Faculty of Economic, Social and Political Sciences

ESPO2101 Mathematics in economics and management

[30h+15h exercises]

Teacher(s): Françoise Lefèvre
Language: French
Level: Second cycle

Main themes

To provide students with no mathematical training, or with only a rudimentary knowledge of mathematics, with a basis enabling them to follow diploma courses on the administration of enterprises. The course is in two parts: elementary infinitesimal calculus, and elementary matrix calculus.

Content and teaching methods

The course is in two parts, elementary infinitesimal calculus and elementary matrix calculus, with applications to economics and management.
Content : 1. Elementary infinitesimal calculus :
1.1 The real functions of a real variable : Real numbers - Main functions (linear, power, exponential, logarithms) - Limits, continuity and derivatives - Study of the function variations - Optimization - Primitives and definite integration.
1.2 Real functions of several real variables : Partial derivatives - Optimization - Three-dimensional graphical visualisation.
2. Elementary matrix calculus : Matrices and operations on matrices - Systems of linear equations - Determinant and matrix inversion - Particular matrices and determinants (Hessien, #).
Methods : This lecture course, which will be illustrated by examples, will mainly aim to provide an overview of the concepts and basic techniques. In practical work, the emphasis will be on the assimilation of the basic techniques with applications to problems of economy and management.

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

Prerequisite : nothing.
Evaluation : exercices (with simple -nongraphic and without complete alphanumeric keyboard- pocket calculator).
Support: lecture notes and exercices with solution.
References :
" ARCHINARD G., GUERRIEN B., Principes mathématiques pour économistes, Economica, 1992.
" JACQUES I., Mathematics for economics and business, seconde édition, Addison-Wesley, 1995.
" SIMON C. P., BLUME L., Mathématiques pour économistes, DeBoeck Université, 1998.

Other credits in programs

GEST1PM	Année d'études préparatoires au master en sciences de gestion (5 credits) (60 et 120)	Mandatory
MD3DA/MO	Diplôme d'études approfondies en sciences de la santé (sciences de la motricité)	Mandatory