Econometrics
Econ 308-Section 01, Spring 2020
Tuesdays-Thursdays 9:30 - 10:50 AM
TYLER 113

Instructor Safoora Javadi **E-mail** sjavadi@wm.edu

Office Tyler Hall 441 **Office Hours** Wednesday, 9:30am-1:30 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 (15 percent), exam2 (20 percent), final exam (30 percent), homework (20 percent), Class paper (10 percent), and class participation (5 percent).

Components	Points	Notes
Class Participation	50	- Attendance and promptness are mandatory. Obviously, you will learn more (and probably a lot more) if you are actively involved in the class. Beyond that, your active participation will help your *classmates* learn more as well. - If you choose not to attend a lecture, it is **your responsibility** to be informed of any changes made during the lectures about the syllabus or exams and get a copy of the class notes.
Assignments	200	- 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**.

Components	Points	Notes
Exam1	150	**Tuesday March 3rd.** Exam1 covers all topics from chapters 1-4 that have been discussed in class.
Exam2	200	**Tuesday April 14th.** Exam2 covers all topics from chapters 5-8 that have been discussed in class.
Class paper	100	- The course's capstone paper will provide you an opportunity to provide an empirical econometric analysis of a topic of you are 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. - The paper is due on **Thursday, May 7th**. The following milestones will help students to write the paper. ▪ Topic: paper title and 250-word summary (**Tuesday Feb 18th**) (what, why, and how questions) (10 points) ▪ Literature Review: 2-page discussion of the literature and novelty of your research topic (**Thursday, March 19th**) (20points) ▪ Data, Model, and Summary Statistics: 2-page discussion of the data you are using to estimate your model, the model which is going to be estimated and summary statistics of your data+ file of data you use (**Tuesday, April 7th**) (30 points) ▪ Rough draft and in-class peer-reviewed discussion (**Tuesday, April 28th**) (30 points) ▪ Final Paper (**Thursday May.7th**) (10 points)
Final Exam	300	**Wednesday May 13th 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.

Expectations and General Orientation:

- If an assignment is taking you much time, consider coming to my office hours or making an appointment to see if there is any way to streamline the process.
- Most topics build upon other topics covered earlier in the semester, so it is important to maintain your effort throughout the semester so that you do not fall behind. To avoid stress, do not procrastinate and wait until the last night before the test.
- Students should come to class prepared. At the least, this means skimming over your notes from the last class session, but obviously it would be better to do more—read all assignments, study your notes, identify questions you have, etc.
- Please turn off and store cell phones before class. The material in this class is at times detailed and/or technical, so students are advised to give it their full attention.
- Please come to my office hours or make an appointment to resolve any concerns or difficulties you may have.

Honor Code

You are expected to follow the William & Mary Honor Code. If I discover any academic misconduct, I will initiate an Honor Council proceeding and recommend failure of the course. If you have any questions about how the Honor Code relates to this course, feel free to talk to me or refer to the Student Handbook and the William & Mary Honor Council's website.

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

Important Dates to Remember

- Add/Drop deadline: **Friday January 31st**
- Spring break: **Saturday-Sunday March 7-15th**
- Withdraw deadline: Friday **March 23rd**

Week	Day	Date	Topic	Reading	Assignment
Week 1	Tuesday	21-Jan			
	Thursday	23-Jan	Introduction, course review and the Nature of Econometrics and Economic Data	Chapter1	
Week 2	Tuesday	28-Jan	The simple Regression Model: Overview	Chapter 2:2.1	
	Thursday	30-Jan	Deriving the Ordinary Least Squares (OLS) Estimator	Chapter 2:2.2	Assignment 1
Week 3	Tuesday	4-Feb	Properties of OLS on Any Sample of Data	Chapter 2:2.3	
	Thursday	6-Feb	Units of Measurement and Functional Form	Chapter 2:2.4	
Week 4	Tuesday	11-Feb	Expected value and Variance of the OLS Estimator	Chapter 2:2.5	Assignment 1-Due
	Thursday	13-Feb	The Multiple Regression Model	Chapter 3:3.1, 3.2,3.3,3.4; Chapter 4: 4.1,4.2,4.3,4.6	
Week 5	Tuesday	18-Feb	Tests of Single Hypotheses and Confidence Intervals	Chapter 3:3.4; Chapter 4: 4:1, 4:2,4.3,4.4	Assignment 2
	Thursday	20-Feb	Testing Hypotheses about a Single Linear Combination of Parameters	Chapter 4:4.4	
Week 6	Tuesday	25-Feb	Testing Multiple Linear Restrictions: The F Test	Chapter 4:4.5; Chapter 9:9.1	Assignment 2-Due
	Thursday	**27-Feb**	**Review Exam1**		
Week 7	**Tuesday**	**3-March**	**Exam 1**		
	Thursday	5-March	Multiple Regression Analysis: OLS Asymptotic	Chapter 5:5.1, 5.2	

Week	Day	Date	Topic	Reading	Assignment
Week 8	Tuesday	10-March	Spring Break		
	Thursday	12-March	Spring Break		
Week 9	Tuesday	17-March	Multiple Regression Analysis: Further Issues	Chapter 6:6.1, 6.2	Assignment 3
	Thursday	19-March	More on Goodness-of-Fit and Selection of Regressors	Chapter 6:6.3	
Week 10	Tuesday	24-March	Prediction and Residual Analysis	Chapter 6:6.4	Assignment 3-Due
	Thursday	26-March	Multiple Regression Analysis with Qualitative Information	Chapter 7:7.1, 7.2, 7.3	Assignment 4
Week 11	Tuesday	31-March	Qualitative Information: Interaction Terms and the Chow Test	Chapter 7:7.4	
	Thursday	2-April	Heteroskedasticity: Consequences and Testing	Chapter 8:8.1, 8.2, 8.3	Assignment 4-Due Assignment 5
Week 12	Tuesday	7-April	Heteroskedasticity: Corrective Measures for Heteroskedasticity	Chapter 8:8.4	
	Thursday	9-April	**Review Exam2**		Assignment 5-Due
Week 13	Tuesday	14-April	**Exam 2**		
	Thursday	16-April	Regression Analysis with Time Series Data	Chapter 10:10.1, 10,2	
Week 14	Tuesday	21-April	Time Series Analysis: Unite Roots	Chapter 18:18.2	
	Thursday	23-April	Time Series Analysis: Cointegration	Chapter 18:18.4	Assignment 6
Week 15	Tuesday	28-April	Serial Correlation: consequences and Testing	Chapter 12:12.2	
	Thursday	30-April	Serial Correlation: Corrective Measures	Chapter 12:12.3	Assignment 6-Due
Week 16	Tuesday	5-May	ARCH Models for volatility	Chapter 12:12.6	
	Thursday	7-May	Review-Final Paper submission		