ECON672
PROGRAM ANALYSIS AND EVALUATION

University of Maryland Winter 2017-2018

Syllabus (Version 11/17/2017)
Professor Joanne W. Hsu
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Course meeting: Mondays 6:45-9:30pm, 1400 16th Street, NW Suite 140.
There will be no class on Monday 12/25 or Monday 1/1.
We will meet on Tuesday 1/2. We will also meet on Monday 1/15 (MLK Day).
The final exam will be on Monday 2/19.

Office hours: M 6:15-6:45pm, by appointment.

Course pre-requisites: ECON 641; ECON 645 is a co- or prerequisite.

TA email: WangS@econ.umd.edu
The TA's name is Shanxiao Wang (Shanny). Shanny will have weekly office hours from 5:15-6:45. Some weeks her office hours will be on Monday; other weeks her office hours will be on Wednesday. Her office hours schedule for the whole term is posted on ELMS. She will also send weekly reminders via ELMS Announcement.

Course description

The primary objective of this course is to learn the tools that are used to evaluate the effectiveness of public policies. Even when randomized experiments are possible, learning the truth about the effects of policy is not always straightforward. We will focus on both experimental and non- experimental methods, and you will learn how to distinguish high from low quality evaluations in both contexts. We will discuss the economics and econometrics of program evaluation, focusing on the methods used for causal inference. We will examine published evaluation research with the intent of showing how research does or does not lead to clear conclusions regarding program performance.

Course objectives

Our program has 7 general learning outcomes for students:

1. Ability to understand, evaluate and analyze economic data
2. Ability to understand and interpret statistical evidence from economic data
3. Ability to apply empirical evidence to assessing economic arguments
4. Ability to apply macroeconomic theories to policy discussions
5. Ability to apply microeconomic theories to policy discussions
6. Ability to communicate economic ideas to a broader audience
7. Ability to evaluate the effectiveness of policy programs using sound economic techniques

The learning outcomes that pertain to this course are: *1, 2, 3, 5, 6, 7*

In the specific context of this course, students will:

- Learn the basics of the economics and econometrics of program evaluation, with a focus on hands-on implementation of econometric methods using actual data

- Critically review the evaluation literature via written comments, formal discussant presentations, and general class discussion of published evaluation research with the aim of showing how the process of knowledge creation through research does or does not lead to clear conclusions regarding program effects
- Critically evaluate how research is presented in the public domain (e.g., media) to be a better consumer of reported findings
- Learn the basics of how the evaluation industry functions and how evaluations affect and are affected by policy

Course materials

Official text: Angrist, Joshua and Jorn-Steffen Pischke. 2009. *Mostly Harmless Econometrics: An Empiricist's Companion.* Princeton. This is the only required text for this class.

You will also be responsible for all of the journal articles that are listed in the syllabus accompanying lecture. These can be accessed through the library. If you need help obtaining electronic access to articles, the TA can provide assistance.

Related books you may find useful, but are not required:

This book is similar to but less technical than our official text.

Angrist, Joshua and Jorn-Steffen Pischke. 2015. *Mastering 'Metrics*. Princeton University Press.

The following book is pretty standard in evaluation courses taught outside of economics. You may find it of interest. It provides a broader analysis of the evaluation field than will be apparent from this course, which focuses specifically on estimating policy impacts using large datasets and econometric methods.

Rossi, Peter, Mark Lipsey, and Howard Freeman. 2003. *Evaluation: A Systematic Approach*. 7th Edition. Sage.

The following provides good background on basic regression. Any edition will do as the material does not change much over time. I assume that you come into this course with a basic understanding of the main principles of this book taught in the pre-requisite econometrics courses of this program.

Wooldridge, Jeffrey. *Introduction to Econometrics: A Modern Approach.* (Any edition).

Required software: Stata.

