

The Chinese University of Hong Kong  
Department of Economics  
Term 2, 2023-2024

Instructors:  
Ning ZHANG

**Econometric Method for Policy Evaluations**  
(ECON5522)

**Time and Venue:** Tuesday 11:30am-14:15pm

Science Centre L5

**Website:** <https://blackboard.cuhk.edu.hk>

Class handouts (e.g., problem sets and solutions, lecture notes) will be available at the course website.

**Instructor's Contact Information:**

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<b>Office Hours:</b>	<b>Fri 12:00NN-1:00pm</b>	

**Course Description:**

This course is an introduction to rigorous and policy-relevant impact evaluation strategies and techniques for postgraduate students in economics. The course's main emphasis is on empirical strategies to identify the causal effects of public policies and programs. The course has a strong focus on applications, although students will be expected to fully understand the conceptual underpinnings of each strategy. Topics include instrumental variables, fixed effects, differences-in-differences, experiments, synthetic control method, and regression discontinuity design for policy evaluation.

**Learning Outcomes**

On completion of the course, students will:

- Understand the rationale of major program evaluation strategies.
- Understand empirical studies on policy evaluation and critically assess the validity of causal claims therein.
- Be able to determine the strengths and weaknesses of different strategies for policy evaluation.
- Be equipped to apply those strategies in a real-world setting with available data.
- Be able to use a statistical package to conduct quantitative policy analysis.

**Required Textbooks**

Joshua D. Angrist & Jörn-Steffen Pischke (2019) *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press.

**Optional Readings**

Guido W. Imbens & Donald B. Rubin (2015) *Causal Inference for Statistics, Social, and Biomedical Sciences: An Introduction*, Cambridge University Press.

Joshua D. Angrist & Jörn-Steffen Pischke (2014) *Mastering' Metrics: The Path from Cause to Effect*. Princeton University Press.

**Course Evaluations**

The final grade of the course will be calculated based on the following percentages:

- three problem sets (10% each)
- one project presentation (30%)
- one project proposal (40%)

**Late problem sets will not be accepted.**

**Academic Honesty:**

Attention is drawn to University policy and regulations on honesty in academic work to the disciplinary guidelines and procedures applicable to breaches of such policy regulations. Details may be found at <http://www.cuhk.edu.hk/policy/academichonesty/>.

## **TENTATIVE SCHEDULE OF LECTURES**

- Lecture 1:**  
(Jan 9)      **Introduction: The selection problems and Regression Analysis of Experiments**  
Angrist & Pischke Chapter 2  
Baird, Sarah, Joan Hamory Hicks, Michael Kremer, and Edward Miguel. "Worms at work: Long-run impacts of a child health investment." *The quarterly journal of economics* 131, no. 4 (2016): 1637-1680.
- Lectures 2:**  
(Jan 16)      **Regression Basics**  
Angrist & Pischke Chapter 3
- Lectures 3:**  
(Jan 23)      **Discrete choice model**  
Angrist & Pischke Chapter 3  
Card, David, Alexandre Mas, Enrico Moretti, and Emmanuel Saez. "Inequality at work: The effect of peer salaries on job satisfaction." *American Economic Review* 102, no. 6 (2012): 2981-3003.
- Lectures 4:**  
(Jan 30)      **Introduction to Instrumental Variables**  
Angrist & Pischke Chapter 4  
Angrist, Joshua D., and Alan B. Krueger. "Does compulsory school attendance affect schooling and earnings?." *The Quarterly Journal of Economics* 106, no. 4 (1991): 979-1014.
- Lectures 5:**  
(Feb 6)      **More on Instrumental Variables**  
Angrist & Pischke Chapter 4  
Angrist, Joshua D. "The Draft Lottery and Voluntary Enlistment in the Vietnam Era." *Journal of the American Statistical Association* 86, no. 415 (1991): 584-95.  
Currie, Janet, and Jonathan Gruber. "Health insurance eligibility, utilization of medical care, and child health." *The Quarterly Journal of Economics* 111, no. 2 (1996): 431-466.  
Bound, John, David A. Jaeger, and Regina M. Baker. "Problems with instrumental variables estimation when the correlation between the instruments and the endogenous explanatory variable is weak." *Journal of the American statistical association* (1995): 443-450.
- Lecture 6:**  
(Feb 20)      **Instrumental Variables and Local Average Treatment Effect**  
Angrist & Pischke Chapter 4  
Autor, David H., David Dorn, and Gordon H. Hanson. "The China syndrome: Local labor market effects of import competition in the United States." *American economic review* 103, no. 6 (2013): 2121-2168.
- Lecture 7:**  
(Feb 27)      **Panel Methods: Fixed Effects**  
Angrist & Pischke Chapter 5
- Lectures 8, 9:**  
(Mar 5, 12)      **Difference in Difference (DiD) and Event Study**  
Angrist & Pischke Chapter 5  
Card, David and Alan Krueger (1994) "Minimum Wages and Employment: A Case Study of the Fast Food Industry in New Jersey and Pennsylvania," *American Economic Review*, 84(4): 772-784.  
Ashenfelter, Orley. "Estimating the effect of training programs on earnings." *The Review of Economics and Statistics* (1978): 47-57.  
Jacobson, Louis S., Robert J. LaLonde, and Daniel G. Sullivan. "Earnings losses of displaced workers." *The American economic review* (1993): 685-709.  
Duflo, Esther. "Schooling and labor market consequences of school construction in Indonesia: Evidence from an unusual policy experiment." *American economic review* 91, no. 4 (2001): 795-813.  
De Chaisemartin, Clément, and Xavier d'Haultfoeuille. "Two-way fixed effects estimators with heterogeneous treatment effects." *American Economic Review* 110, no. 9 (2020): 2964-2996.  
Pierce, Justin R., and Peter K. Schott. "The surprisingly swift decline of US manufacturing employment." *American Economic Review* 106, no. 7 (2016): 1632-1662.

**Lecture 10: Synthetic Controls Method**

(Mar 19)

Abadie, Alberto, Alexis Diamond, and Jens Hainmueller (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.

**Lecture 11, 12: Regression discontinuity I and II**

(Mar 26, Apr 2)

Angrist & Pischke Chapter 6  
Matias D Cattaneo, Nicolas Idrobo, and Roc'io Titiunik. A Practical Introduction to Regression Discontinuity Designs: Volume I. Cambridge Elements: Quantitative and Computational Methods for Social Science - Cambridge University Press, I, 2018.

**Lectures 13: Matching Technique**

(Apr 9)

Imbens & Rubin Chapter 13

Dale, Stacy and Alan Krueger (2002) "Estimating the Payoff to Attending a More Selective College: An Application of Selection on Observables and Unobservables," *Quarterly Journal of Economics*, 117(4): 1491-1527.

Adams-Prassl, Abi, Kristiina Huttunen, Emily Nix, and Ning Zhang. "The dynamics of abusive relationships." (2023).

**(If we have extra time) Causal inference: Practical Tips for Policy Evaluation**

Athey, Susan and Guido Imbens (2017) "The State of Applied Econometrics: Causality and Policy Evaluation," *Journal of Economic Perspectives*, 31(2): 3-32.

**Lecture 14: Presentation of final project**

(Apr 16)