

University of Washington
Evans School of Public Policy and Governance
Autumn Quarter 2017

PPM 512: Data Analysis Practicum

This course reviews the basic statistical methods of inferring the causal impact of public policy initiatives on social outcomes. Topics include randomized controlled trials, instrumental variable analysis, regression discontinuity designs, difference-in-difference “natural experiments,” and propensity score/nearest neighbor matching methods. The benefits and drawbacks of each method will be discussed; students will gain practical experience in conducting each method using instructor-provided datasets and Stata statistical software. The course is designed for the benefit of students who intend to conduct self-directed policy evaluation research. The course is appropriate for students with a strong grounding in statistics, including multiple regression and limited dependent variable models. Whenever possible, topics will be discussed using intuitive and/or graphical methods, with minimal reference to matrix algebra or calculus.

Meeting Time

Tuesdays, 8:30-11:20 AM, Parrington 112

Instructor

Jacob Vigdor, jvigdor@uw.edu, 616-4436, office hours Tuesdays 1:00-3:00 PM in Parrington 324 and by appointment. Please note that office hours will not be held on October 24th or November 28th; office hours will be available by appointment those weeks.

Prerequisites

All students enrolled in the course are expected to be familiar with the statistical concepts and techniques necessary to estimate and interpret multivariate ordinary least squares (OLS) regression. Familiarity with matrix algebra is advantageous but not necessary.

Readings

Readings will be drawn from two required texts as well as a series of journal articles available as electronic resources and linked in the course calendar listings below. The required texts are:

Angrist, J. and J. Pischke (2009) *Mostly Harmless Econometrics* ([Links to an external site.](#))[Links to an external site.](#). Princeton University Press. Available in ebook format for immediate download, \$26.99.

Shadish, W., T. Cook and D. Campbell (2001) *Experimental and Quasi-Experimental Designs for Generalized Causal Inference* ([Links to an external site.](#))[Links to an external site.](#), 2nd ed. Houghton Mifflin. Will be available on 4-hour reserve at Odegaard library, also available for purchase for about \$100 (new).

I also recommend that you own an econometrics textbook that covers multiple regression and applied topics. The reading list refers to the following textbook:

Stock, J. and M. Watson (2014) *Introduction to Econometrics*, 3rd ed. Addison-Wesley

however any substitute book with comparable subject coverage (including prior editions of Stock and Watson) is acceptable. A copy of Stock and Watson will be available on reserve at Odegaard library.

Assignments and Grading Policy

The assignments in this course consist of four problem sets, which will be distributed on a biweekly basis, one discussion paper, a term project, and a final exam. The problem sets will each involve hands-on data analysis using datasets I provide. The term project will not involve actual data analysis, but will require you to identify a policy-relevant research question, a source of data which could be used to answer it, and a methodological strategy for making a causal claim. These various assignments, along with class participation, will be weighted in the following manner to determine your grade for the course:

- Final exam (scheduled for Tuesday, December 12th 10:30 AM – 12:20 PM) 20%
- Discussion paper 10%
- Problem sets (4) 10% each
- Term project 25%
- Class participation (attendance, contributions to discussion) 5%

Course Policies and Values

- **Late work is not accepted.** Work submitted after the posted due date and time will be returned with feedback but receive a grade of zero. Exceptions are possible only with the advance consent of the instructor.
- **Academic integrity is expected.** Although you are free to discuss your assignments with your peers, all submitted work should be yours alone. Any references to the work of others should be appropriately cited.
- **Technology.** It is assumed that all students have access to and a foundational understanding of a statistical software package of their choice. The instructor will make reasonable attempts to make materials available in an accessible format.
- **Accommodations.** Please contact the instructor to confidentially discuss any factors that might impede your personal learning process.
- **Inclusivity.** As we will learn this quarter, causal inference is a matter of art as much as science, differences of opinion will naturally occur. We will see statistical methods applied to controversial topic areas that may be difficult for some of your classmates to discuss. I appreciate your efforts to take a moment to think about how others might receive your comments before you make them.

Course Summary:

Date	Details
Tue Oct 3, 2017	The Logic of Causality 8:30am to 11:20am
Tue Oct 10, 2017	Randomized Controlled Trials (RCTs) 8:30am to 11:20am
	Discussion Paper due by 8:30am
Tue Oct 17, 2017	RCTs with non-compliance/Instrumental Variables I 8:30am to 11:20am
	Assignment 1 due by 8:30am
Tue Oct 24, 2017	Instrumental Variables II 8:30am to 11:20am
Tue Oct 31, 2017	Regression discontinuity I 8:30am to 11:20am
	Assignment 2 due by 8:30am
Tue Nov 7, 2017	Regression discontinuity II 8:30am to 11:20am
Tue Nov 14, 2017	Simple quasi-experiments I 8:30am to 11:20am
	Assignment 3 due by 8:30am
Tue Nov 21, 2017	Simple quasi-experiments II 8:30am to 11:20am
Tue Nov 28, 2017	The Synthetic Control Estimator 8:30am to 11:20am
Thu Nov 30, 2017	Assignment 4 due by 5pm
Tue Dec 5, 2017	Matching estimators/Course wrap-up 8:30am to 11:20am
	Term project due by 11:59pm
Tue Dec 12, 2017	Final Exam 10:30am to 12:20pm

