

ECON 6465. Econometrics

Fall 2023 Course Syllabus

Lecture: Mondays and Wednesdays 10:00-11:30am (Melcher Hall Room 120)

Laboratory: Fridays 10:00am-noon (Teaching Unit 2 Building Room 215)

Instructor: **Professor Aimee Chin** (best way to contact me is by email: achin@uh.edu; some info about me here: www.uh.edu/~achin)

Office: Teaching Unit 2 Building Room 201N

Office hours: Meetings can be arranged via email

TA: **Shuan-Wen Lin** (email: slin27@uh.edu)

Office hours: Meetings can be arranged via email

Description

The purpose of this course is to expose students to statistical tools needed to understand and execute empirical economic research. Topics include linear regression, instrumental variables estimation, limited dependent variable models and panel data methods. Emphasis will be on applying econometrics to real-world problems.

Learning Outcomes

- Students will attain, through lectures, readings and problem sets, knowledge about how to analyze quantitative data and how to draw inferences from statistical measures.
- Students will be able to critically assess empirical research, and to thoughtfully produce their own empirical research.

Summary Table of the Digital Tools for our Course

The digital tool	How we will use it
Canvas	<ul style="list-style-type: none">• To download lecture slides• To get lab assignments and solutions• To get problem set assignments and solutions
Stata (see next page for details)	<ul style="list-style-type: none">• The specific software we will use to implement the econometric methods we are learning• See below for details about this software
UH Microsoft Office 365	<ul style="list-style-type: none">• We will use Excel to do some class exercises• We will use Forms to submit responses to some class exercises• Some students use Word to type responses for problem sets

Note: If you need to contact me, please send me an email (achin@uh.edu). I do not regularly monitor messages sent to me via other means, such as phone, Canvas or Teams, the fastest way to reach me is via email.

Prerequisites

To take this course, students should have a good understanding of probability and statistics, and have completed an undergraduate introductory econometrics course. Due to our admissions criteria, students in our Master's in Applied Economics program meet these prerequisites. If you are not a student in this

program, you must have received prior explicit permission from me to take this course (email me with information about your previous related coursework in order to request permission, and I will determine whether you may take this course).

Textbooks

There are two required textbooks:

- Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach*, 7th Edition, Cengage Learning, 2020. (Fine to use 6th or 5th edition instead.)
- Joshua D. Angrist and Jorn-Steffen Pischke, *Mastering 'Metrics: The Path from Cause to Effect*, Princeton University Press, 2015. (The book's website <http://masteringmetrics.com/resources/> contains the data and commands used to produce the tables shown in the book.)

Data Analysis Software

We will be using Stata, a statistical analysis software used widely by academics and policy analysts. Public versions of Stata are available at selected locations on UH campus including your computer lab and the library (on library computers, or remotely via the library's virtual software; see for info: <https://libraries.uh.edu/spaces-tech/software/virtual/>), but I recommend that you purchase your own copy. UH has an agreement with Stata Corp. which allows students to purchase its software at reduced rates; <https://www.stata.com/order/new/edu/profplus/student-pricing/>. For the purposes of our course, you should buy Stata/BE six-month license which costs \$48. If you have an older version of Stata already, that is fine to use for our course.

Requirements and Grading

Each student's cumulative score for this course will be based on performance on problem sets, exams and class participation with the weights given in the table below. This cumulative score will then be mapped into a letter grade at end of the course.

1) problem sets	About 8-10 during the semester	40%
2) Exam 1	Friday October 20, 10:00-11:50am	20%
3) Exam 2	Monday December 11, 11:00am-1:00pm	30%
4) class participation	Combination of attendance and participation in activities in both lectures and labs	10%
		<hr/> <hr/> 100%

Problem Sets: Problem set assignments will be posted on UH Canvas (from AccessUH click on Canvas icon, or go to <https://uh.edu/canvas/> and click on the "Log In Here: Canvas" button). Some will involve data exercises. For the data exercises, we will use Stata. Students are encouraged to work together on problem sets. However, unless otherwise specified, each student must write up his/her own problem set—no copies will be accepted, and this includes programs.

Generally, you get a score of zero when you do not submit your problem set by the deadline, but in certain situations a deadline extension is possible; email me to make a request for a deadline extension for a specific problem set and a reason for the request, and I will respond.

Exams: Exams will draw on material from lectures, labs, problem sets and textbooks. They will be closed-book exams; you may not consult your notes, the textbooks or any other resources—online or offline—during the exam. Your exam responses must be your own individual work; you are not allowed to work on exams with others in any way, and this includes but is not limited to helping others, receiving help from others, working together and sharing responses.

Generally, you get a score of zero when you miss the exam, but in certain situations a make-up exam is possible; email me immediately if you expect to miss the exam or have missed the exam and a reason for missing it, and I will respond.

Class Participation: Students are expected to attend every lecture and lab, and participate in lecture and lab activities, subject to the Excused Absence Policy described below. Multiple unexcused absences will lead to a reduction in the class participation part of your grade. If you miss a lecture or lab, regardless of whether the absence is excused or unexcused, it is your responsibility to learn the material missed and complete the assignments assigned. In the case of a missed lecture, the student is advised to review the lecture slides and readings associated with the missed lecture. In the case of a missed lab, the student should email Professor Chin to get instructions for making up the missed lab activities.

