

ECON672  
PROGRAM ANALYSIS AND EVALUATION

*University of Maryland  
Summer 2023*

Syllabus (Version 5/30/2023)  
Professor Laura Kawano  
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Course meeting: Wednesdays 6:45-9:30pm, 1400 16th Street, NW, Suite 140.  
There will be a 15-minute break at some point between 7:45 and 8:30  
Office hours: Various days 5-6pm, by appointment only via Zoom  
Course pre-requisites: ECON 641; ECON 645 is a co- or prerequisite.  
TA: Sueyoul Kim ([shelkim@umd.edu](mailto:shelkim@umd.edu))  
TA Office Hours: Tuesdays, 5-6pm via Zoom

**Course description:** The objective of this course is to learn the tools that are used to evaluate the effectiveness of public policies. A tremendous amount of money is spent on program evaluations, and they are difficult to conduct successfully. We will discuss the economics and econometrics of program evaluation, focusing on both experimental and non-experimental methods used for causal inference. You will learn how to distinguish high from low quality evaluations. 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*

More specifically, 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. This will include an emphasis on applied econometric skills using Stata.

- 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 course reading list accompanying lectures. These can be accessed through the library. If you need help obtaining electronic access to articles, the TA can provide assistance.

Recommended text: Cunningham, Scott. 2021. *Causal Inference: The Mixtape*. Yale University Press.

**Required software:** Stata.

**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](http://www.elms.umd.edu). You will need to use your University of Maryland "directory ID" and password.

**Other Standard Policies for the Program and the University of Maryland:** Policies related to all graduate courses at the University of Maryland are posted on this page of the Graduate School's website: <https://gradschool.umd.edu/faculty-and-staff/course-related-policies>.

Please familiarize yourself with these policies related academic integrity, non-discrimination policy, accessibility, absences and accommodations, grading, academic standing, grievance procedures, and other important policies.

**Email:** The University has adopted email as 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.registrar.umd.edu/current/> (Under the first major heading of "Online Transactions" there is a link to "Update Contact Information".)

**Contact Hours:** Three credit master's-level courses at the University of Maryland require a minimum amount of contact between instructors and students. Our courses' 12 weekly meetings only satisfy 80% of the university's contact requirement. The other 20% is satisfied by weekly mandatory and graded online contact. In principle, the contact hours requirement could be satisfied by scheduling 3 additional 150-minute meetings per term, or 6 additional 75-minute meetings, or 10 additional 45-minute meetings. But in practice the contact hours requirement is satisfied by the weekly online discussions. The weekly online discussions are a more flexible way to ensure that our program's courses in DC provide the same

level of student-instructor contact as the traditional 15-week face-to-face version of the same course when it is taught on campus in College Park.

**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 DC program are 12-week courses that cover all the same material as a traditional semester-long 3-credit course (15 weeks). 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 with an average of 25% more work per week in a given course ( $15/12 = 1.25$ ). The normal full-time load in a master's program is 3 courses per semester, or 6 courses per year. The weekly work load when taking 2 of our DC courses per term is equivalent to the load from 2.5 "normal" 15-week courses - so  $2.5/3.0=83\%$  of a full-time load. Students who take 2 courses per quarter in our program complete 8 courses per year. So over the course of a year, taking 2 courses per quarter in our DC program is equivalent to 133% of a full-time load ( $8/6 = 1.33$ ).

**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](http://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.

**Excused Absences:** The University of Maryland's policy on excused absences is posted here: <http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100g>

Please note:

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. Instructors routinely facilitate things by posting lecture notes, etc.

If you need to miss an exam or other graded course requirement 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". In such cases you must negotiate a plan with your instructor for completing the course requirements. 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.

**UMD Counseling Center:** Sometimes students experience academic, personal and/or emotional distress. The UMD Counseling Center in Shoemaker Hall provides comprehensive support services that promote personal, social, and academic success. The cost of these services is covered by the fees you already paid when you registered for classes, and there is no additional charge if you use the services. Proactively explore the range of services available, including the Counseling Service, Accessibility and Disability Service, Learning Assistance Service, and the Testing Office, all described at <http://www.counseling.umd.edu/>

**Academic Progress:** The UMD 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 enrolled 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 have their enrollment in the program terminated without having earned the degree. Note: a grade of "B" corresponds to a GPA of 3.0. A grade of "B-" corresponds to a GPA of 2.7.

**Building Access:** There is a smartphone app that can be used to enter our building after normal business hours. The program coordinator will provide information about this. We will also provide information about the code for entering the front door of our suite. Please make sure you are receiving the ELMS-Announcements that we send out to the program about these and other important matters.

**Laptop Computer Requirement:** Completing some of this course's requirements will require a laptop computer (not a notebook or a tablet!) with at least 1 GB of RAM and at least 5 GB of free space available on the hard-drive. We recommend laptops with a 15-inch screen. Screens smaller than 13 inches are probably not practical.

