UCL Faculté des sciences

SC

MATH1170 Compléments d'algèbre supérieure

[45h+30h exercises] 7 credits

This course is taught in the 1st semester

Teacher(s):	Jean-Roger Roisin (supplée Jean-Pierre Tignol), Jean-Pierre Tignol
Language:	french
Level:	1st cycle course

Aims

The aim of this course is to provide the conceptual bases and methods of tensor and exterior algebra, of the classification of linear operators and finite abelian groups.

Main themes

This is a second course on linear algebra. The topics are chosen with a view toward applications in multivariate calculus and theoretical physics. Some aspects of group theory and number theory are also discussed.

Content and teaching methods

Contents:
Duality of finite-dimensional vector spaces and quotient spaces ;
Tensor product and exterior powers of vector spaces ;
Modules of finite type over Euclidean rings and applications to the canonical form of linear operators and to abelian groups ;
Introduction to the theory of groups and group actions.
Methods:
The course consists of lectures and problem sessions.

Other credits in programs

MATH12	Deuxième candidature en sciences mathématiques	(7 credits)	Mandatory