Purchasing Stata: Our program's curriculum is designed to use Stata as the statistical software. Other leading statistical software packages include SAS and R. We have decided to focus on one package to enhance the continuity across courses in our program. A more superficial familiarity with multiple packages might be just as good as a deep understanding of a single package. But working with multiple packages would also result in less time to learn econometrics.

Students in our program must purchase Stata. Stata offers different "flavors" and different lengths of licensing. Price varies according to these two factors. We do not recommend Small Stata since it is too limited for the coursework in our program. Stata/IC is the least expensive and sufficient version for your coursework. With a single-user license, you can install Stata on up to three computers. Description of all the flavors are given here.

You can buy either an annual ($125 for Stata/IC) or a perpetual license ($198 for Stata/IC.) The perpetual license does not expire and is the most cost effective option assuming that you will stay in the program for at least 15 months. There are also upgrade discounts provided to perpetual license holders. During the checkout process you will be asked to verify your "@umd.edu" email address.

If you wish to buy a 6-month license ($75 for Stata/IC), you need to order it as a regular student here. During the checkout process you will be asked to upload a copy of your student ID or another document as a proof of your enrollment.

Grading and assignments (% of grade)

Online discussions: due weekly, Fridays at noon (5% total)
Problem sets: due December 18 and February 5 (10% each)
Written memo: due January 22 (10%)
Course presentation: TBD (10%)
Midterm exam: January 8 (20%)
Final exam: February 19 (35%)

Online discussions: I will post a question or series of questions relevant to the course material every Monday evening. The discussion will be open until Friday at noon for you to comment/respond. Please contribute two quality comments a week, of which at least one should be a reply or a response to a classmate's post. I will check in to participate/respond/redirect.

Problem sets: During class, we will frequently work through program evaluation problems in Stata. Organized along similar lines, two assigned problem sets will give you independent practice working through the basic econometric evaluation estimators and how they are implemented in Stata using real data. You will be asked to estimate econometric models and interpret the results. It is expected that you have a basic understanding of Stata from your previous econometrics courses, and that you are able to utilize Stata help files to learn new code. Your grade will depend both on whether you estimate what you are asked to estimate correctly and how well you interpret the results. Both of these are valuable skills.

You may work together on the problem set, but each student must turn in his or her own version of the assignment. The problem set and the written memos will be submitted via ELMS using the "Submit Assignment" button on the relevant assignment's page and uploading the required file(s). Please contact the TA via email if you encounter any problems. The problem set will include exercises using Stata as well as short-answer questions. For the problem set, you should turn in a well-organized and well-commented Stata log file. Please type your responses to the short-answer questions as comments in your do-file, so that they are displayed in your log file.

The following books provide useful references for Stata. However, it is entirely possible to learn the necessary Stata code on one's own with resources available online.

Mitchell, Michael N. 2010. *Data Management Using Stata: A Practical Handbook*, Stata Press.

Acock, Alan. 2008. *A Gentle Introduction to Stata, 2nd Edition*. College Station: Stata Press.

Written memo: Every day, findings from studies and evaluations are reported in popular press. In an attempt to generate headlines, the press often turns to evaluations based on very weak research designs. The objective of this assignment is to challenge you to be a critical consumer of research findings. It is healthy to approach articles as though the basic claims being stated are wrong, and to think of ways to debunk the claims being made. The assignment asks you to write a two page memo assessing the findings of a recent program evaluation study. This should consist of a concise summary and critique of a study reported on in popular press (e.g., New York Times, Washington Post, or the Wall Street Journal). This critique should be based solely on the description in the article, not on the original research. Assume that you work for the Secretary of a branch of government under whose purview this program or policy would fall. For example, if you select an article on tax policy, you would be writing a memo for Treasury Secretary Steve Mnuchin. The memo should have four sections: objective of the study, design of the study, findings from the study, and critique. The first three sections should be very short (half a page to a page). The majority of the memo should focus on the weaknesses of the study. A copy of the article must be also be submitted with the memo. Note that, while your critique should only be based on the news article's description, you must choose a news article that offers sufficient opportunity to describe and critique a study *using concepts taught in this course*.

