

# Course Information

**Class Meeting:** In-person Lectures M/W 3:30-4:45pm

LSB 204A

(Zoom option and recordings will be provided)

**Final:** Wednesday, May 14 7:30-9:30 am

**Instructor:** Alyssa Carlson (Preferred address Dr. or Prof. Carlson)

E225 Locust Street Building

Email: [carlsonah@missouri.edu](mailto:carlsonah@missouri.edu)

**Office Hours:** Wednesday 2-3pm or by appointment in office or on Zoom

# Course Description

This class is the second course in the Economics PhD first year econometrics sequence. The course will build upon what was taught in 9471 covering more advanced econometric methods such as Instrumental Variables, Generalized Methods of Moments, Panel Data methods, and Maximum Likelihood methods of estimating Limited Dependent Variables.

# Learning Objectives

At the end of the course you will be able to

1. Articulate the big picture concepts of IV, GMM, and ML estimation.
2. For a variety of econometric methods, describe their critical assumptions, computation, and output/interpretation.
3. Judge which of two methods is “better” in a given situation, articulating tradeoffs between the two (imperfect models).

# Text and Material

We will be using [Wooldridge, Jeffrey M. \*Econometric Analysis of Cross Section and Panel Data\*. MIT Press, 2010.](#) In addition to the textbook, lecture slides will also be provided. Please print (or have access to) slides during class so you may take additional notes to those provided.

Optional Texts:

- [Greene, William H. \*Econometric Analysis\*. Pearson, 2018.](#) This is a standard graduate (PhD) level econometrics textbook. This reads more like an encyclopedia and covers much more than what we can cover in this course.
- [Cameron, A. Colin and Trivedi, Pravin A. \*Microeconometrics: Methods and Applications\*, 2005.](#) This is another commonly utilized graduate level reference (but a little more dry of a read compared to Wooldridge).
- [Pischke, Jörn-Steffen, and Angrist, Joshua D. \*Mostly Harmless Econometrics: An Empiricist's Companion\*. Princeton University Press, 2008.](#) This is a short and relatively cheap text that focuses on treatment effects estimation and simplifying econometrics methods for applied researcher. This is not a stand-alone textbook but is a useful accompaniment to other texts.

## Schedule of Topics

Chapters	Topic
2	Conditional Expectations and Related Concepts in Econometrics
-	Introduction to Stata
4	Review of Single Equation Linear Model and Ordinary Least Squares Estimation
5	Instrumental Variables Estimation of Single-Equation Linear Models and Control Function Approaches
14 and 8	Generalized Methods of Moments and application to System IV
10	Basic Linear Unobserved Effects Panel Data Methods
13	Maximum Likelihood Methods
15	Binary Response
21	Treatment Effect

## Grade Composition

Problem Sets – 35%

At Home Midterm – 30%

Final (**Wednesday, May 14 7:30-9:30 am**) – 35%

**Problem Sets** – There will be 5 problem sets assigned throughout the semester. While collaboration on the assignments is encouraged, each student must turn in his/her own problem set, written in his/her own words (no direct copies or photocopies allowed). You will type or write up your answers and submit them online as a PDF. If an assignment is turned in within 24 hours after the due date, it will automatically lose 50% of the grade. No credit is given to problem sets handed in more than 24 hours late. All homeworks will be distributed at least a week before they are due.

**At Home Midterm** – You will have 24 hours to complete the at home midterm exam. This exam is open note and open book, but you are not allowed to discuss the questions with your classmates. You will type or write up your answers and submit them online as a PDF. Your submission should be clear as to which answers go to which questions (label your answers and pages!). The midterm will cover everything in the first half of the course. The format of this exam will be similar to the qualifying exam (3 questions), and the format of the questions will be similar to the problem sets. You should think of this exam as a practice for the summer qualifying exams, but with a longer time constraint and complete access to lecture and textbook resources. As we get closer to the qualifying exams, you should practice by trying to answer the problems quicker and with less dependence on outside resources.

**Final Exam** – You will have the entire final exam time (2hrs) to complete the final. The final exam questions will focus on material on the second half of the course. But do keep in mind that material learned in the first half is still pertinent in understanding the second half. Therefore the final will be cumulative in that sense. The exam is not open book or open note, but you are allowed 5 sheets of 8.5x11 pieces of paper with your own study material. These cheat sheets can be typed or hand written, but should be created on your own (no multiple prints of the same cheat sheet for several students).

If you have a significant reason that you believe would justify rescheduling an exam, you must contact me **as soon as possible**. Significant reasons that can be anticipated (e.g. any schedule conflicts with final exams, required participation in University-sponsored activities, conferences, etc.) must be given to me at least **two weeks** before the exam. For reasons that cannot be anticipated, see me immediately to make appropriate arrangements. Generally, if circumstances warrant it, makeup exams will only be provided *before* the regularly scheduled exam. However, the resolution of any conflicts will be handled on a case-by-case basis.

## Course Expectations

### You can expect me to

- Be available during office hours or appointments to talk all things econometrics!
- Provide clear and quick communication. I will notify you of all due dates via announcements. I will respond to emails within 24 hours (mostly likely faster).
- Fair grading of homework and exams.

### I expect you to

- Be prepared for class with access to lecture slides and materials for taking notes.
- Actively participate in the course. What you get out of it is what you are willing to put into it.

- Be vocal on where you are confused or where we are moving too quickly. If you are having trouble understanding the material, it is likely others in the class are also confused. I will only be able to help you if you tell me you need help.

## Academic Integrity

Academic integrity is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor or the [Office of Academic Integrity](#).

Students are expected to adhere to this honor pledge on all graded work whether or not they are explicitly asked in advance to do so: "I strive to uphold the University values of respect, responsibility, discovery, and excellence. On my honor, I pledge that I have neither given nor received unauthorized assistance on this work."

