

Econometrics
Econ 308-Section 01, Fall 2019
Mondays, Wednesdays, and Fridays 9:00-9:50 AM
TYLER 114

Instructor Safoora Javadi

E-mail sjavadi@wm.edu

Office Tyler Hall 441

Office Hours MWF 10:00-11:00 am & Tue-Thu 12:00-1:00 pm

NOTE: The scheduled office hours are times during which I will be available to meet with students on a walk-in basis. Students are also invited to contact me to set up special appointments at other time (attendance mandatory).

Course Description

This course is designed to introduce students to *econometrics*: the field of economics which develops the methods by which statistical tools are employed in empirical research. We will focus on estimation and inference in the context of the most widely used methodology, linear regression analysis of a single equation. Students completing the course will gain an understanding of the analytical foundations of econometric analysis as well as acquiring significant hands-on experience with data analysis and the economic interpretation of empirical findings.

Required Textbook

Wooldridge, Jefferey M., *Introductory Econometrics: A Modern Approach*, 7th edition. Boston: Cengage

NOTE: It is NOT essential to use the most recent edition. Older editions are likely to be much less expensive, and they are equally good for the purposes of this class

Software

Most students will be using STATA, and the assignments and online course is geared towards STATA. It is available on the school computers. You do not have to use STATA, this class is not software-specific. If you are looking for a free alternative, I suggest R via RStudio. Learning how to use software, troubleshoot code, and manipulate data in a program of this sort is an integral part of becoming an evidence-based researcher.

Course Evaluation

Your grade will be based on exam1 (20 percent), exam2 (20 percent), final exam (25 percent), homework (20 percent), Class paper (10 percent), class participation (5 percent), and pop-up quizzes (5 percent).

Components	Points	Notes
Assignments	200	<ul style="list-style-type: none">- There will be several homework assignments in the class. You will generally have one week to complete the assignment. Because discussion promotes learning, students are encouraged to work together and discuss homework assignments. However, each student must submit assignments individually—in his or her own words—and properly acknowledge all sources and assistance received.- Homework must be turned in on time. Late work will not be accepted.
Pop-up Quiz (Best 4 of 6)	50	At the beginning of 1/3 of the classes we will have some pop-up quizzes. I will randomly collect six of these and grade them.

Components	Points	Notes
Exam1	200	Wednesday Oct 2nd . Exam1 covers all topics from chapters 1-5 that have been discussed in class.
Exam2	200	Friday Nov 8th . Exam2 covers all topics from chapters 6-10 that have been discussed in class
Class paper	150	<p>The course's capstone paper will provide you an opportunity to provide an empirical econometric analysis of a topic of your choosing. The paper is to be approximately 10 pages long and formatted in a way that will allow for its submission to an academic journal. Student must follow the formatting guidelines presented precisely.</p> <p>The paper is due on Friday, December 6th. The following milestones will help students to develop their thesis and write the paper.</p> <p>Topic: paper title and 250-word summary (Monday Nov11th)</p> <p>Data and Literature Review: 2page discussion of the literature and novelty of your research topic (Monday, Nov 18th)</p> <p>Rough draft and in-class peer-reviewed discussion (Monday, Nov 25th)</p> <p>Final Paper (Friday Dec.6th)</p>
Final Exam	300	Thursday Dec 17th 9:00AM-12:00 PM . The final exam will emphasize the material from the Exam2, but it will also include some questions on topics from the first two parts of the course; this is unavoidable because the latter models build upon those presented earlier in the semester.

Grade distribution

Your Score	Grade	Your Score	Grade	Your Score	Grade	Your Score	Grade
93% to 100%	A	83% to 86%	B	73% to 76%	C	63% to 66%	D
90% to 92%	A-	80% to 82%	B-	70% to 72%	C-	60% to 62%	D-
87% to 89%	B+	77% to 79%	C+	67% to 69%	D+	Below 59%	F

