

Econ 412/PUB 514: Empirical Microeconomics  
Course Syllabus  
Spring 2024

Professor: Samuel Weldeegzie

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<https://sites.google.com/view/samgw>

Global Research Institute  
&  
Department of Economics  
Chancellors Hall, Room: 267  
William and Mary

Course meetings: Tuesdays and Thursdays 9.30-10.50

Location: Chancellors Hall–Room: 132

Office Hours (student consultation): Wednesdays 1.30-3.00 pm at Room 228.

## 1 About the Professor

Dr. Weldeegzie is a postdoctoral fellow at the Global Research Institute. Prior to coming to William and Mary, he was an Assistant professor at the Department of Development Economics, Ethiopian Civil Service University where he taught Advanced Econometrics for graduate students. Weldeegzie received his PhD

Economics from the Australian National University (ANU). Weldeegzie's broad research interest and previous work include human capital accumulation and impact evaluations of development programs. You can visit [my website](#) to learn more about my research.

## 2 About the course

This course will cover the fundamental experimental and quasi-experimental research methods used in recent empirical analysis from a micro perspective. We will begin by revisiting the Classical Linear Regression Models before we take off to the core of the course that focus on **casual inference**, a fundamental problem in attributing causal effect to certain policies and/or programs. This course is essential preparation for advanced work in economics research and is highly recommended for anyone who intends to pursue graduate training such as PhD study in Economics and related fields such as public policy, political science, public health etc.

Once we discuss the potential outcome framework and understand the fundamental problem of causal inference, we then proceed to research designs applied in recent empirical microeconomics that focus on the identification of causal effects of policies or programs or laws. These include RCTs, PSM, IVs, Panel FEs/DiDs, & RDD. We will support our learning by research papers published in top-tier economics journals. The focus will be on the application of these research designs and techniques by understanding the intuition behind each design and technique rather than theoretical development.

At the end of the course, students will be able to:

1. understand the fundamental problem of causal inference and potential outcome framework,
2. understand and critique the recent literature that apply experimental and quasi-experimental research designs specifically mentioned in the above section,
3. write STATA codes, execute, & interpret these results,
4. write research proposals that potentially suggest one of the designs discussed in class: RCTs, PSM, IVs, Panel FEs/DiDs, & RDD,
5. investigate policy relevant research question by designing and executing an empirical research project, &
6. critically evaluate and replicate a research paper published at a top-tier economics journals [MPP only].

**Pre-requisites:** This course requires strong knowledge and skills in Statistics and Econometrics such as basics of probability and linear regressions models covered in ECON 308.

**Topics:**

- 2.1 Revisions: Linear Regressions Models**
- 2.2 The Potential Outcome Framework**
- 2.3 Randomized Control Trials**
- 2.4 Propensity Score Matching**
- 2.5 Panel Data and Difference-in-Difference models**
- 2.6 Instrumental Variables Approach**
- 2.7 Regression Discontinuity Design**
- 2.8 Conducting Empirical Research**

**Assignments & Grading:** Students are responsible for attending lectures, taking notes, and reviewing your notes after each class. Beyond the lecture notes, I encourage you to obtain notes from another student if you miss class. Evaluations will be based on the following tasks strongly linked to each objectives/goals of the course above:

1. Quiz/Test—10% Goal 1, Goal 2
2. Stata Problem Sets – 20% UG, 10% MPP Goal 3
3. Article Summary/Review—20% [Group of 2 Students] Goal 1, Goal 2
4. Research Proposal – 20% UG, 10% MPP Goal 1, Goal 2, Goal 4
5. Research Paper – 30% Goal 1, Goal 2, Goal 3, Goal 4, Goal 5
6. Replication –20% (MPP only) Goal 2, Goal 3, Goal 5, Goal 6

**Grading scale:** Letter grades for the course will be based on a 100-point scale as determined by the following:  $A(\geq 91)$ ,  $A-(\geq 87)$ ,  $B+(\geq 85)$ ,  $B(\geq 75)$ ,  $B-(\geq 71)$ ,  $C+(\geq 65)$ ,  $C(\geq 60)$ ,  $C-(\geq 55)$ ,  $D+(\geq 50)$ ,  $D(\geq 45)$ ,  $D-(\geq 40)$ , and  $F(\leq 40)$ .