Course presentation: You will each formally discuss a small number of papers. There will be two or three formal discussants per paper. The formal discussant remarks should resemble those at academic conferences, and we will discuss what this means in on July 10. Discussant remarks should last no more than 15 minutes per group. Following the formal discussant remarks, there will be a question and answer/discussion of the remarks and paper. It is advisable that you start preparing for the formal discussant remarks well in advance, in case you have questions about the economics or the econometrics of the paper you are assigned to discuss. Practicing your formal discussant remarks is also a good idea. You are strongly encouraged to send draft slides to Professor Hsu in advance for comment, but this must be done at least 48 hours prior to class. The papers for presentation, along with assignments, will be announced later.

Calculation of final grades: The problem sets and exams will each be scored then translated to a 100-point scale. The memo and course presentation will be scored out of 10 points, then translated to a 100-point scale. Each discussion session will be graded on a 5 point scale. The discussion grade will be computed as a sum of your discussion grades over the course, then translated to a 100-point scale. Your final grade will be calculated by taking a weighted sum of these grades, where weights on each assignment are provided above. Final grades will be assigned under the following scale:

		80-89	B+	50-59	C+	20-29	D+
93-100	A	70-79	B	40-49	C	10-19	D
90-92	A-	60-69	B-	30-39	C-	0-9	F

Extra Credit and Course Evaluations: Near the end of the term, you will receive an email inviting you to submit a voluntary and anonymous course evaluation. Your feedback on courses will be very helpful in improving the quality of instruction in our program. As an extra incentive for you to evaluate the course, I will offer an extra credit opportunity to the whole class if the course evaluation response rate exceeds 80%. I will not be able to see which students have evaluated the course, but we will all be able to see the overall response rate.

If the response rate exceeds 80%, I will offer an extra credit opportunity worth up to 3 course points (~3% of your overall course grade). Partial credit is possible (e.g. 2.5 out of the 3 possible points).

I will post the extra credit question after the final exam. To receive the extra credit, students must submit their answer by noon on the Wednesday 2 days after the final exam. Students are expected to work out their own answers to the question individually. Students who have clearly copied from each other will receive no extra credit.

Course Schedule

1. **Nov 27: Introduction; Dimensions of program evaluation; Evaluation institutions**

   Angrist and Pischke, Chapter 1 and 2

2. **Dec 4: Introduction to impact evaluation methods; Experimental design**

   Steven D. Levitt and John A. List (2009). "Field experiments in economics: The past, the present, and the future." *European Economic Review* 53(1): 1-18 Link

   Ludwig, Jens, Jeffrey R. Kling, and Sendhil Mullainathan (2011). "Mechanism Experiments and Policy Evaluations." *Journal of Economic Perspectives,* 25(3): 17-38. Link

   Recommended: Burtless, Gary (1995). "The Case for Randomized Field Trials in Economic and Policy Research," *Journal of Economic Perspectives*. 9(2): 63-84. Link

3. **Dec 11: Experimental design and applications**

   Katz, Lawrence F., Jeffrey R. Kling, and Jeffrey B. Liebman (2001). "Moving to Opportunity in Boston: Early Results of a Randomized Mobility Experiment," *Quarterly Journal of Economics* (May): 607-654. Link

   Chetty, Raj, Nathaniel Hendren, and Lawrence Katz (2016). "The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Project," *American Economic Review* 106 (4): 855-902. Link. Executive summary: Link

4. **Dec 18: Introduction to quasi-experimental design; Regression**

   First problem set due at the beginning of class

   Angrist and Pischke, Chapter 3, through section 3.2

   Card, David (1990). "The Impact of the Mariel Boatlift on the Miami Labor Market," *Industrial and Labor Relations Review* 43: 245-57. Link

