Mathématique générale : analyse

Lecturers
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Course mnemonic
MATH-S1011

ECTS credits
5 credits

Language(s) of instruction
French

Course period
First term

Campus
Solbosch

Course content

The calculus course, after a short introduction on the set of real numbers, relations and functions, covers the concepts of

- topology on IR (bounded, open and closed sets; interior, adherent and accumulation points)
- convergence of real sequences (sub-sequences, operations on convergent sequences, infinite limits, monotone and bounded sequences)
- limits and continuity of functions of one real variable (properties of limits, limits and inequalities, infinite limits, monotone functions, continuous image of an interval, discontinuities)
- derivative of a function of one real variable (properties of differentiable functions, theorem of Rolle and mean value theorem, differential, elasticity, Taylor expansion, optimization)
- concave and convex functions.

Objectives (and/or specific learning outcomes)

LG2. Academic mindset

LO 2.2 Display critical thinking, logical and abstract reasoning and develop an independent approach to learning

LG3. Quantitative skills

LO 3.1 Solve standard mathematical problems

LO 3.3 Assess the quality of the a quantitative analysis of an economic problem

Pre-requisits and co-requisits

Course having this one as pre-requisit

MATH-S201 | Mathématique : fonctions de plusieurs variables | 5 crédits

Teaching method and learning activities

Theory: ex cathedra course.

Notes for the theoretical part: slides that are projected (and commented!) during the course.

Exercises: students are divided into groups for exercise sessions.

Exercise booklet divided into 12 lessons, each of which starts by a short reminder of the corresponding theory followed by some solved exercises, plus some proposed exercises (final answers (at least) are provided).

Some solved exams from previous years are available on the "université virtuelle".

During the academic year, guidance sessions and assistance are organized.

References, bibliography and recommended reading

Cours de mathématiques pour économistes, 1989, Philippe Michel, Economica.

Mathématique pour économistes et gestionnaires, 2010, Louis Esch, 4e édition, ouvertures économiques, De Boeck Université.

Course notes

Podcast, Université virtuelle and Syllabus

Other information

Place(s) of teaching

Solbosch

Contact(s)

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Evaluation method(s)

written examination

Evaluation method(s) (additional information)

A written exam on the theory as well as the exercises takes place during the January exam session. This exam can be taken again during the May/June exam session. In such a case, the grade obtained in May/June replaces the one obtained in January.

The final first-session grade for the course MATH-S-101 is the average of the grades obtained for Calculus and Linear Algebra.

During the second exam session (August/September), a written exam of the same type as the one organized during the first exam session is organized.

Determination of the mark (including the weighting of partial marks)

100% written exam.

Main language(s) of evaluation

French

Programmes

Programmes proposing this course at the Solvay Brussels School of Economics and Management

BA-ECON | Bachelor in Economics : General | option Français/unit 1