Econometrics I | ECP77001

Year	1
ECTS Credits	10
Contact Hours	20 hours of lectures and 18 hours of computer laboratory sessions
Pre-Requisite	Nil
Semester	1
Module Leader and Lecturer	Professor Carol Newman
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Module Outline:

The aim of this module is to provide students with the skills required to undertake independent applied research using modern econometric methods. The module provides a balance between theoretical and applied econometrics and aims to extend students' understanding of the subject to an advanced level as each part progresses.

Students attending this module will deepen their theoretical knowledge of the list of topics below and will develop the necessary practical skills to use these methods in empirical research.

The module will be delivered through a combination of lectures and computer laboratory sessions. These applied sessions will instruct students in the use of Stata and will be delivered by a Teaching Assistant.

Module Learning Outcomes:

On completion of the module, students will be able to:

1. derive econometric estimators for linear regression, panel data and limited dependent variable models;
2. show the properties of these estimators and understand the underlying assumptions required;
3. derive appropriate tests for the underlying assumptions and correct for violations of these assumptions;
4. confidently discuss the challenge of identification in empirical research;
5. select the appropriate econometric approach for different data and empirical settings;
6. use STATA to apply these techniques in practice.

Syllabus

1. Research Design and Causal Inference
2. The Linear Regression Model: Least squares and other estimation methods; Properties of estimators; Goodness of fit; Hypothesis testing
3. Instrumental variables estimation: The identification challenge; Two-stage least squares; Generalised Method of Moments; Weak instruments
4. Econometric Models for Panel Data: Difference-in-differences; Fixed effects estimator; Random effects estimator
5. Models with Limited Dependent Variables: Principle of Maximum Likelihood Estimation; Binary choice models: the linear probability model, probit and logit models; Multi response models

Recommended Reading List:

- The core texts for this course are:
- Wooldridge, J. M., *Econometric Analysis of Cross Section and Panel Data*, latest edition, MIT Press.
- Students may also find the following text books of use:
- Angrist, J. and Pischke, J. (2009), *Mostly Harmless Econometrics*, Princeton University Press.
- Baum, C. F. (2006), *An Introduction to Modern Econometrics using Stata*. Stata Press.
- Davidson, R. D. and MacKinnon J. G. (2004), *Econometric Theory and Methods*, Oxford University Press.
- Pevalin, D. and Robson, K. (2009), *The Stata Survival Manual*. McGraw Hill.
- The course will primarily follow the Wooldridge text book. Angrist and Pischke provide an excellent practical introduction to using econometrics and is a must read for students. In addition, supplementary reading will be provided from time to time as the course progresses. Baum and Pevalin and Robson are important source for the applied component of the course.
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Assessment

- Assessment for the module is based on an individual project (50%) and a final exam (50%).