Introduction to Econometrics

Lecturer: Hieu Nguyen

Dates: Fall semester 2024

Lectures, Seminars: Friday, 9:00 – 11:50 (VT105)

Office hours: Friday, 12:00 – 14:00 (email in advance)

Course Description

The course is designed to give students experience of using basic econometric methods important in economics and other business subjects. It provides skills in regression essential for understanding much of the literature of economics, finance, and empirical studies in other areas of business.

The main textbook:

- Wooldridge, J.M. *Introductory Econometrics – A Modern Approach*. 5th ed. Michigan State University, 2013. ISBN-13: 978-1-111-53104-1.
- Studenmund, A. H. (2011): Using Econometrics: A Practical Guide. 6th Edition, Pearson Addison Wesley. ISBN: 978-0-13-136773-9.
- Using Gretl for principles of Econometrics, available at link https://www.learneconometrics.com/gretl/index.html.

Pre-requisites

Basic matrix algebra, elementary probability and mathematical statistics.

Course objectives

The course is designed to give students experience of using econometric methods important in economics, finance and other business subjects. It provides skills in regression essential for understanding much of the literature of economics, finance, and empirical studies in other areas of business.

We begin with the simple regression and multiple regression models. They are treated in depth and in range of applications. Careful attention is given to the interpretations of regression results and hypothesis testing.

By the end of the course, students should be able to use regression models in many different applications and to critically examine reported regression results in empirical research in economics and other business studies. They will be able to identify and deal with several econometric problems in the analysis of cross-section data and will have experience of a range of basic econometric methods.

The course is designed to give students an understanding of why econometrics is necessary and to provide them with a working knowledge of basic econometric tools so that: they can apply these tools to modelling, estimation, inference, and forecasting in the context of real-world economic problems; they can evaluate critically the results and conclusions from others who use basic econometric tools; they have a foundation and understanding for further study of econometrics and they have an appreciation of the range of more advanced techniques that exist and that may be covered in later econometric courses.

Grading (Tentative)

Quick Quizzes 10%

There are 2 in-class quizzes, each makes for 5%. Students will be announced a week in advance.

Home assignment: 20 %

There will be two home assignments that accounts for 10 points each. These exercises will enhance your problem-solving skills and prepares you for exams.

Midterm exam: 30 %

The midterm exam will take place during regular seminar time and will be informed at least 1 week in advance. You are not allowed to use any textbook, any notes or electronic devices. There will be no make-up or alternative dates for the midterm exam.

Final Exam: 30 %

Final exam will take place on will be informed at least 1 week in advance. You are not allowed to use any textbook, any notes or electronic devices. As required by many students, there will be an early final exam (in the last week of study before Christmas holiday). Other final exams will be organized accordingly to MUNI's standardized schedule for final exam.

Grade distribution:

A: 85 – 100

B: 70 - 84

C: 60 – 69

D: 50 – 59

F: 0 – 49

Outline

(This is a tentative schedule to be updated based on students' progress.)

1. Introduction to econometrics and working with data
2. OLS – introduction
3. OLS – assumptions
4. OLS inference – hypothesis testing
5. OLS inference – multiple hypothesis testing
6. Non-linear specification and dummy variables
7. Omitted and irrelevant variables
8. Multicollinearity and heteroskedasticity
9. Autocorrelation (Serial correlation)
10. Endogeneity
11. Binary dependent variable
12. (if time allows) Instrumental variables method