


6 credits

45.0 h + 30.0 h

Q1

Teacher(s)	Lefèvre Françoise ;
Language :	French
Place of the course	Mons
Main themes	The course is in two parts, elementary infinitesimal calculus and elementary matrix calculus, with applications to economics and management.
Aims	<p>1 This course must enable students to understand the mathematics encountered in economics and management, and afterwards, to acquire the capacity to manipulate the notions studied to solve problems by themselves.</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	Continuous assesment and terminal exam : exercices (with simple -nongraphic and without complete alphanumeric keyboard- pocket calculator).
Teaching methods	The lecture course, which will be illustrated by examples, will mainly aim to provide an overview of the concepts and basic techniques. In practical work, the emphasis will be on the assimilation of the basic techniques with applications to problems of economy and management.
Content	<p><b>1. Elementary infinitesimal calculus :</b> 1.1 Numbers and operations 1.2 Real functions of a real variable : Defintion, graphs - Main functions (linear, powers, polynomials, exponential and logarithms) - Limits, continuity and derivatives - Applications of the derivative : Study of the function variations and optimization - Derivative of superior order - Linear and polynomial approximations (Taylor) -Primitives and definite integration. <b>1.3</b> Real functions of several real variables : Partial derivatives - Three-dimensional graphical visualisation - Unconstrained and constrained optimization - Applications in economics and management.</p> <p><b>2. Elementary matrix calculus :</b> Matrices and operations on matrices - Systems of linear equations - Determinant and matrix inversion - Particular matrices and determinants (Hessien, ...).</p>
Inline resources	Lecture notes, exercices and forums on the platform (Student Corner).
Bibliography	<ul style="list-style-type: none"> <li>• ARCHINARD G. &amp; GUERRIEN B. (1992). Principes mathématiques pour économistes, Economica.</li> <li>• DODGE Y. (2007). Mathématiques de base pour économistes, Springer.</li> <li>• SYDSAETER, K. &amp; HAMMOND, P., avec STROM, A. (2014). Mathématiques pour l'économie, Pearson.</li> <li>• JACQUES I. (1995). Mathematics for economics and business, seconde édition, Addison-Wesley.</li> <li>• SIMON C. P. &amp; BLUME L. (1998). Mathématiques pour économistes, DeBoeck Université.</li> </ul>
Faculty or entity in charge	CLSM

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Business Engineering	INGM1BA	6		
Bachelor in Management	GESM1BA	6		