Econometrics (ECO 4421)
Department of Economics
Florida International University

Instructor: Esteban Chinchilla

Fall 2022

E-mail: `esteban.chinchilla@fiu.edu`   Office Hours: Mon 6.30pm-7.30pm (Zoom)

Tutoring Center: VH-136

Course Description

This course is an undergraduate-level introduction to econometrics. You will study and apply regression analysis to a data set to understand the core concepts of estimating economic parameters, predicting economic outcomes, and statistical inference. The purpose of this course is to enable students to develop a solid understanding of econometric concepts and techniques, and become familiar with statistical software used for economic analysis.

For some of you, this may be the only course you take on the subject. It provides a solid foundation for economic analysis and thinking that can last throughout your education and subsequent professional careers. For others, this class may provide a foundation for many years of research in economics, business, or related fields. Therefore, the goal of this course is for students to learn a set of statistical tools and research designs that are useful in conducting empirical research on diverse topics.

In addition to the exams and homework assignments, students will be assigned an econometrics project. The econometrics project provides students with the opportunity to write an empirical analysis paper on a topic of choice. Hands-on practice with STATA is integrated into the class from the start, and students will learn throughout the course how to use software for data analysis, and how to interpret results.

Course Materials

The **required** textbook for the course will be **Introductory Econometrics: A Modern Approach**, 7th edition, by Jeffrey M. Wooldridge. It can be rented for a reasonable price. We will also use a combination of slides and class notes that will be made available on Canvas.

The following two books are not required for this class, but recommended. A great book for intuition development is Introduction to Econometrics by Stock James and Watson Mark.
I also recommend Causal Inference by Scott Cunningham, 2021.

Prerequisites/Corequisites

Prerequisite: ECO3101, ECO3203, ECO3410, or permission of the instructor

Course Objectives

By the end of this course, you will be able to:

1. Derive the OLS parameter estimates using a single variable and explain how the least squares principle is used to fit a line through a scatter plot of data.

2. Understand the difference between an estimate and an estimator.

3. Define a multiple regression model and be able to derive and interpret the coefficients of the model.

4. Understand and explain the difference between economic and statistical significance.

5. Explain the meaning of heteroskedasticity and be able to compute heteroskedasticity-consistent standard errors for least squares.

6. Be able to include a dichotomous variable on the right-hand and left-hand side of a regression and explain how it affects model interpretation.

7. Conduct economic research project using regression analyses with statistical software

Important Dates

The following are *tentative* exam dates for the course:

Exam	Date
Exam I	October 1st (Saturday)
Exam II	November 5th (Saturday)
Exam III	November 28th (Monday)

Econometrics Project

The econometrics project will be an opportunity to apply the concepts learned in class to write an empirical paper on a topic of choice. Students will need to select a topic, formulate a research question, and apply the analytical and quantitative skills acquired in this course to a data set to answer the question.

Your research paper should attempt to make a contribution to the existing literature, such as:

- Add a new variable that hasn't been studied before to an existing model

- Study an existing question with more recent data

- Use a new data set for an existing paper to study a question for a different geography other than the original

- Find a completely new question (hard but possible)

In addition to the empirical analysis, students will have to write a paper on the subject, with the following sections: introduction, literature review, data, methodology, results and analysis, and conclusion.

Software

This course will rely heavily on the use of STATA for homework assignments and the econometrics project. STATA is designed as a general-purpose statistical package, and has a powerful built-in graphing capability. You can access STATA via FIU's eLabs. Alternatively, temporary and perpetual licenses can be purchased from the STATA website.

Important Project Dates

Milestone	Date
Identify topic, question, discuss data set and empirical strategy	September 30th
Discussion on data sources, summary statistics, and discuss at least two related studies	October 21st
Have the first draft of the paper	November 9th
Final Paper - submit for grading	November 23rd

Grading Policy

All your grades will be posted on Canvas, allowing me to keep you informed on your progress in the course. If you have any questions or concerns about your grade or your performance in this class, please contact me immediately.

Your grade for the course will be determined as follows:

- **20%** Exam I

- **20%** Exam II

- **20%** Exam III

- **15%** Econometrics project

- **25%** Homework assignments

Course Policies

Office Hours

If you have questions, you may ask via email. Regular office hours will be held via Zoom and open to everyone on Mondays between 6.30pm and 7.30pm EST. I will be happy to make an appointment for another time if you wish to discuss something in private. My email address is esteban.chinchilla@fiu.edu