Huai River Policy," *Proceedings of the National Academy of Sciences*, 114 (39): 10384--10389.

Big data and machine learning
- Burlig, Fiona, Christopher Knittel, David Rapson, Mar Reguant, and Catherine Wolfram. 2020. "Machine learning from schools about energy efficiency," NBER Working Paper w23908.
- *Optional reading:* Mullainathan, Sendhil and Jann Spiess. 2017. "Machine learning: An applied econometric approach," *Journal of Economic Perspectives*, 31(2): 87--106.
- *Optional reading:* Donaldson, Dave and Adam Storeygard. 2016. "The view from above: Applications of satellite data in economics," *Journal of Economic Perspectives,* 30(4): 171-198.

Policy lab: Does rural electrification work? I
- Dinkelman, Taryn. 2011. "The effects of rural electrification on employment: New evidence from South Africa," *American Economic Review,* 101(7): 3078--3108.

Policy lab: Does rural electrification work? II
- Burlig, Fiona and Louis Preonas. 2016 "Out of the darkness and into the light? Development effects of rural electrification," Energy Institute at Haas Working Paper 268.
- Lee, Kenneth, Edward Miguel, and Catherine Wolfram. 2020. "Experimental evidence on the economics of rural electrification," *Journal of Political Economy*, 128(4): 1523--1565.
- *Optional reading:* Lee, Kenneth, Edward Miguel, and Catherine Wolfram. 2019. "Does electrification supercharge economic development?" *Journal of Economic Perspectives,* 34(1): 122--124.