

UNIVERSITY of **HOUSTON**

Applied Econometrics – Econ 4395

Spring Semester – 2022

Tuesday-Thursday: 2:30 PM - 4:00 PM

Depending on University policies, the class delivery method changes during the semester.

Regardless, all classes are “live” and held at the scheduled class time.

Agnes Arnold Hall 10 or Zoom

Contact information

Instructor:

Prof. Andrea Szabo

Office: Online

E-mail: aszabo2@uh.edu

Office hours: By appointment only.

You can schedule an appointment at

<http://www.uh.edu/~aszabo2/appointments.htm>

Teaching Assistant:

TBA

Office: TBA

E-mail: TBA

Office hours: TBA

Course Description

Econ 4395 is a continuation of Econ 3370 and introduces students to several extensions of multiple regression methods for analyzing data in economics and related disciplines. Topics include regression with panel data, instrumental variables regression, and the analysis of randomized experiments. The objective of the course is for the student to learn how to conduct – and how to critique – empirical studies in economics and related fields. Accordingly, the emphasis of the course is on empirical applications. The mathematics of econometrics will be introduced only as needed and will not be a central focus.

The class includes three replication projects where students will study three research papers in depth and replicate their empirical results with the provided data. These projects include papers from the field of economic history / economic growth, industrial organization, and development economics.

Prerequisites

Students are expected to have taken an introductory course in probability and statistics (Econ 2370) and Introduction to Econometrics (Econ 3370). Students are also expected to know how to run OLS regressions in STATA. Homework 1 provides a review of these skills.

Textbook

James H. Stock and Mark W. Watson (SW): *Introduction to Econometrics, 3rd edition or higher*, Pearson Addison-Wesley, 2011, ISBN-10: 0138009007. Besides the textbook we are going to discuss a number of journal articles which will be posted in Blackboard or can be accessed through the UH Library website.

Course Requirements

There will be 9 homework assignments and 3 midterm exams.

All homework assignments will be done online through the University of Houston Blackboard Learn website. All Problem Sets are due on the day listed below by 8.30 am.

Midterms will be given in class on the dates listed in the calendar.

All exams are open book and open notes. No cooperation is allowed during the tests. Academic misconduct will not be tolerated and any instances of it will be dealt with according to the appropriate University channels.

If you disagree with the grading of a midterm, submit it for further review. You must submit a written argument for why you deserve more points for the specific question(s) you would like re-graded. If you do not specify this, the entire test will be re-graded and it is possible that you may lose points. You must submit these arguments within one week after the midterm has been returned.

Class Website

All assignments and handouts will be posted on the class website in Blackboard Learn. Go to <http://www.uh.edu/blackboard> and click the white "Blackboard Learn" button. Log in with your CougarNet ID and password. There is a mobile version of the class website through the Blackboard App.

All technical and login help for Blackboard is provided by UH IT.

Email: support@uh.edu

Phone: 713-743-1411, every day 8 am to 8 pm (except University holidays)

Live chat: <http://www.uh.edu/infotech/livechat> Monday-Friday 8 am to 8 pm (not available Saturday-Sunday and on university holidays)

For more Blackboard resources, see Blackboard Student Help

<http://www.uh.edu/blackboard/help/>

Statistical software package

You will be required to use *Stata*, a statistical software package. You can access *Stata* via the Libraries' Virtual Learning Commons. Please see: <http://ask.lib.uh.edu/faq/169186> and <https://vcon.lib.uh.edu/portal/webclient/index.html> for more details. To get started with the software, please click this link <https://vcon.lib.uh.edu/portal/webclient/index.html#/>.

You don't need to download anything and you can just work online on the webclient. This page will ask you for vmware permission- click on 'accept'. Then it will ask you for your cougarnet id and password. Once you provide these you will see a page with different software, STATA is in the bottom row. Double click the link to open the software. You can copy-paste your data in the data editor or upload your dataset from the "file transfer" tab in the upper left corner.

If you would like to get your own copy of STATA, UH has an agreement called “GradPlan” that allows students to purchase various products at much reduced rates directly from *Stata*. The current version is *Stata 16*. I suggest that you buy *Stata/BE* which will be able to handle all of the problems that I will assign in the course. The current pricing for a 12 month license is \$125 for *Stata/BE*. For more detail and to order *Stata* online see the GradPlan website indicted below.

<https://www.stata.com/order/new/edu/profplus/campus-profplus/>

Grading

<i>Course Component</i>	<i>Percentage from the final grade</i>
Problem Sets	40
Midterm 1	20
Midterm 2	20
Midterm 3	20
Total	100

I will drop your two lowest homework score to allow for some flexibility. Thus you will have 7 problem sets that count towards your final grade.

The numerical course grade will be converted to a letter grade according to the following scale:

92%-100%	A
90%-91%	A-
88%-89%	B+
82%-87%	B
80%-81%	B-
70%-79%	C+
50%-69%	C
40%-49%	C-
38%-39%	D+
33%-37%	D
30%-32%	D-
-29%	F

There is no curve for the class. This means that you are not competing with other students, and you will always know exactly where you stand in the class based on your performance.

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 [Undergraduate Excused Absence Policy](#) for information regarding excused absences due to medical reasons.

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.

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.

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 UH email.

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. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

UH Email

Email communications related to this course will be sent to your Exchange email account which each University of Houston student receives. The Exchange mail server can be accessed via Outlook, which provides a single location for organizing and managing day-to-day information, from email and calendars to contacts and task lists. Exchange email accounts can be accessed by logging into Office 365 with your CougarNet credentials or through Access UH. Additional assistance can be found at the Get Help page.