**Important Dates for Econ 412:**

- January 25; Thursday – First Day of Class
- MARCH 9 - 17 – Spring Break (no class)
- MAY 2 – Last day of classes
- MAY 7 & 9 – Research Presentations

### 3 Policy

**Academic Integrity:** William & Mary has had an honor code. We all are responsible for upholding the ideals of honor and integrity. The student-led honor system is responsible for resolving any suspected violations of the Honor Code, and I will report all suspected instances of academic dishonesty to the honor system. See the [Student Handbook](#) and the [Honor Code](#).

**Respect for Diversity:** William & Mary respects and appreciates diversity. Diverse backgrounds and experiences are essential to the critical thinking endeavor at the heart of university education. In this classroom, students are expected to respect individual differences due to but not limited to: age, cultural background, disability, ethnicity, family status, gender identity and representation, immigration status, national origin, race, religion, sex, sexual orientation, socioeconomic status, and veteran status. I expect you to engage respectfully in discussion of diverse worldviews or ideologies embedded in course readings, presentations, and artifacts, including those course materials that are at odds with personal beliefs and values if any.

**Mandatory Reporting:** William & Mary faculty are required by law to report any information they receive pertaining to sexual misconduct or assault. As a mandatory reporter, any disclosures to the instructor of this nature will have to be further disclosed to the Title IX coordinator on campus. If you have issues or concerns regarding yourself or someone else, and would like to share them confidentially, you are strongly encouraged to contact The Haven, a confidential resource center for those impacted by sexual violence and harassment, relationship violence, stalking, and other gender-based discrimination. They are located at Sadler Center, Suite 146P and can be reached by email [thehaven@wm.edu](mailto:thehaven@wm.edu) or phone 757 221 2449. More information available [here](#).

**Accessibility Services:** It is the policy and practice of William & Mary to create an inclusive and accessible learning environments for all. Any student who feels the need for accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact Student Accessibility Services at [sas@wm.edu](mailto:sas@wm.edu). For more information, click [here](#).

**Electronic Device Use:** Use of cell phones and tablets or other electronic devices during class is not recommended but can be used if it enhances students' learning experience without distracting other's attention.

## 4 Campus Support

The Dean of Students provides Care Support Services (CSS) to students in need. If you are facing challenges to your mental, physical, and social health, you are strongly encouraged to contact them (care@wm.edu). If you are concerned that a fellow student may be facing physical, emotional, or academic difficulties, you can also contact CSS on their behalf (confidentially and anonymously if you wish). More information available [here](#).

### **Additional support:**

Economics Stata Lab

[Writing Resources Center](#)

[Campus Libraries](#)

[Tribe TutorZone](#)

[The Office of Career Development & Professional Engagement](#)

[Student Counseling Services](#) and for more important numbers to get help see [here](#)

## 5 Syllabus Revisions/References

You are responsible for all materials, updates, & announcements discussed during class sessions. In case(s) of unforeseen circumstances, the instructor will use William & Mary email account to communicate with each student electronically.

### References

- [1] Joshua D Angrist and Jörn-Steffen Pischke. *Mostly harmless econometrics: An empiricist's companion*. Princeton university press, 2009.
- [2] Joshua D Angrist and Jörn-Steffen Pischke. *Mastering'metrics: The path from cause to effect*. Princeton university press, 2014.
- [3] Scott Cunningham. *Causal inference: The mixtape*. Yale university press, 2021.
- [4] Alan S Gerber and Donald P Green. *Field experiments: Design, analysis, and interpretation*. 2012.