UCLouvain

lecon2131

2026

Advanced Econometrics

5.00 credits	30.0 h	Q2

Teacher(s)	Van Bellegem Sébastien ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	Mathematics and Statistics for Economists
Main themes	The course must cover the basic most important topics of econometric theory at an advanced level. These themes concern econometric model formulation, estimation and testing. Teaching is at an advanced level. Proofs of important results are covered, though not systematically. Applications are also used so that students learn how to carry applications in their own research. Contents · Linear regression : exact finite sample theory of ordinary and generalized least squares · Large-sample theory: convergence concepts, stochastic processes (stationarity and ergodicitys, IID and white noise, martingales, martingale difference sequences) and limit theorems for IID and MDS). Application to large sample theory of least-squares estimation. · GMM and the method of instrumental variables · The method of maximum likelihood: (estimation and testing) and its application to linear regression and non-linear regression models. · Empirical applications. Use of an econometric and simulation/computational software.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 The purpose is that students acquire the basic tools of econometric research which are of general use in more specialized fields of research and which are covered in subsequent courses (Microeconometrics and Econometrics of Time-Series). An example of such a tool is the method of estimation by maximum likelihood.
Evaluation methods	A written exam and an oral exam
Teaching methods	Lectures
Content	1. The reality of data and model in econometrics. Introduction to constructive econometrics. 2. Conditional expectation 3. Principles of scientific induction 4. Modeling conditional expectation 5. Conditional variance analysis in idealized econometrics
Bibliography	
Other infos	Support: lecture notes(in pdf) by S. Van Bellegem
Faculty or entity in charge	ECON

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Economics: Econometrics	ETRI2M	5		🔍
Master [120] in Economics: General	ECON2M	5		🔍