



5.00 credits

30.0 h + 30.0 h

Q2

Teacher(s)	Heuchenne Cédric ;
Language :	French
Place of the course	Bruxelles Saint-Louis
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p>The objective of the course is to complement the knowledge about the real functions of a real variable (integrals), and to generalize this knowledge (including those covered in the Mathematics 1 course) to functions of two or more variables. It is also necessary to make the students able to mobilize all these mathematical concepts in the context of the main methods of economic analysis: comparative static tools, multivariate optimization, constrained optimization.</p>
Evaluation methods	<p>The final grade will be an average of two grades, the weighting of which will be announced to the students at the beginning of the semester: a grade from the continuous assessment (which will however only be taken into account in the first session and if it allows the student's final mark to be increased) and a final examination grade. The final exam is written. It aims at verifying the acquisition of the theoretical knowledge and the understanding of the concepts presented in the course, as well as the acquisition of techniques to solve exercises and applications. In particular, the student will be asked to apply these techniques to real mathematical and economic problems.</p>
Teaching methods	<p>A) The lectures</p> <p>The lectures consist of an exposition of concepts and explanatory mechanisms. They follow the general structure of the plan detailed above and therefore also quite closely that of the reference manual mentioned below. The different parts of the material may, however, succeed one another in a slightly different order than in the reference manual.</p> <p>B) TA (Teaching Assistant) sessions</p> <p>Students are divided into groups. The sessions require preparation of the students, who are responsible for preparing a selection of "core" exercices distributed on the course website at least one week before each work session. The TA session itself combines individual work (during which the assistant answers any questions) and interaction with the assistant on a series of more complex exercises.</p> <p>C) Continuous Assessment Sessions</p> <p>Throughout the course, students also regularly participate to short written tests aimed at evaluating an initial assimilation of the taught concepts. The corrected questions are handed to the students during the exercise sessions, and can be discussed with the assistants.</p>
Content	<p>The topics covered are:</p> <ol style="list-style-type: none"> 1. Integrals 2. Functions of several variables 3. Concepts and tools of comparative statics: derivation of composite functions, implicit function theorem, first-degree approximations, homogeneous and homothetic functions, manipulations of systems of equations. 4. Multi-Variable Optimization 5. Constrained optimization <p>Beyond the rigorous presentation of mathematical concepts, the course will also address and discuss numerous economic applications (directly related to the second objective of the course): area calculations (distribution of income, consumer surplus), cross and partial elasticities, comparative static exercises, profit maximization of the competitive firm, the constrained consumer choice problem, etc.</p>
Bibliography	Ouvrage de référence: Mathématiques pour l'Economie, Knut Sydsaeter et Peter Hammond, Pearson, 4ème édition.
Faculty or entity in charge	ESPB

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Economics and Management	ECGB1BA	5		
Bachelor in Economics and Management (French-English)	ECAB1BA	5		
Bachelor in Economics and Management (French-Dutch-English)	ECTB1BA	5		