

UE Matrices and functions of multiple variables - MAT334 -



ECTS
6 crédits



Crédits ECTS
Echange
6.0



Composante
Département
de la licence
sciences et
technologies
(DLST)



Période de
l'année
Automne (sept.
à dec./janv.)

Diplômes intégrant cet élément

- Licence Physique

- › **Langue(s) d'enseignement:** Anglais
- › **Ouvert aux étudiants en échange:** Oui
- › **Crédits ECTS Echange:** 6.0

Présentation

Description

MAT334 follows the program of unit MAT304 in L1 SV.

Program summary:

A - Linear algebra:

Reminders on matrices and linear applications.

Resolution of linear systems, Gauss method.

Matrix calculation, block manipulation, LU decomposition.

Practical results on determinants and diagonalization.

B - Functions of several variables:

Definitions, continuity, graphical representations, polar, cylindrical and spherical coordinates

Derivation: partial derivatives, differential, gradient, Jacobian matrix, derivation and change of variables
 Optimization: extrema, critical points, practical results in dimension 2, least squares method
 Partial differential operators: definition and elementary properties of gradient, divergence, Laplacian, curl
 Double and triple integrals, Green's formulas

Objectifs

Targeted skills:

Linear algebra and matrix calculus tools.

Manipulation of functions of several variables. Elementary differential and integral calculus.

Heures d'enseignement

TD	TD	36h
CM	CM	24h

Période : Semestre 3

Infos pratiques

Campus

➤ Grenoble - Domaine universitaire