

ECON412 EMPIRICAL MICROECONOMICS

Professor. Nara Sritharan (you can call me Professor S or Nara)

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Class meetings: M, W 5.00-6.20 PM. Chancellors Hall 121.

Student hours: M 3.30-4.30 PM, Chancellors Hall 267 & W 9-10 AM (virtual by appointment)



COURSE OBJECTIVES

Did you know that Charles Darwin walked for 45 minutes every morning and afternoon? He was one of the most brilliant thinkers of his time. But does this mean that if you walk 45 minutes twice a day, you'll be the next Darwin? Probably not. This is a good reminder that correlation doesn't always mean causation.

This course is all about figuring out what does cause what. Our goal is to help you build the tools and confidence to estimate the causal impact of one thing on another—whether it's a policy, a law, a program, or even a "natural experiment." We won't just stop at figuring out whether something worked; we'll dig into why it worked, using microeconomics to understand the role of incentives and institutions.

You'll learn a mix of econometric techniques for impact evaluation and some sharp reasoning skills to help you be a smart consumer and producer of applied research. By the end of this course, you'll not only be able to read evaluation studies with a critical eye, but also conduct your own analysis and clearly communicate your findings to different audiences.

At the end of the course, you'll be able to:

- Explain and apply different methods for estimating causal impact, including randomized controlled trials (RCTs), natural experiments, propensity score matching, difference-in-differences, and synthetic control designs.
- Critically evaluate impact evaluation studies and assess how reliable their causal claims are.

- Use coding skills in Stata (or R if you're already familiar with it) to run regressions, replicate published results, and conduct your own analyses.
- Communicate economic ideas to a broader audience, such as policymakers or the general public, using tools like policy briefs, blog posts, or infographics.

TEXTS AND READING MATERIALS

The texts for the class comprise two books and a variety of journal articles and papers.

The **required** textbooks for the class are:

1. Gerber, Alan S., and Donald P. Green. 2012. *Field Experiments: Design, Analysis, and Interpretation*. New York: W.W. Norton. (Listed as **FEDAI** in the reading list below).
2. Angrist, Joshua D., and Stephen Pischke. 2009. *Mostly Harmless Econometrics: An Empiricists' Companion*. Princeton, NJ: Princeton Press. (Listed as **MHE** in the reading list below)

Journal articles and other chapters listed can be found on Blackboard.

HOW TO SUCCEED IN THIS CLASS

General Expectations: This class requires you to read/watch/listen carefully, think critically, participate thoughtfully, and write clearly. To get an A in the class, you have to do all of these consistently.

Instructor meeting (5 points)

For you to succeed in this class, you need to be comfortable asking questions and speaking up. To encourage this and for you to get to know me (your instructor), you are requested to meet with me during my student hours. for no more than 5-10 mins. You have the first two weeks of the semester to get this done.

Class Participation (10%)

Engagement in this class is critical to your success and the overall learning environment. While this course is not heavily discussion-focused, active participation demonstrates your commitment to understanding the material and engaging with your peers. Your engagement grade will reflect the quality of your contributions, evidence of preparation, collaboration with peers, use of evidence from the course materials, and consistency in engagement throughout the semester. Active participation includes thoughtful understanding and application of course concepts during activities, coming to class prepared with readings or assignments completed, working respectfully and constructively with peers, and supporting insights with examples or references.

If you must miss class for any reason, please be in touch at least 24 hours beforehand. If you have a legitimate reason, I will accept a one-paragraph response to that session's readings for

attendance/participation credit. If you miss two or more classes, and these absences stem from health issues or personal crises, you should talk to the Dean of Students Office about withdrawing for the semester. You are allowed two absences without penalty. Each additional absence (for any reason) reduces your final course grade by 5%. If you miss five or more classes (after you register) for any reason, you will automatically fail the course.

Attendance is not a direct component of the engagement grade, but it is essential to your ability to participate effectively. Excessive absences will likely impact your ability to meet the expectations for meaningful engagement.

Homework Assignments (5% per assignment – 15% total)

There will be 3 homework assignments in the first half of the course that will provide you with an opportunity to learn about and implement experimental designs. You will submit these individually but you are allowed to work with others while mentioning who you worked with in the submission. Please submit these assignments via Blackboard.

