Faculty of Biological, Agronomic and Environmental Engineering

BIR1200   General mathematics II

[52.5h+37.5h exercises] 6 credits

This course is taught in the 1st semester

Teacher(s):   Pierre Bieliavsky
Language: French
Level: First cycle

Aims

1. To complete the basic education in mathematics, namely in linear algebra and in calculus.
2. To prepare the students to activities of integrated exercices in mathematics and computer science.

Main themes

1st part. Linear algebra:
Linear spaces and linear maps, eigenvalues and eigenvectors, quadratic forms, euclidian spaces, orthogonal projections, least squares approximations.
2nd part. Multivariable calculus:
Limits and continuity, derivatives, extrema of real functions, multiple integrals, introduction to curves and surfaces, curvilinear and surface integrals, theorems of Stokes and Gauss.
3rd part. Differential equations:
Generalities and classification, linear equations of arbitrary order with constant coefficients, elements on partial differential equations.

Content and teaching methods

This course details subjects that have been introduced in the course MATH1160 'Mathématiques générales I'. It is divided into three parts : linear algebra, differential equations and functions of several real variables. The theory is illustrated by practical exercices. This activity is coordinated with the course BIR 1201 'Exercices intégrés en mathématiques et informatique'.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Precursory courses : MATH 1160
Written evaluation

Other credits in programs

BIR12BA	Deuxième année de bachelier en sciences de l'ingénieur, orientation bioingénieur	(6 credits)	Mandatory
CHIM12BA	Deuxième année de bachelier en sciences chimiques	(6 credits)	Mandatory
SINF12BA	Deuxième année d'études de bachelier en sciences informatiques	(6 credits)	Mandatory