

**Faculty of Science Course Syllabus**  
**Department of Economics**  
**Econ 5525 Applied Econometrics**  
**Winter 2018**

Instructor: Professor Weina Zhou  
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Class Time: Tuesday and Thursday, 10:05-11:25  
Class Location: McCain 2198  
Office Hours: Tuesday and Thursday, 13:00-14:30

**Course Description:**

The course focuses primarily on panel and cross-sectional data methods with a strong emphasis on a hands-on approach to learning statistics and programming techniques. Some topics to be covered include fixed effects, differences-in-differences, instrumental variable, quantile regressions, selection bias and regression discontinuity design.

**Prerequisites:**

Graduate standing in the Department of Economics and graduate or senior undergraduate class in econometrics such as ECON 3338 (grade of B or higher) or ECON5575, or permission of the instructor.

**Learning Outcomes:**

- The goal of the course is to teach student to understand a variety of statistical methods and research designs that are essential in Economics.
- Students will critically analyze evaluation research.
- Students develop and apply statistical skills that are essential to carry out their own research projects in labour, development, political science and other related fields.

**Textbook:**

*Required:*

Angrist, Joshua D and Pischke, Jörn-Steffen, Mostly harmless econometrics: An empiricist's companion, Princeton University Press, 2009.

*Recommended:*

Wooldridge, Jeffrey M., Econometric Analysis of Cross Section and Panel Data, MIT press, 2010.

**Course Assessment:** Students will be evaluated on the basis of three course requirements:

- Presentation and Replication:(20%): Each student will present a paper from a top ranked journal (subject to instructor's approval), as if he/she were the author presenting the paper at a conference. Presentation will be taken place in the last class(es) of the term. Students are also required to replicate the main results of the paper.

- In-class Exams: (45%) There are three closed-book exams (15% each) in this class.
- Term Paper (35%): Proposal due on February 26. Final paper due on April 15.

**Grading Scheme:**

|        |       |       |       |       |       |     |
|--------|-------|-------|-------|-------|-------|-----|
| A+     | A     | A-    | B+    | B     | B-    | F   |
| 90-100 | 85-89 | 80-84 | 77-79 | 73-76 | 70-72 | <70 |

**Policy on Missed Materials:**

Replication files and term papers will NOT be accepted after the due date. If a student miss an in-class exam for a valid medical reason (original doctor notes are required), all the weight of the exam will be shifted to the last in-class exam. If a student miss the last in-class exam for a valid medical reason, you must notify the instructor immediately, provide appropriate medical documentation, and make arrangements to write a comprehensive exam as soon as health permits.

**Other General Notes:**

Please note the Department of Economics Statement on Academic Integrity posted on the course website. As part of an academic community it is your responsibility to be aware of appropriate conduct. Any academic offence will be reported and acted upon immediately by Dalhousie administration.

**Course Coverage:**

Causality, Selection Problem and Peer Effect

- Mostly Harmless Econometrics: An Empiricist’s Companion, Chapter 1-2.

Randomized Control Trials

- Mostly Harmless Econometrics: An Empiricist’s Companion, Chapter 1-2.
- Miguel, E., and Michael K., 2004. Worms: identifying impacts on education and health in the presence of treatment externalities. *Econometrica*, 72, pp.159-217.

Panel Data, Fixed Effects

- Mostly Harmless Econometrics: An Empiricist’s Companion, Chapter 5
- Ashenfelter, O. and Krueger, A., 1994. Estimates of the Economic Return to Schooling from a New Sample of Twins. *American Economic Review*, 84(5), pp.1157-1173.

Difference-in-Difference

- Mostly Harmless Econometrics: An Empiricist’s Companion, Chapter 5
- Duffo, E., 2003. Grandmothers and Granddaughters: Old-age pensions and Intra-household Allocation in South Africa. *World Bank Economic Review*, 17(1), pp.1-25.

## Regression Discontinuity

- Mostly Harmless Econometrics: An Empiricist's Companion, Chapter 6
- Lee, D.S. and Lemieux, T., 2010. Regression Discontinuity Designs in Economics. *Journal of economic literature*, 48(2), pp.281-355.

## Instrumental Variable

- Mostly Harmless Econometrics: An Empiricist's Companion, Chapter 4
- Nunn, N., 2008. The Long-term Effects of Africa's Slave Trades. *Quarterly Journal of Economics*, 123(1), pp.139-176.

## Selection on Observables and Propensity Score Matching

- Mostly Harmless Econometrics: An Empiricist's Companion, Chapter 3.
- Wang, S. and Zhou, W., 2017. The Unintended Long-term Consequences of Mao's Mass Send-Down Movement: Marriage, Social Network, and Happiness. *World Development*, 90, pp.344-359.

## Quantile Regression

- Mostly Harmless Econometrics: An Empiricist's Companion, Chapter 7
- Angrist, J., Chernozhukov, V. and Fernández-Val, I., 2006. Quantile Regression under Misspecification, with an Application to the US Wage Structure. *Econometrica*, 74(2), pp.539-563.

## Issues in Standard Errors

- Mostly Harmless Econometrics: An Empiricist's Companion, Chapter 8
- Cameron, A.C. and Miller, D.L., 2015. A Practitioner's Guide to Cluster-robust Inference. *Journal of Human Resources*, 50(2), pp.317-372.