Midterm (15%)

Pick a journal article from the suggested readings and translate it into a piece for popular media of your choice – Twitter thread, blog post, or OpEd. You will have to emphasize how this (the research article you pick) affects the real world and policies.

Final Project Assignment (15% per component – 45% total)

You will complete this assignment individually or in groups of two. The tasks will largely be completed over the second half of the semester. You will have the opportunity to choose your own research question and to design a study that answers this question. Please see specific details on Blackboard.

Final Presentation (10%)

The final presentation is a critical component of this course and provides an opportunity for you to showcase your research, analytical skills, and ability to communicate complex ideas effectively. Each presentation should be clear, well-organized, and reflect a deep understanding of your chosen topic. You will be evaluated on the strength of your content and argumentation, clarity of delivery, use of visuals or other aids, and your ability to address questions from the audience. Presentations should demonstrate thoughtful engagement with course themes and integrate evidence and insights from your research. The final presentation will account for a significant portion of your grade, so thorough preparation is essential.

GRADES

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| Instructor meeting | 5% |
| Assignment 1 | 5% |
| Assignment 2 | 5% |
| Assignment 3 | 5% |
| Midterm – popular media | 15% |

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| Experimental design | 15% |
| Experimental analysis | 15% |
| Final paper/Quasi-experimental analysis | 15% |
| Final Presentation | 10% |
| Class Participation | 10% |

SCHEDULE INCLUDING DUE DATES

| Date | In-class topic | Required readings | Optional readings | Due dates |
|--------|--|--|---|---|
| Jan 22 | Introductions & overview of the semester | | | |
| Jan 27 | Overview of causal inference | FEDAI, Chapter 1 MHE, Chapters 1 & 2 (pp. 3-24) | | |
| Jan 29 | Overview of causal inference | Gertler, Paul J., Patrick Premand, Sebastian Martinez, Christel M.J. Vermeersch, and Laura B. Rawlings. 2010. <i>Impact Evaluation in Practice</i> . Chapter 3 | | |
| Feb 3 | Randomized trials: basics | FEDAI Chapter 2 | | |
| Feb 5 | Randomized trials: basics | Gertler, Paul J., Patrick Premand, Sebastian Martinez, Christel M.J. Vermeersch, and Laura B. Rawlings. 2010. <i>Impact</i> | Bruhn, Miriam, and David McKenzie. 2009. "In Pursuit of Balance: Randomization in Practice in Development Field Experiments." <i>American Economic Journal: Applied Economics</i> 1(4):200-232. | Final chance to meet with the instructor. |

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| | | <i>Evaluation in Practice</i> . Chapter 4. | | |
| Feb 10 | Randomized trials: inference | FEDAI Chapter 3 | | Assignment 1 due |
| Feb 13 | Randomized trials: inference | | | |
| Feb 17 | Randomized trials: covariates | FEDAI Chapter 4 | | |
| Feb 19 | Randomized trials: covariates | | | Assignment 2 due |
| Feb 24 | Randomized trials: noncompliance | FEDAI, Chapters 5-6 | | |
| Feb 26 | Randomized trials: noncompliance | <p>Gertler, Paul J., Patrick Premand, Sebastian Martinez, Christel M.J. Vermeersch, and Laura B. Rawlings. 2010. <i>Impact Evaluation in Practice</i>. Chapter 11</p> <p>Kvangraven, Ingrid. 2020. <i>Impoverished economics? A critical assessment of the new gold standard</i>.</p> | https://chrisblattman.com/blog/2015/12/07/if-you-run-field-experiments-this-might-be-paper-that-will-make-it-harder-to-publish-your-work-in-a-few-years/ | |

