







The version you're consulting is not final. This course description may change. The final version will be published on 1st June.

6.00 credits

45.0 h + 30.0 h

Q1

Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	The course has no prerequisites other than the mathematical background corresponding to a program of at least 4 hours of mathematics during the final years of secondary education. This course is reserved for enrolled students.
Main themes	<p>Gone 1: Wholes, Relations and Elements of formal logic Wholes. Numbers. Relation of order. Theorems and methods of demonstration.</p> <p>Gone 2: Plane geometry: tie algebra - geometry Distance in the plan. Rights and circles. Equations and Inequations.</p> <p>Gone 3: Real functions of a real variable, elements of analysis. Definition. Graphs of function. Limits. Continuity. Derivative. Applications of the derivative. Optimization of functions of a variable. Functions powers, polynomials, exponential and logarithms. Derivative of superior order. Linear and polynomial (Taylor) approximations (differential). Integration.</p> <p>Gone 4: Introduction to the functions of several variables Representation of the functions to two variables. Derivative partial, economic Applications. Tools of comparative statics: Rule of derivation in chain, Springiness.</p> <p>Gone 5: Introduction to the matrix calculation Matrixes. Resolution of linear systems. Inverse. Determining.</p> <p>The teaching puts the accent on the gait of modelling, and on the resolution of applications or problems in economics, political and social with the help of mathematical methods or formal logic. It aims to develop a systematic gait of analysis and resolution</p>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>This first math course is dedicated to the study of the real functions mainly to a real variable. The course also introduces to the study of the functions to several real variables and to the matrix calculus, and browses a large palette of techniques and essential mathematical concepts for the practitioners of the economy and the management. One can summarize the objectives and finalities of the course to two essential measurements :</p> <p>1</p> <ul style="list-style-type: none"> <li>• The training of the mathematical tool (what aims a set of knowledge directly). The acquirement should be a reasonable capacity to manipulate the notions studied in the course, that is the fundamental notions used in the models and quantitative methods in social studies.</li> <li>• The training of a reasoning formalized and rigorous (what is more difficult to to reach and aim "ability" of mathematical modelling more) The course also has a function of refresher the level of the mathematical formation that the students received in humanities.</li> </ul> <p>For a part of the students, it will be about a revision in the specific context of social sciences, for another part, it will be about a refresher course.</p>
Bibliography	Livre "Mathématiques pour l'économie" K. Sydsaeter, P. Hammond (collab. Arne Strom) édité par Pearson
Other infos	Prerequisite: The course has no prerequisites other than the mathematical background for a program of at least 4h mathematics final years of school. Evaluation: The evaluation takes into account the test results and the results of a written examination.
Faculty or entity in charge	ESPO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Minor in Management (ESPO students)	MINAGEST	5		
Minor in Scientific Culture	MINCULTS	6		
Minor in Economics (open)	MINOECO	5		
Bachelor in Philosophy, Politics and Economics	PPE1BA	6		
Minor in Mangement (basic knowledge)	MINOGEST	6		
Bachelor in Economics and Management	ECGE1BA	6		
Minor in Statistics, Actuarial Sciences and Data Sciences	MINSTAT	6		