

Mathématiques 1

Lecturers

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Course mnemonic

MATH-F112

ECTS credits

10 credits

Language(s) of instruction

French

Course period

First and second terms

Course content

The main chapters are the following: Fonctions over the reals. Trigonometry. The line, the plane, the space. Analytical geometry and vectorial geometry. Fonctions with vectorial values. Matrices. Real functions with several variables. Multiple integrals. Vectorial analysis. Differential equations. Complex numbers. Series and sequences of numbers. Linear algebra. Dynamical systems. The course might differ slightly depending on the section.

Objectives (and/or specific learning outcomes)

This course must provide the mastery of mathematical tools the student will need during his studies and future life.

Pre-requisites and co-requisites

Courses having this one as pre-requisit

CHIM-F206 | Mécaniques classique et quantique | 10 crédits, GEOL-F307 | Cycle de la matière et de l'énergie dans les systèmes géologiques | 5 crédits, GEOL-F309 | Géophysique et tectonophysique | 5 crédits, INFO-F205 | Calcul formel et numérique | 5 crédits, INFO-F206 | Informatique | 5 crédits, MATH-F115 | Compléments d'analyse et algèbre linéaire | 5 crédits, MATH-F116 | Mathématiques 2 | 5 crédits, MATH-F214 | Compléments de mathématiques | 5 crédits, MATH-F215 | Mécanique | 5 crédits, MATH-F307 | Mathématiques discrètes | 5 crédits, MATH-F315 | Probabilités et statistiques | 5 crédits and PHYS-F205 | Physique 2 | 5 crédits

Courses having this one as co-requisit

BIOL-F321 | Spécificités du développement végétal | 5 crédits, GEOL-F307 | Cycle de la matière et de l'énergie dans les

systèmes géologiques | 5 crédits, GEOL-F309 | Géophysique et tectonophysique | 5 crédits, INFO-F206 | Informatique | 5 crédits, MATH-F114 | Algèbre linéaire et arithmétique | 5 crédits, MATH-F115 | Compléments d'analyse et algèbre linéaire | 5 crédits and PHYS-F205 | Physique 2 | 5 crédits

Teaching method and learning activities

Course ex-cathedra with tutorial sessions directed by teaching assistants.

Contribution to the teaching profile

Acquire and use a knowledge. Get used to the fundamental concepts in mathematics. Master the principles of logic reasoning and be capable of producing a mathematical reasoning. Understand the specificities of scientific reasoning and apply it. Understand the criteria of rigour, a reasoning, and techniques of proofs. Understand how a concept emerges from examples and observations. Communicate. Use a clear and rigorous language. Ethics in relation with society. Learn self-criticism on the validity of a reasoning.

Evaluation method(s)

Other

Evaluation method(s) (additional information)

Non-mandatory evaluation end of October for the faculty of sciences. Written exam in January (dispensatory of the material of the first semester), in June and in September.

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

COMPUTATION OF THE FINAL MARK OF THE UE:

The course Mathf112 is divided in two units (UA) that each have a partial mark: these two partial marks are called respectively "Q1 Mark" and "Q2 Mark". To succeed for the UE of Mathf112 one has to get at least 8/20 on the Q1 Mark and 7/20 on the Q2 Mark. The final mark is obtained by weighting the Q1 and Q2 Marks according to the following rules:

- > For the BA1 GEOL/GEOG: the mark of the UE consists in 13 points for the Q1 Mark and 7 points for the Q2 Mark
- > For all other sections: the mark of the UE consists in 10 points for the Q1 Mark and 10 points for the Q2 Mark

JANUARY EXAM:

The January exam is the same for all sections. The mark obtained after that exam is the "Q1 Mark".

JUNE EXAM:

The exam is in two parts whose duration vary depending on the section (see below). The first exam is on the Q1: it is an opportunity to better the Q1 Mark. All the students have the right to sit the Q1

Exam in June, independently of the Q1 Mark (even if it was greater than or equal to 10/20), simply by sitting the exam. In that case, the mark obtained in June replaced the Q1 Mark, even if the Q1 Mark was better. The second exam is on the Q2, specific to each section. The mark obtained is the the "Q2 Mark".

AUGUST SESSION:

If the final mark of the UE is greater than or equal to 10/20 after the June exam, the course is validated and the student is not authorized to sit the exam in the August session.

Else, the student is authorized to sit the exam after enrolling at the secretary of the Faculty of Sciences. The august session of Mathf112 is similar to the June session: two exams one for each quarter. Students are free to sit all or parts of the exam. As for the June session, if they sit a part they already had a mark for, that mark is forgotten no matter how much they get in August.

Programmes

Programmes proposing this course at the faculty of Sciences

BA-BIOL | Bachelor in Biology | option Bruxelles/unit 1, BA-CHIM | Bachelor in Chemistry | unit 1, BA-GEOG | Bachelor in Geography : General | unit 1, BA-GEOL | Bachelor in Geology | unit 1, BA-INFO | Bachelor in Computer science | unit 1 and BA-IRBI | Bachelor in Bioengineering | unit 1

Programmes proposing this course at the Brussels School of Engineering

BA-IRBI | Bachelor in Bioengineering | unit 1

