GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2020-2021

Mathematics (C004198)

Course size (nominal values; actual values may depend on programme)

Credits 6.0 Study time 165 h Contact hrs 60.0 h

Course offerings in academic year 2020-2021

A (semester 2) English

Lecturers in academic year 2020-2021

De Bruyn, Bart	WE01	lecturer-in-charge
Fernández-Duque, David	WE16	co-lecturer

Offered in the following programmes in 2020-2021	crdts	offering
Exchange programme Faculty of Sciences (bachelor's level)	6	A
Preparatory Course for International Students (Foreign Students)	6	A
Preparatory Course for International Students (Foreign Students)	6	A
Preparatory Course Master of Science in Business Engineering	6	A
Preparatory Course for International Students (Foreign Students)	6	A

Teaching languages

English

Keywords

Mathematics

Position of the course

Mathematical insight and reasoning skills enable us to formalize and solve very diverse real-world problems in a structured way. A course in Mathematics is thus indispensable in many different sciences, providing the necessary mathematical tools for follow-up courses. In this context, the focus is more on understanding and being able to correctly apply the mathematical concepts and techniques rather than on their formal proofs.

Contents

1) Numbers, variables and units
2) Algebraic functions
3) Transcendental functions
4) Differentiation
5) Integration
6) Methods of integration
7) Sequences and series
8) Functions of several variables
9) First-order differential equations
10) Vectors
11) Determinants

Matrices and linear transformations

Initial competences

Final competences of secondary school or equivalent. Basic prior knowledge is expected, in particular with respect to:

- Arithmetic (the set of real numbers, algebraic operations on real numbers, properties of the basic operations, ...)
- Solving equations (linear equations in one variable, substitution method and combination method for systems of two equations in two variables).
- Properties of basic functions: polynomial functions, rational functions, transcendental functions (trigonometric functions, exponential and logarithmic functions)
- Application of trigonometric formulas

Final competences

1 Know the most important concepts and techniques from linear algebra and real analysis.
2 Calculate limits, derivatives and integrals and solve simple differential equations.
3 Investigate and apply sequences, series, functions of multiple variables, vectors and matrices.
4 Translate real problems into a mathematical framework and solve them with the appropriate techniques.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Learning materials and price

References

Course content-related study coaching

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Examination methods in case of periodic evaluation during the second examination period

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Calculation of the examination mark