5. **Tuesday Jan 2: Regression and Matching; Synthetic Control Methods**

   Angrist and Pischke, Chapter 3, section 3.3 to the end of the chapter

   Robert McClelland and Sarah Gault (2017). "The Synthetic Control Method as a Tool to Understand Policy." Urban Institute Research Report. Link

   Recommended: Dehejia, Rajeev and Sadek Wahba (1999). "Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs," Journal of the American Statistical Association 94, no. 448: 1053-62. Link

6. **Jan 8: MIDTERM EXAMINATION (90 min.); How to discuss a paper (60 min.)**

7. Jan 15: Before-after estimation and difference-in-differences

Angrist and 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): 772-93. Link

8. Jan. 22: Instrumental variables for impact evaluation, Course Presentations

Memo due at beginning of class

Angrist and Pischke, Chapter 4

Angrist, Joshua and Alan Krueger (1991). "Does Compulsory School Attendance Affect Schooling and Earnings?" Quarterly Journal of Economics 106(4): 979-1014. Link

Bound, John, David Jaeger, and Regina Baker (1995). "Problems with Instrumental Variables Estimation When the Correlation between the Instruments and the Endogenous Explanatory Variable is Weak," *Journal of the American Statistical Association* 90: 443-50. Link

9. Jan 29: Regression discontinuity; Course presentations

Angrist and Pischke, Chapter 6

Christopher Carpenter and Carlos Dobkin (2011). "The Minimum Legal Drinking Age and Public Health" Journal of Economic Perspectives 25(2): 133-56. Link

10. Feb 5: Program theory; Cost-benefit and cost-effectiveness analysis; Course presentations

Second problem set due at the beginning of class

Cellini, Stephanie Riegg and James Edwin Kee (2015). "Cost-Effectiveness and Cost-Benefit Analysis" in *Handbook of Practical Program Evaluation*, edited by Kathryn E. Newcomer, Harry P. Hatry, and Joseph S. Wholey. Hoboken, NJ: John Wiley & Sons, Inc.

Dhaliwal, Iqbal, Esther Duflo, Rachel Glennerster, Caitlin Tulloch (2012). "Comparative Cost-Effectiveness Analysis to Inform Policy in Developing Countries: A General Framework with Applications for Education." Abdul Latif Jameel Poverty Action Lab (J-PAL), MIT. Link

11. Feb 12: Comparative cost-effectiveness analysis; Review; Course presentations

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

Smith, Jeffrey and Arthur Sweetman. (2010). "Putting the Evidence in Evidence-Based Policy" in *Strengthening Evidence Based Policy in the Australian Federation*, Vol. 1: Proceedings, edited by Productivity Commission. Canberra: Productivity Commission, 59-102. Link

12. **Feb 19: FINAL EXAMINATION**

Standard Policies for the Program and the University of Maryland

Course Website: Copies of the course syllabus, your grades, and other relevant links and documents will be posted on the course's ELMS/Canvas website. You can access the site via www.elms.umd.edu. You will need to use your University of Maryland "directory ID" and password.

Email: Email is the primary means of communication outside the classroom, and I will use it to inform you of important announcements. Students are responsible for updating their current email address via http://www.testudo.umd.edu/apps/saddr/ AND for paying attention to messages I send to the class via ELMS. Failure to check email, errors in forwarding email, and returned email due to "mailbox full" or "user unknown" will not excuse a student from missing announcements or deadlines. I will do my best to respond to email within 36 hours.

Contact Hours: Three credit courses at the University of Maryland require a minimum amount of contact between instructors and students. Our courses' 12 weekly 3-hour meetings only satisfy 80% of the university's contact requirement. The other 20% is usually satisfied by mandatory and graded online contact. Instructors have some discretion in how they structure the online component of their course. In principle, the contact hours requirement could also be satisfied by scheduling 3 additional 3-hour meetings per term, or one additional 45-minute meeting per week. The online components of our courses are a more flexible way to ensure that our program's courses provide the same level of student- instructor contact as a traditional 15-week, face-to-face, 3-credit course at the University of Maryland.

