ECON 345: Introduction to Econometrics - Fall 2021

Course Instructor: Amberly E. Dozier	**Email:** adozier2@gmu.edu
Meeting Time: N/A, asynchronous.	**Office Hours:** Thursdays 2-4p and by appointment
Zoom Link: https://us02web.zoom.us/j/3422571818?pwd=bWFORDlWSDljMEh1Mndxd3lkZEVYdz09	

This is an online, asynchronous course. Lectures and other course-related materials will be posted to Blackboard by Monday of each week.

Course Description

This course is designed to help you use modern statistical tools to analyze economic relationships. The objectives of this course are to build a solid, theoretical framework for econometric analysis, to perform critical analysis of policy and program initiatives, and apply these techniques to your own individual research programs.

Required Prerequisites

You are expected to have completed ECON 306, ECON 311, STAT 250 & STAT 350 OR STAT 344 & STAT 354 with satisfactory grades prior to enrollment in this course.

Required Textbooks/Software

Jeffrey Wooldridge. *Introductory Econometrics*, 7e. (ISBN-13: 978-1337558860, ISBN-10: 1337558869).

Any additional relevant assigned readings will be posted to Blackboard.

Stata is arguably the most commonly used statistical analysis program for applied economists. You will also be required to use Stata for assignments. A six month license is available for $48 and is sufficient for this course. Otherwise, the perpetual Stata license is a great investment if you plan to continue using econometrics in your academic career. (I have no financial interest in Stata whatsoever.)

Grading Criteria

Your final grade will be based on the following assessments:

Problem Sets	5%
Midterm 1	20%
Midterm 2	20%
Presentation	25%
Final Exam	30%

No makeup exams will be administered. If a true emergency arises, please let me know as soon as possible. If you are excused from an exam, the weight of that exam will be shifted to your final exam.

Problem Sets: There will be 11 graded problem sets assigned throughout the semester. The lowest of these grades will be dropped from final average. These are meant for practice, not perfection.

Assignments are due on Sunday of each week by 11:59 pm EST. All homework is to be submitted via Blackboard and must be uploaded as one, clear PDF or Word file. Please be sure that your work is neat, clear, and easy to follow and that it is your own. Working together on homework is allowed and encouraged; however, work submitted *must be in your own words*.

Be mindful that although problem sets are only 5% of your overall grade, they are helpful to keep up with the weekly material and can also help push grades over the margin (for example, from B+ to A-). I will have no sympathy for any student whose grade is on the margin and has not done the work assigned.

Presentations: Throughout your academic and professional career, you will likely be required to present in some manner. You will use the tools gained in this course to research, gather data, and present your results. Please reach out early and often to discuss your topic.

Midterm 1 will cover topics from Weeks 1 – 6.

Midterm 2 will cover topics from Weeks 8 – 12.

Final Exam will cover topics from Weeks 1 – 12.

Tentative Class Schedule

Week	Topic	Required Readings
August 23 – August 29	Introduction/Syllabus Review Probability Basics Correlation vs. Causation Introduction to Stata	Reading 1 (Friedman) Wooldridge: Chapter 1 Math Refresher B – B.4d **Problem Set 1 Assigned**
August 30 – September 5	Fundamentals of Statistics Simple Regression Analysis	Wooldridge: Math Refresher A,C Chapter 2 **Problem Set 1 Due Problem Set 2 Assigned**
September 6 – September 12	Multivariate Regression: Estimation Omitted Variable Bias	Wooldridge: Chapter 3 **Problem Set 2 Due Problem Set 3 Assigned**
September 13 – September 19	Multivariate Regression: Inference	Wooldridge: Chapter 4 **Problem Set 3 Due Problem Set 4 Assigned**

September 20 – September 26	Multivariate Regression: Asymptotic Properties	Wooldridge: Chapter 5, Sections 6.1 – 6.2c & 6.3c **Problem Set 4 Due** **Problem Set 5 Assigned**
September 27 – October 3	Multivariate Regression: Qualitative Data Linear Probability Models	Wooldridge: Chapter 7 **Problem Set 5 Due** **Problem Set 6 Assigned**
October 4 – October 10	**MIDTERM I**	**Problem Set 6 Due**
October 11 – October 17	Heteroskedasticity Introduction to Causal Inference Randomization	Wooldridge: Chapter 8 Reading 2 (Angrist & Pischke) **Problem Set 7 Assigned**
October 18 – October 24	Instrumental Variables	Wooldridge: Chapter 15 – 15.6
October 25 – October 31	Instrumental Variables	Reading 3 (Acemoglu) **Problem Set 7 Due** **Problem Set 8 Assigned**
November 1 – November 7	Panel Data: Simple Methods	Wooldridge: Chapter 13 **Problem Set 8 Due** **Problem Set 9 Assigned**
November 8 – November 14	Panel Data: Advanced Methods	Wooldridge: Chapter 14 Reading 4 (Cornwell) **Problem Set 9 Due** **Problem Set 10 Assigned**
November 15 – November 21	**MIDTERM II**	**Problem Set 10 Due** **Problem Set 11 Assigned**
November 22 – November 28	Difference in Differences	Reading 5 (Card & Krueger) **Problem Set 11 Due**

November 29 – December 5	Experimental Data: Parametric Tests Nonparametric Tests **PRESENTATIONS DUE**	Reading 6 (Manning) Reading 7 (Samuelson) Reading 8 (Plott)
December 6 – December 7	Reading Days/Optional Review	
December 8 – December 15	**FINAL EXAM**	

Reading List

1. Friedman, Milton, 1966. "Essays in Positive Economics. Part I: The Methodology of Positive Economics." University of Chicago Press.
2. Angrist, Joshua D. and Jorn-Steffen Pischke, 2008. *Mostly Harmless Econometrics*. Princeton, NJ: Princeton University Press.
3. Acemoglu, Daron, Simon Johnson, and James A. Robinson. "The Colonial Origins of Comparative Development: An Empirical Investigation." *The American Economic Review* 92 (2001): 1369-1401.
4. Cornwell, Christopher and William N. Trumbull. "Estimating the Economic Model of Crime with Panel Data." *The Review of Economics and Statistics* 76 (1994): 360-366.
5. Card, David and Alan B. Krueger. "Minimum Wages and Employment: A Case Study of the Fast Food Industry in NJ and PA." *The American Economic Review* 84 (1994): 772 – 793.
6. Manning, Willard G., Joseph P. Newhouse, Naihua Duan, Emmett B. Keeler, and Arleen Leibowitz. "Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment." *The American Economic Review* 77 (1987): 251-277.
7. Samuelson, Larry. "Economic Theory and Experimental Economics." *Journal of Economic Literature.* 43 (2005): 65 – 107.
8. Plott, Charles R. "Will Economics Become an Experimental Science?" *Southern Economic Journal.* 4 (1991): 901-919.

Other Important Dates

August 30 – Last Day to Add

September 7 – Last Day to Drop

September 14 – Final Drop Deadline

Disability Services

If you have a disability and need to make arrangements for testing, please inform me ahead of time. All accommodations must be arranged through the Office of Disability Services (http://ds.gmu.edu) using the appropriate documentation.

Honor Code and Academic Integrity

Cheating is unfair to your fellow classmates and will not be tolerated. As members of this university, you are all expected to have read, understood, and adhere to the Honor Code Statement. If there is a suspected incidence of cheating, it will be reported to the Office of Academic Integrity.