Week	Day	Description	Topic	Reading	Assignment
Week 1	28-Aug		Introduction, course review and tour of the blackboard course page		
	30-Aug		The Nature of Econometrics and Economic Data	Chapter 1	
Week 2	2-Sep	Labor Day			
	4-Sep		The simple Regression Model: Overview	Chapter 2:2.1	
	6-Sep	Add/Drop Deadline	Units of Measurement and Functional Form	Chapter 2:2.4	
	9-Sep		Deriving the Ordinary Least Squares (OLS) Estimator	Chapter 2:2.2	
Week 3	11-Sep		Properties of OLS on Any Sample of Data	Chapter 2:2.3	Assignment 1-Due
	13-Sep		Expected value of the OLS Estimator	Chapter 2:2.5	
	16-Sep		Variance of the OLS Estimator	Chapter 2:2.5	
Week 4	18-Sep		The Multiple Regression Model	Chapter 3:3.1, 3.2,3.3,3.4; Chapter 4: 4.1,4.2,4.3,4.6	
	20-Sep		The Multiple Regression Model	Chapter 3:3.1, 3.2,3.3,3.4; Chapter 4: 4.1,4.2,4.3,4.6	
	23-Sep		Tests of Single Hypotheses and Confidence Intervals	Chapter 3:3.4; Chapter 4: 4:1, 4:2,4.3,4.4	
Week 5	25-Sep		Testing Hypotheses about a Single Linear Combination of Parameters	Chapter 4:4.4	Assignment 2-Due
	27-Sep		Testing Multiple Linear Restrictions: The F Test	Chapter 4:4.5	
Week 6	30-Sep		Review Exam 1		
	2-Oct		Exam 1		

Week	Day	Description	Topic	Reading	Assignment
	4-Oct		Multiple Regression Analysis: OLS Asymptotic	Chapter 5:5.1, 5.2	Assignment 3-Due
	7-Oct		Effects of Data Scaling on OLS Statistics	Chapter 6:6.1	
Week 7	9-Oct		More on Functional Form: Quadratics and Interaction Terms	Chapter 6:6.2	Assignment 4-Due
	11-Oct		More on Goodness-of-Fit and Selection of Regressors	Chapter 6:6.3	
	14-Oct	Fall Break			
Week 8	16-Oct		Prediction and Residual Analysis	Chapter 6:6.4	
	18-Oct		Testing Multiple Linear Restrictions: The F Test	Chapter 4:4.5; Chapter 9:9.1	Assignment 5-Due
	21-Oct		Multiple Regression Analysis with Qualitative Information	Chapter 7:7.1, 7.2, 7.3	
Week 9	23-Oct		Qualitative Information: Interaction Terms and the Chow Test	Chapter 7:7.4	
	25-Oct	Withdraw Deadline	Qualitative Information: Interaction Terms and the Chow Test	Chapter 7:7.4	Assignment 6-Due
	28-Oct		Heteroskedasticity: Consequences and Testing	Chapter 8:8.1, 8.2, 8.3	
Week 10	30-Oct		Heteroskedasticity: Consequences, Testing, and Correlation	Chapter 8:8.1, 8.2, 8.3	
	1-Nov		Heteroskedasticity: Corrective Measures for Heteroskedasticity	Chapter 8:8.4	Assignment 7-Due
	4-Nov		Regression Analysis with Time Series Data	Chapter 10:10.1, 10.2	
Week 11	6-Nov		Review Exam2		
	8-Nov		Exam2		

Week	Day	Description	Topic	Reading	Assignment
	11-Nov		Time Series Analysis: Unite Roots	Chapter 18:18.2	
Week 12	13-Nov		Time Series Analysis: Cointegration	Chapter 18:18.4	Assignment 8-Due
	15-Nov		Serial Correlation: consequences and Testing	Chapter 12:12.2	
	18-Nov		Serial Correlation: Corrective Measures	Chapter 12:12.3	
Week 13	20-Nov		ARCH Models for volatility	Chapter 12:12.6	Assignment 9-Due
	22-Nov		Panel Data Models	Chapter 13	
	25-Nov		Panel Data Models: Fixed Effects	Chapter 14:14.1	
Week 14	27-Nov	Thanksgiving			
	29-Nov	Thanksgiving			
	2-Dec		Panel Data Models: Random Effects and the Hausman Test	Chapter 14:14.2	Assignment 10-Due
Week 15	4-Dec		Model Selection Criteria and Algorithms		
	6-Dec		Undergraduate Classes end		