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| Mar 3 | BUFFER | | | |
| Mar 5 | Randomized trials: power | FEDAI Appendix 3.1. | | Assignment 3 due |
| Mar 10 | SPRING BREAK | | | |
| Mar 12 | SPRING BREAK | | | |
| Mar 17 | Midterm workday | | | |
| Mar 19 | Instrumental variables | | | Midterm product due |
| Mar 24 | Instrumental variables | MHE, Sections 4.1 | | Experimental design due/ Extension due |
| Mar 26 | Instrumental variables | MHE, Sections 4.4.1-4.4.2 | | |
| Mar 31 | Panel methods | MHE Sections 5.1-5.3 (inclusive) | | Experimental data provided |
| Apr 2 | Panel methods | Gertler, Paul J., Patrick Premand, Sebastian Martinez, Christel M.J. Vermeersch, and Laura B. Rawlings. 2010. <i>Impact Evaluation in Practice</i> . Chapter 6. | Girardi, Daniele. 2020. "Partisan Shocks and Financial Markets: Evidence from Close National Elections." <i>American Economic Journal: Applied Economics</i> , 12 (4): 224-52. | |
| Apr 7 | | | | |
| Apr 9 | Synthetic control | Abadie, Alberto; Diamond, Alexis; | | |

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| | | Hainmueller, Jens, "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program" <i>Journal of the American Statistical Association</i> , vol. 105, no. 490, June 2010, pp. 493-505. | | |
| Apr 14 | Synthetic control | Abadie, Alberto and Javier Gardeazabal, "The Economic Costs of Conflict: A Case Study of the Basque Country," <i>American Economic Review</i> , March 2003, pp. 113-132. | | Experimental analysis due |
| Apr 16 | BUFFER | | | |
| Apr 21 | Final project workday | | | |
| Apr 23 | Presentations | | | |
| Apr 28 | Presentations | | | |

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| Apr 30 | Presentations | | | |
| May 13 | | | | Final papers due |

COURSE POLICIES

Blackboard. The Blackboard website is the central repository for the course. I will use it to communicate to the class as a group, accept and grade response paper submissions, and post materials for the course. Make sure that you regularly check both it and the email account associated with Blackboard.

Grading scale. Letter grades for the course will be based on a standard 100-point scale as determined by the following ranges: A (≥ 93 through 100), A- (≥ 90 through < 93), B+ (≥ 88 through < 90), B (≥ 83 through < 88), B- (≥ 80 through < 83), C+ (≥ 78 through < 80), C (≥ 73 through < 78), C- (≥ 70 through < 73), D+ (≥ 68 through < 70), D (≥ 63 through < 68), D- (≥ 60 through < 63), and F (less than 60).

Inclusivity. Every student in this class, regardless of background, sex, gender, race, ethnicity, class, political affiliation, physical or mental ability, or any identity category, is a valued and equal member of the group. We all bring different experiences to this class, and no one experience has more value or import than another. In fact, it is our different experiences that will enrich the course content. I encourage every student to share their own experiences as they are relevant to the course, but I also stress that no student is ever presumed to speak for anything or anyone more than their own experience or point of view. Furthermore, in this classroom, you have the right to determine your own identity. You have the right to be called by whatever name you wish, and for that name to be pronounced correctly. You have the right to be referred to by whatever pronoun you identify. You have the right to adjust those things at any point. If there are aspects of the instruction of this course that result in barriers to your inclusion or a sense of alienation from the course content, please contact me privately without fear of reprisal. If you feel uncomfortable contacting me, please contact the Office of the Dean of Students.

Religious Observances. As your instructor, I am committed to providing equivalent educational opportunities to students of all belief systems. Please review the course requirements at the beginning of the semester to identify foreseeable conflicts with assignments, exams, or other required attendance. If at all possible, please contact me within the first two weeks of the first-class meeting to allow time for us to discuss and make fair and reasonable adjustments to the schedule and/or tasks,

Etiquette. Please do not use devices during class for non-class-related activities. Several methodologically strong academic studies show that using laptops during class to browse social media, shop, catch up on email, etc., distracts other students, lowers the quality of classroom interaction, and affects the multi-taskers grades and comprehension. I reserve the right to ask you to close laptops during face-to-face meetings.

Class Code and Conduct. Discussions occur when there is dialogue; therefore, you will continuously be expected to build on the writing and verbal contributions of other learners. Much of this class depends upon collaboration with others. To this end, we will discuss and agree to a code of conduct at the start of the course. We will not all get all of these right all of the time, but we set these as a standard to consciously and continuously strive for and aspire toward.

