UCLouv	linfo1112				Algebra	
	2018				Лусыа	
ſ	5 credits	30.0 ł	n + 30.0 h	Q2		

Teacher(s)	Craeye Christophe ;Peters Thomas ;				
Language :	French				
Place of the course	Louvain-la-Neuve				
Main themes	The course focuses on : • the understanding of mathematical tools and techniques based on a rigorous learning of concepts favored by highlighting their concrete application, • the rigorous manipulation of these tools and techniques in the context of concrete applications. Matrix calculation • transposition, • operation on matrices, • rank and resolution of a linear system, • inversion, • determinant Resolution of linear equation systems • Matrix writing of a system of linear equations • Elimination of Gauss-Jordan • LU Factoring • Implementation of Linear Equation System Resolution Algorithms Linear algebra • vectors, vector operations, • vector spaces (vector, independence, base, dimension), • linear applications (applications to transformations of the plan, kernel and image), • eigenvectors and eigenvalues (including applications)				
Aims	Given the learning outcomes of the "Bachelor in Computer science" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes: \$1.G1 \$2.2 Students who have successfully completed this course will be able to: Model concrete problems using matrices and vectors; \$0.000 Solve concrete problems using matrix calculation techniques (in particular the resolution of linear systems); Reason using correctly the mathematical notation and methods keeping in mind but exceeding a more intuitive understanding of the concepts. 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".				
Evaluation methods	Written exam and 3 homeworks				
Teaching methods	The computer implementation of the algorithms will be the subject of three mandatory homeworks.				
Content	Matrix calculation • transposition, • operation on matrices, • rank and resolution of a linear system, • inversion, • determinant Resolution of linear equation systems				

	Université catholique de Louvain - Algebra - en-cours-2018-linfo1112
	 Matrix writing of a system of linear equations Basic operations on the lines Elimination of Gauss-Jordan Orthogonality and QR factoring Python language implementation of linear equation system solving algorithms Linear algebra vectors, vector operations, vector spaces (vector, independence, base, dimension), linear applications (applications to transformations of the plan, kernel and image),
	 eigenvectors and eigenvalues (including applications)
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)							
Program title	Acronym	Credits	Prerequisite	Aims			
Bachelor in Computer Science	SINF1BA	5		٩			
Master [120] in data Science: Statistic	DATS2M	5		٩			