Work Load: Mastering the material covered in this course requires a significant amount of work outside of class. Students should expect to spend more time outside of class than in class – typically at least twice as much time. The courses in our program are 12-week courses that cover all the same material as a traditional semester-long 3-credit course. The compressed schedule makes it possible to complete our degree in just 15 months if you take 2 courses each term. But the compressed schedule also implies an accelerated pace. If we're going to cover all the same material as a traditional semester-long 3-credit masters-level course, we need to cover the material quickly.

Academic Integrity: The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards applicable to all undergraduate and graduate students, and you are responsible for upholding these standards as you complete assignments and take exams in this course. Please make yourself aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information see www.studenthonorcouncil.umd.edu.

Student Conduct: Students are expected to treat each other with respect. Disruptive behavior of any kind will not be tolerated. Students who are unable to show civility to one another or myself will be referred to the Office of Student Conduct. You are expected to adhere to the Code of Student Conduct.

Medical Excuses: If you miss any class meetings for any reason, you are still responsible for all material covered during the meeting you missed. It is your responsibility – not the instructor's – to get yourself caught up in the course.

If you need to miss an exam or other course deadline because of illness, injury, or some other emergency: follow doctor's orders and get documentation. Get in touch with the instructor as soon as you're able – preferably prior to missing the exam or deadline. Communicate with the instructor to make up the course requirement as soon as possible. You are entitled to recover before you make up the course requirement, but you are not entitled to extra days to study beyond the time the doctor's note says you're incapacitated. If you are incapacitated for more than a week or so beyond the end of the term, your grade in the course will be an "Incomplete". Once you make up the course requirement the instructor will change your "I" to the appropriate letter grade.

School Closings and Delays: Information regarding official University closing and delays can be found on the campus website and the snow phone line: (301) 405-SNOW (405-7669). Since our program is an evening program in downtown Washington, DC, rather than a day program in College Park, we do not always cancel classes on the same days as the College Park campus. The program director will always announce cancellation information to the program as an announcement on the program's ELMS/Canvas site. This will generally be done by 1:00 p.m. on days when weather or other factors are an issue.

Students with Disabilities: The University of Maryland does not discriminate based on differences in age, race, ethnicity, sex, religion, disability, sexual orientation, class, political affiliation, or national origin. Reasonable accommodations will be arranged for students with documented disabilities. Students who have an accommodations letter from the Accessibility and Disability Service (ADS) should meet with me during the first few weeks of the semester to discuss and plan for the implementation of your accommodations. If you require reasonable accommodations but have not yet registered with ADS, please contact the Accessibility and Disability Service at 301-314-7682 or adsfrontdesk@umd.edu.

Academic Progress: The graduate school requires that students maintain a GPA of at least 3.0. Students whose cumulative GPA falls below 3.0 will be placed on academic probation by the graduate school. Students on academic probation must ask the program's director to petition the graduate school if they want to remain in the program. The petition must include a plan for getting the student's GPA up to at least 3.0. Students who do not live up to their plan can be forced to leave the program without having earned the degree.

Building Access: The door to the building at 1400 16th Street is unlocked on weekdays until 7:00 p.m. Students who arrive after 7:00 p.m. or on weekends will find the door locked. The building's security guard is stationed at a desk just inside the door until 11:00 p.m. and will let you in. You can also call the phone on the security guard's desk by dialing (202) 328-5158. If the security guard is off duty or happens to be away from his or her desk when you arrive, you can go around to the other door at 1616 P Street and pick up the black phone to the right of that door. You will be connected to the company that handles security for our building. If you tell them you are with the University of Maryland, they should ask you for a password. When you tell them the password, they will be able to unlock the door for you. You can get the password from the program coordinator, the TA, or the program director. Please note: the building security staff are not able to buzz you in at the 1400 16th Street door. You have to go around to the 1616 P Street door to be buzzed in.