

6.0 credits

45.0 h + 30.0 h

Teacher(s) :	Boucekkine Raouf ; Davila Muro Julio (compensates Boucekkine Raouf) ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	<p>Education focuses on the approach to modeling, and on solving problems or applications in economics, political and social, using mathematical or formal logic. It aims to develop a systematic analysis and resolution.</p> <p>Part 1: Linear Algebra. Indépendance linear bases, vector spaces. Fundamental theorem of linear algebra. Values and eigenvectors. Diagonalisation. Dynamical Systems. Quadratic forms.</p> <p>Part 2: Analysis and Optimization of functions on several variables functions Théorème implied partial derivative of higher order, Hessienne matrix. Optimization free Optimization under constraints (equalities and inequalities). Applications.</p> <p>Part 3: Introduction to linear programming. Modeling and mathematical formulation of problems of decision support and optimization. Primal Simplex, Dual simplex, economic interpretation of dual sensitivity analysis.</p> <p>Each topic is dealt with examples and illustrations in economics and management.</p>
Aims :	<p>The second mathematics course is a continuation of Mathematics 1 and is devoted primarily to algebra and matrix calculus, in linear programming and optimization of functions of several variables. We can summarize the objectives and purposes of the course to two key dimensions:</p> <ul style="list-style-type: none"> <li>- Learning about the mathematical tool (which is directly targeted a set of knowledge). The achievements should be a reasonable ability to handle the concepts discussed in the course, which are the basic concepts used in the models and quantitative methods in social sciences.</li> <li>- The learning of a formalized and rigorous reasoning (which is more difficult to achieve and is more of "knowledge"; of mathematical modeling)</li> </ul> <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>
Content :	<p>The course is given in the form</p> <ul style="list-style-type: none"> <li>- lectures (the teacher defines the concepts, demonstrates the results, and illustrated with an application),</li> <li>- of exercises (the teacher makes applications / problems for students and offers a resolution),</li> <li>- supplemented by active participation of students in the form of lectures, independent resolution of problems, reports of resolution of cases, tests of knowledge, ...</li> </ul>
Other infos :	<p>Prerequisite course Mathematics 1</p> <p>Evaluation: The evaluation takes into account the reports of resolutions presented during the course, test results and the results of a written examination.</p> <p>Support: Syllabus</p>
Cycle and year of study :	<ul style="list-style-type: none"> <li>&gt; <a href="#">Bachelor in Psychology and Education: General</a></li> <li>&gt; <a href="#">Bachelor in Information and Communication</a></li> <li>&gt; <a href="#">Bachelor in Philosophy</a></li> <li>&gt; <a href="#">Bachelor in Law</a></li> <li>&gt; <a href="#">Bachelor in Engineering : Architecture</a></li> <li>&gt; <a href="#">Bachelor in Computer Science</a></li> <li>&gt; <a href="#">Bachelor in Motor skills : General</a></li> <li>&gt; <a href="#">Bachelor in Human and Social Sciences</a></li> <li>&gt; <a href="#">Bachelor in Sociology and Anthropology</a></li> <li>&gt; <a href="#">Bachelor in Political Sciences: General</a></li> <li>&gt; <a href="#">Bachelor in Mathematics</a></li> <li>&gt; <a href="#">Bachelor in Biomedicine</a></li> <li>&gt; <a href="#">Bachelor in Engineering</a></li> <li>&gt; <a href="#">Bachelor in Pharmacy</a></li> <li>&gt; <a href="#">Bachelor in Religious Studies</a></li> <li>&gt; <a href="#">Preparatory year for Master in Economics: General</a></li> <li>&gt; <a href="#">Bachelor in Economics and Management</a></li> </ul>
Faculty or entity in charge:	ESPO