



5 credits

30.0 h + 30.0 h

Q1

Teacher(s)	Lambrechts Pascal ;Van Schaftingen Jean ;Wertz Vincent coordinator ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	The course places particular emphasis on modelling skills, and on solving applications and problems in Management Science using mathematical methods or formal logic. It aims to equip students with a systematic approach to analysis and problem-solving, prompting them to ask questions such as: how can this problem be expressed in quantitative terms, which model correctly represents the question put? which are the most useful tools to use? Have the application conditions been adhered to? How can the tools be used to solve the problem, how can the model be solved? What is the answer to the question first put (in the context of the initial question, not in terms of mathematical abstraction or logic) ? - Themes for the calculus part : mathematical modeling process - Set theory, relations, logic, notions of mathematical proofs - Functions, planar geometry, graphs of functions - Linear and polynomial functions, exponential functions, logarithmic functions, sequences - Limits, continuity, series, derivation - Optimisation of single variable functions - Integration. Each theme is introduced with examples and illustrations from economics and management science.
Aims	<p>This mathematics course is primarily a general introduction to the use of mathematics in Management Sciences and the study of the "real functions of a real variable". The second part is given over to algebra and matrix calculus and Part three to optimisation and differential equations. The course has three main components and aims to teach students: " the apparatus of Mathematics (an aim which involves acquiring a whole body of knowledge). Students should be able to acquire a reasonable capacity to handle the concepts studied in the course, which are the concepts underlying the quantitative models and methods in Economic and Management Science. " How to reason in a formalised and rigorous way (a more difficult skill to acquire and one which requires practical mathematical modelling skills) " To become independent in their work and study. This course deals with mathematical formalisation in Economic, Political and Social Science in general, with particular focus on management applications. It aims to prepare students for studying specific or "state of the art", quantitative analytical and decision-making models in various fields of management.</p> <p>1</p> <p>-----</p> <p><i>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".</i></p>
Evaluation methods	written exam.
Content	The course comprises: - lectures (the teacher defines the concepts, demonstrates the results, and illustrates them through a concrete application), - practical exercise sessions (the teacher gives students applications/problems and suggests possible ways of solving them), - active student participation through reading, independent problem resolution, case resolution reports, test.
Inline resources	<a href="https://moodleucl.uclouvain.be/course/view.php?id=7508">https://moodleucl.uclouvain.be/course/view.php?id=7508</a>
Bibliography	• Mathématiques pour l'économie, K. Sydsaeter et P. Hammond, 4e édition, Pearson
Faculty or entity in charge	ESPO

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Business Engineering	<a href="#">INGE1BA</a>	5		
Master [120] in data Science: Statistic	<a href="#">DATS2M</a>	5		
Minor in Statistics and data sciences	<a href="#">LSTAT100I</a>	5		