lecon2500b

2021

Mathematics and Statistics for Economics : Statistics

2.00 credits	15.0 h	Q1

Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	Basic background in mathematics
Main themes	For the mathematics part, the themes of matrix algebra, functions, optimization, and difference/differential equations. For the statistics part: multivariate distributions and related concepts. The two parts are linked in particular by matrix algebra.
Learning outcomes	
Evaluation methods	Written exam
Teaching methods	Methods: Lectures and home works
Content	Mathematics : Matrix algebra (inverse, rank, derivatives, eigenvalues, diagonalization and factorization, quadratic forms). Met-ric and topological spaces, vector spaces. Real functions on Rn (continuity, concavity, differentiability, Taylor expansion, mean value theorem, implicit function theorem). Static optimization (constrained and uncon-strained). Difference and differential equations (steady states, stability).
	Statistics: Multivariate distributions: joint, marginal and conditional distributions, (conditional) moments (variance-covariance matrices), independence in probability and linear independence. Law of iterated expectations. Transformation of random vectors. Multivariate normal distribution. Quadratic forms in normal vectors and related distributions (Student, chi-squared, Fisher)
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	2		🔍