

# APPLIED ECONOMETRICS

## Description

### Learning goals

The primary learning goal of this course is that of exposing students to the body of econometric techniques that are customised to economics applications. The aim of the course is to review this body of techniques, to demonstrate their use in hands-on style, drawing on as wide a range of example as possible, and to interpret each set of results in ways that are most useful to read and represent economic phenomena.

### Knowledge and understanding

The course is supposed to broaden students' knowledge of the various econometric techniques that appear in the economics literature, their properties and the way these are applied to data in order to verify economic theory.

### Applying knowledge and understanding

Upon successful completion of the course, students will be able to carry out a wide range of tasks in empirical economics, such as recognising the most suitable approaches to analyse the data at hand in order to capture and model its regularities, and intelligibly convey its messages to both economists and broader audiences.

### Making judgements

The course develops in a way to spurs students on researching empirical evidence of competing economic theories by respecting the nature of convenient data.

### Communication skills

Through study and hands-on sessions, students will acquire the terminology characterising the discipline, which they are required to use in both written and oral dissemination.

### Learning skills

Students who complete the course successfully will be acquainted with a method of analysis enabling them to endeavour the main economic issues from an empirical point of view.

## Content

Many decisions in life, economics, business, and government hinge on understanding relationships among variables in the world around us. These decisions require quantitative answers to quantitative questions.

In this module, we will pose questions and discuss the possible empirical approaches to answering them, paying particular attention to the nature of the variables of interest.

In particular, we will deal with limited dependent variable models, panel data, mixture models, structural modelling and simulation-based estimation techniques.

## Weekly Content

- Introduction to Stata
- The method of Maximum Likelihood
- Introduction to Maximum Likelihood programming in Stata.
- Binary Choice Models: Theory and applications
- Models for Ordered Response Data
- Dealing with excess zeros: Zero-Inflated models, Hurdle models and applications
- Truncation and Censoring
- Finite Mixture Models: Latent class models and models of types
- Dealing with excess zeros via mixture models
- An introduction to panel data for limited dependent variable models
- Unobserved heterogeneity and Maximum Simulated Likelihood
- Structural modelling

## References

- Verbeek, Marno. (2017). *A Guide to Modern Econometrics*. Applied Econometrics. Wiley & Sons.
- Train, Kenneth. (2009). *Discrete Choice Methods with Simulations*. Cambridge University Press. <https://eml.berkeley.edu/books/choice2.html>