lecon2500a

2020

Mathematics and Statistics for Economics : Mathematics

Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

2 credits	15.0 h	Q1

Language :	English
Place of the course	Louvain-la-Neuve
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.
Aims	*The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** Written exam
Teaching methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** 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	Aims
Master [120] in Economics: Econometrics	ETRI2M	2		🔍