## Academic Inquiry, Course Discussion, and Privacy

When students record something that happens in a course (a lecture, class discussions, meetings, etc.) it has an impact on the rights of the people captured in that recording. For example, the instructor and the University may have rights to the intellectual property contained in that recording. At the same time, another student who may have been recorded has the right to privacy. In order to protect these rights, MU employs a policy (called "[Executive Order No. 38](#)"

.) to govern both situations you may encounter while taking a course – when an instructor allows recordings and when they do not.

In this class, students may make audio or video recordings of course activity unless specifically prohibited by the faculty member. However, the redistribution of audio or video recordings of statements or comments from the course to individuals who are not students in the course is prohibited without the express permission of the faculty member and of any students who are recorded.

If the instructor doesn't specifically prohibit recording course activity, then the students are allowed to record and the same prohibitions regarding distribution apply.

Students who violate this policy are subject to discipline in accordance with provisions of [section 200.020](#) of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters.

## **FERPA**

The Family Educational Rights and Privacy Act (FERPA) of 1974 is a federal law designed to protect the privacy of educational records; to establish the rights of students to inspect and review their education records; and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. The law applies to any individual who is or has been in attendance at an institution and regarding whom the institution maintains educational records. Once students have matriculated to the University of Missouri, i.e. enrolled in course work, FERPA rights transfer to the student, regardless of the student's age.

Students can enable certain individuals to have access to their education records by signing a FERPA waiver. The consent must specify records to be disclosed, state the purpose of the disclosure and identify the party or class of parties to whom the disclosure must be made.

## **Intellectual Pluralism**

The University community welcomes intellectual diversity and respects student rights. Students who have questions or concerns regarding the atmosphere in this class (including respect for diverse opinions) may contact the departmental chair or divisional director, the [Office of Academic Integrity](#), or the [MU Equity Office](#).

## **Mental Health**

The University of Missouri is committed to supporting student well-being through an integrated network of care, with a wide range of services to help students succeed. The MU Counseling Center offers professional mental health care and can help you find the best approach to treatment based on your needs. Call to make an appointment at 573-882-6601. Any student in crisis may call or go to the MU Counseling Center between 8:00-5:00 M-F. After hours phone support is available at 573-882-6601.

Visit our website at <https://wellbeing.missouri.edu/> to take an online mental health screening, find out about workshops and resources that can help you thrive, or learn how to support a friend.

## **Netiquette**

Your instructor and fellow students wish to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Our differences, some of which are outlined in the University's nondiscrimination statement, will add richness to this learning experience. Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended disruptions. Working as a community of learners, we can build a polite and respectful course ambiance.

## **Religious Holidays & Accommodations**

Many religious faiths are represented in the student body. The University of Missouri does not restrict student free exercise of religion, unless 1) the restriction is in the form of a rule of general applicability, and does not discriminate against religion or among religions; and 2) it can be demonstrated that the application of the restriction is essential to furthering a compelling university interest, and is not unduly restrictive considering the relevant circumstance. The policy of the University attempts to strike a reasonable balance between accommodating the religious practice of students and meeting academic needs and standards.

Consult IDE's Guide to Religions for the form that can be used to notify an instructor of an absence associated with religious practice. Students are expected to notify their instructor(s) by completing and submitting this form in a manner that is consistent with the procedure outlined in the university's policy on student religious accommodation. Providing false information regarding sincerely held religious practice is a violation of the university's Standard of Conduct and will not be tolerated.

## **Nondiscrimination Policy (Prohibited Discrimination)**

The University of Missouri does not discriminate on the basis of race, color, national origin, ancestry, religion, sex\* (including gender), pregnancy, sexual orientation, gender identity, gender expression, age, disability, protected veteran status, and any other status protected by applicable state or federal law. Discrimination includes any form of unequal treatment such as denial of opportunities, harassment, and violence. \*Sex discrimination includes rape, sexual assault, sexual harassment, unwanted touching, stalking, dating/domestic violence, stalking, and sexual exploitation. Retaliation for making or supporting a report of discrimination or harassment is also prohibited.

If you experience discrimination or sexual violence, you are encouraged (but not required) to report the incident to the MU Office for Civil Rights & Title IX. Learn more about your rights

and options at [civilrights.missouri.edu](http://civilrights.missouri.edu) or call 573-882-3880. You also may make an anonymous report online.

If you are a survivor, or someone concerned about a survivor, and need immediate information on what to do, see [RSVP Resources page](#). Both the [Office for Civil Rights & Title IX](#), and the [RSVP Center](#) can provide assistance to students who need help with academics, housing, or other issues.

In the event that you choose to write or speak about having experienced any of these forms of prohibited discrimination or harassment, Mizzou policies require that, as your instructor, I share this information with the MU Office for Civil Rights & Title IX. They will contact you to offer information about resources, as well as your rights and options as a member of our campus community.

## Students with Disabilities

The goal of the University of Missouri is to ensure an inclusive learning environment for all students. [The University of Missouri Disability Center](#) provides services and accommodations for students to participate fully in the learning experience and to experience equitable evaluation of their performance. Students (including online students) with a documented disability can contact the Disability Center to establish an [Accommodation Plan](#). Documented disabilities include *hearing, vision, mobility, learning and attention, psychological health, and physical health*. Students' accommodations are implemented with the input of students to maximize the learning experiences. The MU Disability Center keeps information about a student's disability confidential.

Please notify me of your eligibility for accommodations as soon as possible. Additionally, if there are aspects of the course that present as barriers, such as inaccessible course content (e.g., learning assessments, PowerPoints, non-captioned videos, images, tables, PDFs) or if you need an immediate accommodation due to an injury, please contact me or the Disability Center as soon as possible.