

ECON 6465. Econometrics

Fall 2021 Course Syllabus

Lecture: Mondays and Wednesdays 10:00-11:30am (McElhinney Room 108)

Laboratory: Fridays 10:00am-noon (McElhinney Room 105)

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: McElhinney Room 221B

Office hours: Meetings can be arranged via email

TA: **Oscar Gálvez-Soriano** (email: ogalvezs@central.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
Microsoft Teams (part of UH Microsoft 365)	<ul style="list-style-type: none">• This is a face-to-face course. The plan is for our lectures and labs to be held in person during the scheduled time in the scheduled classroom.• I have set up a Teams meeting link for our class to use in case we hold class online instead of in person. The default is we meet in person, but if I announce we are meeting online then we will use this Teams video conference link.
Blackboard Learn	<ul style="list-style-type: none">• To download lecture slides• To get lab assignments and solutions• To get problem set assignments and solutions
Stata	<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
Microsoft Word (part of UH Microsoft 365)	<ul style="list-style-type: none">• To type your responses directly into Word file containing questions for problem sets and other assignments• You will email saved Word file containing your responses to me or your TA (depending on which assignment) to be graded

Note: I do not regularly monitor voice/text messages sent to me via voicemail, Blackboard, or Teams. If you need to contact me, please send me an email (achin@uh.edu).

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. called "GradPlan" which allows students to purchase its software at reduced rates; see <http://www.stata.com/order/new/edu/gradplans/student-pricing/>.

For the purposes of our course, you should buy Stata/IC 17 six-month license which costs \$48. Those of you intending to do a summer research paper might find it worthwhile to purchase the one-year license for \$94. If you have an older version of Stata already, that is fine to use for our course.

Requirements and Grading

1) problem sets	8 problem sets, each worth 4%	32%
2) Exam 1	Friday October 22, 10:00-11:50am	24%
3) Exam 2	Friday December 10, 11:00am-1:30pm	34%
4) class participation	Combination of attendance and participation in activities in both lectures and labs	10%

Problem Sets: Problem set assignments will be posted on UH Blackboard Learn (go to <http://www.uh.edu/blackboard/> and click on the "Log In Here: Blackboard Learn" 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 brief 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 an exam, but in certain situations a make-up exam is possible; email me immediately if you expect to miss an exam or have missed an exam and a brief 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. 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, video recording (if available; see next paragraph on lecture videos) 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.

When a student informs me in advance of their excused absence from a particular lecture, I will try to record that lecture. Lecture videos can be accessed in Teams under the team icon for our class. One way to access the videos: in General channel, in Posts tab, under our video conference meeting conversation, there will be a link to each lecture's video and clicking on the link will take you to that particular lecture. A second way to access the videos: in General channel, in Files tab, in Recordings folder, you can find all the available videos for our class.

General Policies

- Our Class Meetings
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 23 and December 3, except for Monday September 6 (Labor Day), and Wednesday November 24 and Friday November 26 (Thanksgiving break).
- Academic Honesty
To cultivate an environment of academic integrity, the University of Houston expects students to abide by the University's Academic Honesty Policy, found in the Graduate Catalog (<http://www.uh.edu/academic-honesty-graduate>).
- Student Code of Conduct
Students are expected to abide by the University of Houston's Student Code of Conduct (<http://www.uh.edu/dos/behavior-conduct/student-code-of-conduct/>).
- COVID-19 Information
Students are encouraged to visit the University's [COVID-19](#) website for important information including on-campus testing, vaccines, diagnosis and symptom protocols, campus cleaning and safety practices, report forms, and positive cases on campus. Please check the website throughout the semester for updates.

- Vaccinations

Data suggests that vaccination remains the best intervention for reliable protection against COVID-19. Students are asked to familiarize themselves with pertinent [vaccine information](#), consult with their health care provider. The University strongly encourages all students, faculty and staff to be vaccinated.

- Face Covering Policy

To reduce the spread of COVID-19, the University strongly encourages everyone (vaccinated or not) to wear face coverings indoors on campus including classrooms for both faculty and students.

- Presence in Class

Your presence in class each session means that you:

- Are NOT exhibiting any [Coronavirus Symptoms](#) that makes you think that you may have COVID-19
- Have NOT tested positive or been diagnosed for COVID-19
- Have NOT knowingly been exposed to someone with COVID-19 or suspected/presumed COVID-19

If you are experiencing any COVID-19 symptoms that are not clearly related to a pre-existing medical condition, do not come to class. Please see [Student Protocols](#) for what to do if you experience symptoms and [Potential Exposure to Coronavirus](#) for what to do if you have potentially been exposed to COVID-19. Consult the [Graduate Excused Absence Policy](#) for information regarding excused absences due to medical reasons.

- Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please contact [the Justin Dart Jr. Student Accessibility Center](#) (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

- 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 [Undergraduate Excused Absence Policy](#) and [Graduate Excused Absence Policy](#) 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](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

- 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](#). 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.
- Sexual Misconduct Policy
In accordance with 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 on the Title IX website at <https://uh.edu/equal-opportunity/title-ix-sexual-misconduct/resources/>.
- Counseling and Psychological Services
Counseling and Psychological Services (CAPS; www.uh.edu/caps) are available for students having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS by calling 713-743-5454 during and after business hours for routine appointments or if you or somebody you know is in crisis. The "Let's Talk" program provides a drop-in consultation service at convenient locations and hours around campus (<https://uh.edu/caps/outreach/lets-talk/index.php#hours>).
- Syllabus Changes
Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through email and on Blackboard Learn.

Course Outline and Textbook Readings (*subject to change*)

- 1. The Selection Problem and Random Assignment (approx. 5 lectures)**
Angrist and Pischke Introduction & Chapter 1
Wooldridge Chapters 1 & 19, also see Appendices for a refresher on probability and statistics
- 2. Linear Regression (approx. 4 lectures)**
Wooldridge Chapters 2-9
- 3. Controlling for Confounding Variables (Regression, Matching) (approx. 3 lectures)**
Angrist and Pischke Chapter 2
Also covered: Limited Dependent Variable Models, Wooldridge Chapter 17
- 4. Panel Data and Difference-in-Differences (approx. 7 lectures)**
Angrist and Pischke Chapter 5
Wooldridge Chapters 13 & 14
- 5. Instrumental Variables (approx. 4 lectures)**
Angrist and Pischke Chapter 3
Wooldridge Chapters 15 & 16
- 6. Regression Discontinuity Designs (approx. 3 lectures)**
Angrist and Pischke Chapter 4