lecon2500a

UCLouvain

Mathematics and Statistics for Economics : Mathematics

2.00 credits

2021

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			
	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		٩	