

# ECON 6465. Econometrics

## Fall 2020 Course Syllabus

Lecture: Mondays and Wednesdays 10:00-11:30am

Laboratory: Fridays 10:00am-noon

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

Office: McElhinney Room 221B (but we will not hold meetings in my office this semester)

Office hours: Meetings can be arranged via email

TA: **Oscar Gálvez-Soriano** (email: [ogalvezs@central.uh.edu](mailto: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 Office 365)  Use the same Teams meeting link for all our class meetings unless I inform you otherwise	<ul style="list-style-type: none"><li>• To hold our online class meetings during our scheduled class time</li><li>• To share screens so instructor can present material to students, and students can show their lab work to instructor for feedback</li><li>• Audio rules: The default will be to have everyone muted and select unmute only while speaking.</li><li>• Video rules: For class meetings with an exam, you must keep your video on during the exam to ensure the academic integrity of exam administration. Your video is optional for our other class meetings.</li></ul>
Blackboard Learn	<ul style="list-style-type: none"><li>• To download lecture slides</li><li>• To get lab assignments and solutions</li><li>• To get problem set assignments and solutions</li></ul>
Stata	<ul style="list-style-type: none"><li>• The specific software we will use to implement the econometric methods we are learning</li><li>• See below for details about this software</li></ul>
Microsoft Word (part of UH Office 365)	<ul style="list-style-type: none"><li>• To type your responses directly into Word file containing questions for problem sets or exams</li><li>• You will email saved Word file containing your responses to me or your TA (depending on which assignment) to be graded</li></ul>

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](mailto: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 Learning Commons computers, or remotely via the Libraries' Virtual Learning Commons; see for info: <https://libraries.uh.edu/services/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 16 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	Problem sets	40%
2) Exam 1	Wednesday October 14, 10:00-11:20am	20%
3) Exam 2	Monday December 14, 11:00am-1:00pm	33%
4) class participation	Combination of attendance and participation in activities in both lectures and labs	7%

**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, 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. Note that each exam will be administered during a Teams class meeting, and you must keep your video on with your face visible during the entire exam to ensure the academic integrity of exam administration.

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, it is your responsibility to learn the material missed and complete the assignments assigned.

To prepare for possible disruptions to student schedules due to the COVID-19 pandemic, I plan to record our Monday and Wednesday lectures. A link to each lecture's video will be available in Microsoft Teams under the team icon for our class ("ECON 6465 Chin Fall 2020"; clicking on the link will take you to a Microsoft Stream video). In the case of a missed lecture, the student is advised to review the lecture slides, video recording and textbook readings associated with the missed lecture. In the case of a missed lab, you should email Professor Chin to get instructions for completing the missed lab activities.

I will check attendance by downloading the participant list during each of our Teams class meetings (both lectures and labs), which gives the name, arrival time and leaving time for each participant. To give you some flexibility in handling unexpected events: (1) excused absences occurring under the UH Excused Absence Policy described below will not be counted against the class participation part of your grade; (2) you are allowed to miss up to 4 class meetings (on top of the aforementioned excused absences) without a penalty to the class participation part of your grade. If you have more than 4 unexcused absences, or do not make up missed lab activities, or you regularly arrive late or leave early, then the class participation part of your grade will be reduced from the full 7%. Regardless of whether your absences are excused or unexcused, or expected to receive a grade penalty or not, it is your responsibility to review the material from missed lectures and complete the missed lab activities.

## 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 24 and December 4, except for Monday September 7 (Labor Day), and Wednesday November 25 and Friday November 27 (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/>).

- *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. More information can be found on the Title IX website at <https://uh.edu/equal-opportunity/title-ix-sexual-misconduct/resources/>.
- *Students with Disabilities*: The College of Liberal Arts and Social Sciences, in accordance with 504/ADA guidelines, is committed to providing reasonable academic accommodations to students who request them. Students seeking accommodation must register with the [Center for Students with DisABILITIES](#) and present approved documentation to me as soon as possible. I can make accommodations only if given advance notice.
- *Counseling and Psychological Services*: Counseling and Psychological Services (CAPS; [www.uh.edu/caps](http://www.uh.edu/caps)) is 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>).
- *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. 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 [Center for Students with DisABILITIES](#). 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.
- *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 announcement on Blackboard Learn.

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

- 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