

Syllabus for AEDE ECON 8200-1010

Frontiers in AED Economics: Applied Econometrics in Development

Spring 2017, Module 1

Class: Tuesdays & Thursdays, 11:30-1:35pm, Agriculture Admin Bldg 247, Jan 12 – Feb 23

Professor: Leah Bevis, Assistant Professor, AEDE

Email me at bevist6@osu.edu. Normally found in 329 Agriculture Admin Bldg.

Office hours: Tuesdays 10:30am-11:30am, Thursdays 3:45-4:45pm.

Class Summary: This class will simultaneously present a few key econometric techniques used in development economics, and a few core research areas within development economics. The first module reviews and discusses OLS regression, omitted variables bias, and instrumental variables. We will situate these techniques within literature on program evaluation --- an umbrella category holding many, many development papers. The second module reviews and discusses differences and differences and regression discontinuity. These techniques are common within many sub-topics of development economics, but we will situate them within the nexus of papers that examine environment-resource-development linkages. The third and last module will present econometric techniques that utilize weather shocks as exogenous variation, and review papers that utilize such data. In each module you will work through a multi-part applied homework, meant to provide you with intuition and experience regarding the econometric techniques taught. The first two homeworks are to be performed in Stata; for the last homework you will use both R and Stata. I also provide a non-exhaustive selection of seminal and/or cutting edge papers within each topic area, a few of which we'll discuss in class.

Required Textbook: [AP] Angrist, Joshua and Jorn-Steffen Pischke (2009). Mostly Harmless Econometrics An Empiricists Companion.

Supplementary Textbooks: [W1] Wooldridge, Jeffrey M. Introductory Econometrics: A Modern Approach, 6th Edition. [W2] Wooldridge, Jeffrey M. Econometric Analysis of Cross Section and Panel Data, 2nd Edition. [G] Greene, William H. Econometric Analysis 7th Edition.

Articles: Each module is accompanied by a group of relevant articles, which will be available on your personal server. Some articles will be required reading for subsequent class discussions; others are supplementary. Below I have listed articles assigned as required/supplementary for the first module --- I'll update this syllabus with lecture topics and readings for modules 2 and 3 prior to beginning those modules.

Class Slides: I will try to post weekly beamer presentations to the server every Monday evening. It's possible that sometimes this won't happen, but hopefully most Tuesday and Thursday mornings you can print and/or examine the beamer presentations prior to each class. I urge you to print them, if this will help you with note-taking. No point writing down a slew of equations that can be easily accessed via the slides.

Server: Because I require you to work with data for class homeworks, a server will be made available for each of you. This server will hold articles, data, and perhaps some sample code in Stata and R. You can access the server from any computer through Desktop Remote Connect or Microsoft Remote Desktop --- both freely available online.

Assignments: Each module comes with a homework assignment. Assignment data will be made available on your server, and both Stata and R are available on the server for doing analysis. I don't mind if you collaborate as you work through the homeworks --- in fact, I encourage it. However, you must each turn in your own, individual results/answers and the code that you used to procure those results. They may not be identical across students, though I realize that you'll likely get similar answers if you use similar code.

All homework assignments will be handed in via Carmen. I will hopefully find a way to return a few comments via Carmen, also. If you are unable to complete a homework assignment on time due to a serious constraint, please let me know and we can discuss an extension. I am generally willing to grant extensions and if you ask me a few days in advance.

Students with Disabilities: If you have a disability that requires special accommodations or modifications of some kind, please notify me within the first week of class. I'll do my best to accommodate you.

Evaluation: Grades will be based primarily on the homeworks, but also on class participation and discussion. I will randomly call on 1 or 2 people every class to summarize some part of the required reading --- this will often be an article, but might also be from *Mostly Harmless*. If you have obviously failed to do the reading on that day, you will receive a zero for the class participation portion of your grade. (Yes, for the ENTIRE participation grade. That being said, as a PhD student grades don't matter much --- do the readings if you want to learn.)

- Homeworks 1-3: 30% each
- Class Participation: 10%

Modules

I: Project Evaluation / OLS And Endogeneity (Jan 12, 17, 29, 24, 26)

- *Homework 1: Endogeneity and Causality in Grandmothers and Granddaughters (Duflo)*
 - Due on Sunday Jan 29th (anytime before Monday 8am is fine)
- Jan 12: OLS Regression, Endogeneity, Omitted Variables, Randomization
 - Required Reading: [AP] Ch 1-3
- Jan 17: Cash Transfers, Duflo's Grandmother's and Granddaughters
 - Required Reading: One of the 3 *Progresa* articles
 - Suggested Reading: Grandmothers & Granddaughters, by Duflo
- Jan 19, 24: Instrumental Variables 1 and 2
 - Suggested Reading: [AP] Ch 4
 - Required Reading: One of the *Worm Wars* papers
- Jan 26: Heterogeneity in Treatment Effects
 - Required Reading: One of the *Profitability of Fertilizer* papers

2: Environment-Resource-Development / Diff & Diff, RD (Jan 31, Feb 2, 7, 9)

- *Homework 2: Natural Experiments in Deforestation (Alix-Garcia)*
 - *Due Feb 13 8am*
- Jan 31, Feb 2: Difference and Differences
 - Suggested reading: [AP] Chapter 5 Section 2
 - Required reading: One of the PES_Poverty papers
- Feb 7, 9: Regression Discontinuity
 - Suggested reading: [AP] Chapter 6, Sections 1 and 2
 - Required reading: One of the RD_EnviroAg papers

3: Utilizing Random Weather Shocks (Feb 14, 16, 21, 23)

- *Homework 3: Weather Shocks to Agriculture and Income in Tanzania*
 - *Due Feb 24 at midnight*
- Feb 14: Climate data econometrics
 - Required reading: Aufhammer et al. 2013, Dell et al. 2013
- Feb 16: Extracting climate data in R
 - No required readings
- Feb 21, 23: Weather data in Child Health, Conflict, and Agriculture