Introduction to Econometrics

ECO-4421 | Spring 2025
Dr. Alfonso Rodriguez

Course Overview

This course will provide you with a comprehensive introduction to the theory and practice of econometrics. The discussion will begin with a review of probability and statistical inference. Then, the classic linear regression model will be introduced. Next, we will look at some extensions and discuss the limitations of the classic linear regression model. The course will conclude with a look at the various problems that may arise when analyzing cross-sectional data with regression models.

Throughout the semester, we will be applying the statistical methods introduced in the course to real world economic data in order to test and estimate the relationships between various economic variables.

Required Textbook

Jeffrey M. Wooldridge (2018). *Introductory Econometrics: A Modern Approach*, 7/E, South-Western College Publishing.

Required Software

Anaconda - Python Version.

- You can download Anaconda for Windows, macOS, or Linux from www.anaconda.org
- See instructions on installing Anaconda for your operating system [>>> here <<<.](here)

I will be working through all course examples using Python. So, I recommend downloading and installing Anaconda/Python on your system as soon as possible.

Prerequisites

The prerequisites for this course are Intermediate Microeconomics (ECO3101), Intermediate Macroeconomics (ECO3203), Calculus I (MAC2311) or Calculus for Business (MAC2233), and Measurement and Analysis (ECO3410). A passing grade for each of the above courses is required before taking this course.

Contact Information

I can be reached via e-mail at [alrodrig@fiu.edu.](alrodrig@fiu.edu) Please include in the e-mail subject line the course number, in this case ECO4421. Otherwise, your e-mail will, most likely, end up in my spam folder.

Do not message me through Canvas as I do not check the Canvas Inbox, I only check me email.

I will hold office hours on Tuesdays and Thursdays from 7:00AM till 7:50AM in my office, DM313A. I will also be available, if the need arises, by appointment.

So, If you are having issues with the course material and/or need to meet with me one-on-one please stop by during office hours or contact me so we can schedule a meeting.

Grades

Your grade in this course will be based on various homework assignments (20%), two in-class exams (20% each), and an applied econometrics project (40%).

Please note, it is of the utmost importance that you do not miss an exam. Those who do not complete an exam will receive a failing grade for that exam, no exceptions.

Project Grade

The project grade will be calculated based on the following three factors:

(1) grade on research paper, 33.3%
(2) the in-class presentation of the research paper, 33.3%; and,
(3) peer grade, 33.3%.

The first grade is based on the overall quality and content of the research paper. The second grade is based on your presentation. The final grade will be based on how your peers grade your contributions to the project.

Grade Distribution

The grade distribution for the course is as follows:

Grade	Range
A	95-100
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	70-76
D	60-69
F	0-59

Applied Econometrics Project Details

The project is meant as an introduction to how research is conducted at varying corporate, consulting, or policy type positions. The project is intended to give students an introduction to the type of work graduates with a B.A. or B.S. in Economics may be asked to perform. In writing your research paper, note that you are not being asked to summarize someone elses work. That is, you are not being asked to describe someone elses ideas nor to write a book report. Papers that do this will not meet the standards of the project.

During the first few weeks of the semester, you should give some thought to the topic you will like to investigate. On **February 11** you should be ready to present a brief proposal of your intended research topic, the general form of the model, and the data you intend to use.

When writing the paper you should thoroughly describe: (1) the question you are trying to answer; (2) the method of analysis you are planning to use; (3) description of the data, in particular the variables you are employing in your analysis and the reasons you chose those variables; (4) the results from your econometric model; (5) some analysis based on the results, and, (6) a concluding section that suggests possible applications and|or implications of your model and results. The paper must be written in the style of a journal article (I will provide examples upon request).

The paper should clearly present your thoughts, and you should divide your paper into clearly labeled sections. Below, I have included a rough outline of the sections journal articles tend to use.

- Abstract
- Introduction
- Economic Theory
- Description of Methodology | Econometric Model
- Description of Data
- Results
- Analysis of Results
- Conclusion
- References

There is no set length for the papers, but a paper that provides adequate analysis and discussion will likely be about 14 pages (single-spaced). Papers should be printed on 8.5 by 11 inch white paper with page numbers at the bottom of the page. Text should be 11 or 12 font, and margins should be one inch on all sides. I expect these papers to be polished, i.e., they have been proof read numerous times and are free of typos, misspelled words, and grammatical errors.

Please note, the research paper is not something that can be postponed until the last minute or week. Make sure you manage your time accordingly as sloppy research papers tend to stand out. The final version of your paper will be due on **April 1**, at the beginning of class. No exceptions!

Further details about your empirical project will be given during class.

Academic Misconduct

Please read over and be aware of FIU's Code of Academic Integrity. Any violation thereof constitutes academic misconduct and may result in disciplinary action including, but not limited to, a failing grade, disciplinary probation, or expulsion from the university.

Accommodating Disabilities

If you have a disability and need assistance, please contact the Disability Resource Center (University Park: GC 190; 305.348.3532). Upon contact, the Disability Resource Center will review your request and contact me in order to make arrangements for assistance.

Tentative Course Schedule

In order to accommodate the class discussions, changes to the schedule may occur. In the event that such a change should occur, you will be informed of the details during class.

Date	Topic
Tuesday, Jan 7:	Introduction
Thursday, Jan 9:	Two Variable Linear Regression Model
Tuesday, Jan 14:	
Thursday, Jan 16:	
Tuesday, Jan 21:	Multiple Linear Regression Model: Estimation
Thursday, Jan 23:	
Tuesday, Jan 28:	Multiple Linear Regression Model: Inference
Thursday, Jan 30:	
Tuesday, Feb 4:	
Thursday, Feb 6:	**EXAM 1**
Tuesday, Feb 11:	Proposal Presentations
Thursday, Feb 13:	Proposal Presentations
Tuesday, Feb 18:	Heteroskedasticity
Thursday, Feb 20:	
Tuesday, Feb 25:	Spring Break (University Closed)
Thursday, Feb 27:	Spring Break (University Closed)
Tuesday, Mar 4:	Qualitative Information and Binary Variables
Thursday, Mar 6:	
Tuesday, Mar 11:	
Thursday, Mar 13:	Functional Forms and Other Specification Issues
Tuesday, Mar 18:	
Thursday, Mar 20:	Linear Probability Model
Tuesday, Mar 25:	Probit and Logit Models
Thursday, Mar 27:	
Tuesday, Apr 1:	**EXAM 2** | **Research Paper is Due**
Thursday, Apr 3:	Presentations
Tuesday, Apr 8:	Presentations
Thursday, Apr 10:	Presentations
Tuesday, Apr 15:	Presentations
Thursday, Apr 17:	Presentations