Webcams

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on during lectures to promote student participation.

Counseling and Psychological Services

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743-5454 during and after business hours for routine appointments or if you or somebody you know is in crisis. No appointment is necessary for the “Let’s Talk” program, a drop-in consultation service at convenient locations and hours around campus. http://www.uh.edu/caps/outreach/lets_talk.html

Helpful Information

COVID-19 Updates: <https://uh.edu/covid-19/>

Coogs Care: <https://www.uh.edu/dsaes/coogscare/>

Laptop Checkout Requests: <https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop>

Health FAQs: <https://uh.edu/covid-19/faq/health-wellness-prevention-faqs/>

Student Health Center: <https://uh.edu/class/english/lcc/current-students/student-health-center/index.php>

Tentative Course Schedule:

Textbook page numbers are based on the third edition

Week	Class #	Date/Day			Topic	SW Ch. #	Problem Sets
Week 1	1	Jan	18	T	Welcome to Applied Econometrics! Syllabus, introduction		
	2		20	Th	Review of the Linear Regression Model I <i>The linear regression model, The Least Squares Assumptions, Hypothesis Tests, Confidence Intervals, Regression when X is Binary, Heteroskedasticity, Homoskedasticity,</i>	Ch. 1-7	
Week 2	3		25	T	Review of the Linear Regression Model II <i>Omitted Variable Bias, Measure of Fit Multicollinearity</i>	Ch. 1-7	
	4		27	Th	Linear Regression with Multiple Regressors <i>Hypothesis Tests</i>	Ch 7 p. 214-228	
Week 3	5	Feb	1	T	Linear Regression with Multiple Regressors <i>Confidence Sets, Model Specification</i>	Ch 7 p. 228-240	
	6		3	Th	Nonlinear Regression Functions <i>General Strategy, Nonlinear Functions of Single Independent Variables.</i>	Ch 8 p. 252-273	PS 1 Due
Week 4	7		8	T	Nonlinear Regression Functions <i>Interactions Between Independent Variables</i>	Ch 8 p. 274-295	
	8		10	Th	Assessing Studies Based on Multiple Regression I. <i>Internal and External Validity</i>	Ch 9 p. 313-329	PS 2 Due
Week 5	9		15	T	Assessing Studies Based on Multiple Regression II. <i>Example: Test Scores and Class Size</i>	Ch 9 p. 329-346	
	10		17	Th	Midterm I		PS 3 Due
Week 6	11		22	T	Regression with Panel Data I. <i>Fixed Effects</i>	Ch 10 p.347-358	
	12		24	Th	Regression with Panel Data II. <i>Time Fixed Effects, Standard Errors</i>	Ch 10 p.358-365	

Week 7	13	March	1	T	Regression with Panel Data III. <i>Example: Drunk Driving Laws and Traffic Deaths</i> Cohen, A. and L. Einav (2003): “The Effect of Mandatory Seat Belt Laws on Driving Behavior and Traffic Fatalities, <i>The Review of Economics and Statistics</i> , 85(4), 828-843.	Ch 10 p. 365-380	
	14		3	Th	Replication study 1: Lewis, G. (2011): “Asymmetric Information, Adverse Selection and Online Disclosure: The Case of eBay Motors”, <i>American Economic Review</i> , 101(4), 1535–1546.		PS 4 Due
Week 8	15		8	T	Replication study 1: <i>Limited Information, Subsamples, More on clustered standard errors.</i>		
	16		10	Th	Instrumental Variables Regression I. <i>IV Estimator with a Single Regressor and a Single Instrument, General IV Regression Model</i>	Ch 12 p. 397-415	PS 5 Due
Week 9	17		15	T	No class: Spring break		
	18		17	Th	No class: Spring break		
Week 10	19		22	T	Instrumental Variables Regression II. <i>Instrument Validity</i>	Ch 12 p.415-421	
	20		24	Th	Instrumental Variables Regression III. <i>Example: Demand for Cigarettes</i>	Ch 12 p. 421-438	
Week 11	21		29	T	Midterm II		PS 6 Due
	22		31	Th	Replication study 2: Nunn, N. (2008): “The Long-Term Effects of Africa’s Slave Traders”, <i>The Quarterly Journal of Economics</i> , 123(1), 139-176.		
Week 12	23	April	5	T	Replication study 2: <i>Choosing a valid instrument, Data collection techniques, Hausman test, Sargent test</i>		
	24		7	Th	Experiments I. <i>Potential Problems with Experiments in Practice</i>	Ch 13 p.469-487	PS 7 Due

Week 13	25		12	T	Experiments II. <i>The Differences-in-Differences Estimator</i> <i>Example: The Tennessee Class Size Reduction Experiment</i>	Ch 13 p.487-494	
	26		14	Th	Replication study 3: A. Szabo and G. Ujhelyi (2015): “Reducing Nonpayment for Public Utilities: Experimental Evidence from South Africa”, <i>Journal of Development Economics</i> , 117, 20–31.		PS 8 Due
Week 14	27		19	T	Replication study 3: <i>Effect of information / asymmetric information in economics, How to organize randomized experiments: Practical advice</i>		
	28		21	Th	Additional replication studies / catch-up		PS 9 Due
Week 15	29		26	T	Closing, review		
	30		28	Th	Midterm III		