**Purchasing Stata:** 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:

<http://www.stata.com/products/which-stata-is-right-for-me/>

You can obtain Stata at discounted rates through the Campus GradPlan, in which University of Maryland, College Park is a participating institution. To benefit from the discounted prices, click on the link below and pick the Stata version you would like to buy.

(Note: Disregard the warning at the top which states that you must be a faculty or staff member. That is not correct.)

<http://www.stata.com/order/new/edu/gradplans/campus-gradplan/>

Through the Campus GradPlan you can buy either an annual (\$89 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 (\$45 for Stata/IC), you need to order it as a regular student using the following link:

<https://www.stata.com/order/new/edu/gradplans/student-pricing/>

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 (10% total)

Problem sets: due July 5 and July 26 (20% total)

Midterm exam: July 12 (20%)

Empirical Project (20%)

Final exam: February (30%)

### *Details*

**Problem sets:** There will be two assigned problem sets that will give you independent practice working through 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. My experience is that interpretation is the more difficult of these two tasks to master.

You may work together on the problem set, but each student must turn in his or her own version of the assignment. Problem sets and your empirical project 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. You should turn in two separate documents: one that contains your typed answers to the problem set questions, and another that consists of a well-organized and well-commented Stata 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.

Each problem set will be graded out of 100 points.

**Online discussions:** I will post a question or series of questions relevant to the course material every Friday evening. The discussion will be open until Tuesday at midnight for you to comment/respond. I will check in to participate/respond/redirect. To fulfill this requirement, you may either create your own post in response to my prompt, or else write a substantive response to another student’s post that contributes to the discussion. Each discussion session will be graded out of 10 points, with the following benchmarks:

- Participated in and furthered the discussion (10)
- Participated but did not contribute in a meaningful way (5)
- Late or unsubmitted (0)

**Empirical Project:** An empirical research paper is due at the end of the semester. There will be several preliminary assignments prior to the final due date to encourage you to define your research question, identify data, and report your progress. More information on this project is provided on a separate handout.

**Calculation of final grades:**

Exams and the empirical project will be graded out of 100 points each. The problem set grade will be computed as the average of your problem set grades. The discussion grade will be computed as the average of your discussion grades over the course.

Your final numerical grade will be calculated by taking a weighted average of these grades. The online discussion component and problem sets are already computed as though weights have been applied to an assignment graded out of 100 points. As stated above, the empirical project has a 20% weight, the midterm exam has a 20% weight, and the final exam has a 30% weight.

At the end of the term, every student will then have a numerical course grade between 0 and 100. I will decide upon the numerical cutoffs between various *letter* grades based on my professional judgement and the distribution of numerical grades. I will also consider absolute standards of academic success. Students who demonstrate clear mastery of course material will get A grades. Students who demonstrate only partial understanding will get B grades. Students who do not demonstrate understanding of the core material will receive B-'s or below. The cutoffs that I use will respect the ordinal ranking of numerical course grades. In other words, letter grades will always be the same or higher as numerical course grades increase.

### Schedule of Topics at a Glance (subject to change)

Week	Date	Topic	Due Dates
1	5/31/2023	Course Intro and the Potential Outcomes Framework	
1	5/31/2023	Experimental Designs	
	6/7/2023	<b>NO CLASS</b>	
2	6/14/2023	Intro to Quasi-Experimental Designs	<b>Empirical Project Assignment #1 Due</b>
2	6/14/2023	Research Design and Finding Data	
3	6/21/2023	Selection on Observables	
3	6/21/2023	Matching and Weighting Methods	
4	6/28/2023	Regression Discontinuity (RD)	<b>Empirical Project Assignment #2 Due</b>
4	6/28/2023	Panel Data	
5	7/5/2023	Difference-in-Differences (DID) I	<b>Problem Set 1 Due</b>
5	7/5/2023	Difference-in-Differences (DID) II	
6	7/12/2023	<b>Midterm Exam</b>	<b>Midterm Exam</b>
7	7/19/2023	Synthetic Control	
7	7/19/2023	<b>Presentations</b>	
8	7/26/2023	Instrumental Variables (IV)	<b>Empirical Project Assignment #3 Due</b>
8	7/26/2023	<b>Presentations</b>	
9	8/2/2023	Fuzzy RD	<b>Problem Set 2 Due</b>
9	8/2/2023	<b>Presentations</b>	
10	8/5/2023	Decomposition Models	<b>Saturday 11:00am – 1:45pm</b>
10	8/5/2023	Quantile Regressions	
11	8/9/2023	Advanced Topics	<b>Empirical Projects Due</b>
11	8/9/2023	Course Review	
12	8/16/2023	<b>Final Exam</b> [covers all materials]	<b>Final Exam</b>