

Jeff Grogger
Harris School

Winter 2025
University of Chicago

PP 58002: Data Analytics II: Introduction to Program Evaluation

Winter 2025: Tuesdays, 6:00-8:50 pm; 1871, Room TBA.

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Course content: The purpose of the course is to introduce students to program evaluation and provide an overview of current issues and methods. This is a course directed not at people who seek to carry out evaluations themselves, but rather who might need to use the results from program evaluations, select contractors to carry out evaluations, or supervise their work.

Texts: Readings for each class are spelled out below. We will also make use of the text by Joshua Angrist and Joern-Steffen Pischke (AP). *Mastering Metrics*. Princeton Press.

You may also find useful their somewhat more advanced text, *Mostly Harmless Econometrics*.

Class logistics: To understand the requirements and grading for the class, it's necessary to understand how the class will work. First, think of each class as divided into two half-classes. The first week will be devoted largely to review, as will be the first half of the second class.

Starting with the second week, the second half of one class will be devoted to introducing a new topic and the theory that underlies it. I will use the indicated readings to highlight the theoretical points; students will be expected to have read these papers and participate with questions and answers during the lecture. The first half of the next class will discuss further applications, before another new topic is introduced in the second half, and so on.

For a concrete example, look at week 3. The second half of the class that week will discuss theoretical issues involved in social experiments, using Heckman and Smith (1995) and Finkelstein et al (2012) to highlight key issues. Then in the first half-class of week 4, we will discuss the social experiments reported in Chetty et al (2016) and King et al (2009). Note that, if there is a mini-exam in week 4 (discussed below), questions about the Chetty et al and King et al papers may be included.

Grading: On four randomly chosen dates, we will have mini-exams at the beginning of class. Students will be given questions about recent material at 6 pm and have until 6:30 pm to provide short, concise answers. These will be closed-book, closed-note, and closed-device. *They will be written by hand*, so bring a blue book and pen to every class. Students' grades will be based on the three mini-exams with the highest scores. There is also an expectation that students will participate in class discussions of the lectures and readings.

Course schedule and readings

Week	First half-class. Starting in week 3, this will focus on applications that reinforce theoretical lessons from the prior week:	Second half-class. Starting in week 2, this will introduce new theoretical material. The readings include applications of that theory:
1.	Preliminaries; Gertler et al 2011 , chs. 1, 2, and 10; CDC 1999 , pp. 1-31.	Mathematical review; review of OLS and IV regression; AP, section 1.1 and ch. 1 appendix; AP, chs. 2 and 3 (including appendices);
2.	The evaluation problem and sample selection bias; AP, ch. 1; Smith 2000 , sections 1 and 2.	Treatment parameters; Smith 2000 , sections 1 and 2; Gertler et al 2011 , ch. 3; Aizer and Doyle 2015
3.	IV estimators; Dobbie, et al (2018)	Social experiments; AP, ch. 1; Heckman and Smith 1995 ; Finkelstein et al 2012
4.	Social experiments; Chetty et al 2016 ; King et al 2009	Regression discontinuity; AP, ch. 4; McCrary 2008 ; Deshpande 2016
5.	Regression discontinuity; Hansen 2015 ; Pinotti 2017	Differences-in-differences; AP, ch. 5; Doleac and Hansen 2017
6.	Differences-in-differences; Grogger 2002; Ridgeway, et al, 2018	Matching; Black and Smith 2004 ; Black et al 2008
7.	Matching; Black, et al, 2024	Permutation inference; Fisher 1935 , pp. 1-26; Rosenbaum 2002, ch. 2; Chetty et al. 2009
8.	Permutation inference; Cunningham and Shah 2017 ;	Synthetic control; Abadie and Gardeazabal 2003

		Abadie et al 2010
9.	Synthetic control; Grogger 2017 ; Powell et al 2015	

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