General Policies

- Our Class Meetings and Your Presence in Class
Lectures will begin at 10:00am and end at 11:20am. Labs will begin at 10:00am and end by 11:50am. We will meet every Monday, Wednesday and Friday between August 21 and December 1, except for Monday September 4 (Labor Day), and Wednesday November 22 and Friday November 24 (Thanksgiving break).
- Academic Honesty Policy
High ethical standards are critical to the integrity of any institution, and bear directly on the ultimate value of conferred degrees. All UH community members are expected to contribute to an atmosphere of the highest possible ethical standards. Maintaining such an atmosphere requires that any instances of academic dishonesty be recognized and addressed. The UH **Academic Honesty Policy** (<https://uh.edu/provost/policies-resources/honesty/>) is designed to handle those instances with fairness to all parties involved: the students, the instructors, and the University itself. All students and faculty of the University of Houston are responsible for being familiar with this policy.
- Reasonable Academic Adjustments/Auxiliary Aids
The University of Houston is committed to providing an academic environment and educational programs that are accessible for its students. Any student with a disability who is experiencing barriers to learning, assessment or participation is encouraged to contact the Justin Dart, Jr. Student Accessibility Center (Dart Center) to learn more about academic accommodations and support that may be available to them. Students seeking academic accommodations will need to register with the Dart Center as soon as possible to ensure timely implementation of approved accommodations. Please contact the Dart Center by visiting the website: <https://uh.edu/accessibility/> calling (713) 743-5400, or emailing jdcenter@Central.UH.EDU.

- Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston **Graduate Excused Absence**

Policy (<http://publications.uh.edu/content.php?catoid=50&navoid=19270>) for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to **military service** (<http://publications.uh.edu/content.php?catoid=49&navoid=18634>), religious holy days (<http://publications.uh.edu/content.php?catoid=44&navoid=15699>), **pregnancy and related conditions** (<https://www.uh.edu/equal-opportunity/anti-discrimination/policies/>), and **disability** (<https://uhsystem.edu/compliance-ethics/docs/sam/01/1d9.pdf>).

- Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the **Justin Dart, Jr. Student Accessibility Center** (<https://uh.edu/accessibility/>). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

- Mental Health and Wellness Resources

The University of Houston has a number of resources to support students' mental health and overall wellness, including **CoogsCARE** (<https://uh.edu/coogs-care/>) and the **UH Go App** (<https://uh.edu/go/>). **UH Counseling and Psychological Services (CAPS)** (<https://uh.edu/caps/>) offers 24/7 mental health support for all students, addressing various concerns like stress, college adjustment and sadness. CAPS provides individual and couples counseling, group therapy, workshops and connections to other support services on and off-campus. For assistance visit <https://uh.edu/caps/>, call 713-743-5454, or visit a **Let's Talk** (<https://www.uh.edu/caps/outreach/lets-talk/>) location in-person or virtually. **Let's Talk** are daily, informal confidential consultations with CAPS therapists where no appointment or paperwork is needed.

The **Student Health Center** offers a Psychiatry Clinic for enrolled UH students (<https://uh.edu/healthcenter/services/medical-services/psychiatry->

[clinic/](#)). Call 713-743-5149 during clinic hours, Monday through Friday 8 a.m. - 4:30 p.m. to schedule an appointment.

The [A.D. Bruce Religion Center](#) offers spiritual support and a variety of programs centered on well-being (<https://www.uh.edu/adbruce/>).

Need Support Now?

If you or someone you know is struggling or in crisis, help is available. Call CAPS crisis support 24/7 at 713-743-5454, or the National Suicide and Crisis Lifeline (<https://988lifeline.org/>): call or text [988](#), or chat [988lifeline.org](#).

- **Title IX/Sexual Misconduct**
Per the UHS Sexual Misconduct Policy, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and state law and must report incidents of sexual misconduct (sexual harassment, non-consensual sexual contact, sexual assault, sexual exploitation, sexual intimidation, intimate partner violence, or stalking) about which they become aware to the Title IX office. Please know there are places on campus where you can make a report in confidence. You can find more information about resources on the Title IX website at <https://uh.edu/equal-opportunity/title-ix-sexual-misconduct/resources/>.
- **Resources for Online Learning**
The University of Houston is committed to student success, and provides information to optimize the online learning experience through our **Power-On** website (<https://uh.edu/power-on/learning/>). Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, Blackboard, and Canvas; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

Course Outline and Textbook Readings *(subject to minor changes)*

1. The Selection Problem and Random Assignment (Weeks 1-3)

Angrist and Pischke Introduction & Chapter 1

Wooldridge Chapters 1 & 19, also see Appendices for a refresher on probability and statistics

2. Linear Regression (approx. Weeks 4-6)

Wooldridge Chapters 2-9

3. Controlling for Confounding Variables (Regression, Matching) (approx. Weeks 6-7)

Angrist and Pischke Chapter 2

Also covered: Limited Dependent Variable Models, Wooldridge Chapter 17

4. Panel Data and Difference-in-Differences (approx. Weeks 8-11)

Angrist and Pischke Chapter 5

Wooldridge Chapters 13 & 14

5. Instrumental Variables (approx. Weeks 12-13)

Angrist and Pischke Chapter 3

Wooldridge Chapters 15 & 16

6. Regression Discontinuity Designs (approx. Weeks 14-15)

Angrist and Pischke Chapter 4