1. Have fun. (Don't take yourself or others too seriously.)
2. Keep an open mind to all discussions and new information.
3. Be mindful of sharing the classroom and conversational space. Wait, ask yourself, "why am I talking?" Take turns. Don't speak over others.
4. Be mindful of interpersonal power dynamics. When are you in a position of disproportionate power? When are you disempowered?
5. Prefer to use "I" statements (rather than "we" or passive voice), and speak from personal experience. Don't generalize. Take responsibility for your own lived experience and your opinions and recognize that they may not be universal.
6. Listen and be respectful.
7. Own your mistakes. Remember that we are learning together, and mistakes are part of the process!
8. Reflect on which of these guidelines are easy for you and which are hard throughout the course.
9. Be mindful that others in this space may not have the same experiences that you do; they may have different cultural reference points, slang, or idioms. Embrace and celebrate differences. Strive for understanding, not standardization.
10. Racism, sexism, ableism, or any other discriminatory or abusive language or behavior will not be tolerated.

Use of AI. The use of AI is permitted under certain circumstances in this course. When you use AI, you are both a consumer of and a resource for AI. Responsible and ethical AI begins with you.

The use of generative AI tools (e.g. ChatGPT, Dall-e, etc.) is permitted in this course for the following activities:

- Brainstorming and refining your ideas
- Fine-tuning your research questions
- Finding information on your topic
- Checking grammar and style

The use of generative AI tools is not permitted in this course for the following activities:

- Completing group work that your group has assigned to you unless it is mutually agreed upon that you may utilize the tool
- Writing drafts of papers or presentations
- Writing entire sentences, paragraphs, or papers to complete class assignments

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Please refer to your chosen citation style for guidelines on how to appropriately cite AI (e.g. <https://apastyle.apa.org/blog/how-to-cite-chatgpt>). Any assignment that is found to have used generative AI tools in unauthorized ways will receive an automatic fail. When in doubt about permitted usage, please ask for clarification.

COVID and this course. Please follow W&M requirements and guidelines about COVID safety, which are available here:

https://www.wm.edu/about/administration/emergency/current_issues/coronavirus/

If/when you need to miss class, please let me know as soon as possible and follow up with me about your plans to catch up on what you missed. I anticipate that the class will be held largely in person, but I also anticipate certain adjustments, like making class recordings available to students who notify that they are missing class due to COVID, or *temporarily* holding class via Zoom if a high proportion of students cannot attend on a given day, or if I am sick/exposed.

Honor Code. Academic integrity is at the heart of W&M, and we all are responsible for upholding the ideals of honor and integrity. The [Student Handbook](#) includes your responsibilities as a student and the full Code. I expect your full participation and observance of the Honor Code.

STUDENT WELLBEING

W&M recognizes that students juggle different responsibilities and can face challenges that make learning difficult. If you or someone you know is experiencing a challenge related to an emotional, psychological, physical, medical, material, or accessibility concern, I encourage you to reach out to resources on campus. For psychological/emotional stress, please consider reaching out to the [W&M Counseling Center](#) (757-221-3620), 240 Gooch Dr., 2nd floor). For physical/medical concerns, please consider reaching out to the [W&M Health Center](#) at (757-221-4386, 240 Gooch Drive). For additional support or resources, please contact the Dean of Students by submitting an [online Care Report](#) or by phone or email (757-221-2510, deanofstudents@wm.edu). For a list of many other resources available to students, see [Health and Wellness Resources for Students](#).

Student Accessibility Services. W&M accommodates students with disabilities in accordance with federal laws and university policy. Any student who feels they may need an accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact Student Accessibility Services staff at 757-221-2512 or at sas@wm.edu to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please visit www.wm.edu/sas.

COURSE RESOURCES

Economics Stata Lab. If you would like some help using Stata for problem sets, please take advantage of the Stata Lab. See more here:

<https://www.wm.edu/as/economics/currentstudents/statalab/index.php>

Writing Resources Center. A great resource to assist you with your final research papers, mid-term media product, and final presentations. Feel free to book a time with them to meet and chat here:

<https://www.wm.edu/as/wrc/>