

Course Descriptions None 2023-2024

Course Title Mathematical Analysis
Course Code EBC1043
ECTS Credits 6,5
Assessment Whole/Half Grades

Period	Start	End	Mon	Tue	Wed	Thu	Fri
1	4-9-2023	20-10-2023					

Level Introductory

Coordinator Dirk Tempelaar For more information:d.tempelaar@maastrichtuniversity.nl

Language of instruction English

Goals * Students provide proof of the ability to use mathematical tools to build and develop mathematical models.
* Students provide proof of the ability to use mathematical tools to solve models.

Description This course offers a wide range of interesting calculus and linear algebra techniques, which are almost indispensable for Big Data applications. The topics discussed in the first part of the course include, among others, limits, continuity, differentiation and specific functions derivatives, partial derivatives, gradients and series. In the second part of this course, students will be introduced to concepts of linear algebra from an algebraic and geometric point of view. Emphasis is given to topics that will be useful in other disciplines, including systems of equations, linear transformations, vector spaces, matrix arithmetic, determinants and eigenvalues. You will also learn some applications like the idea behind Google PageRank and its connection with eigenvalues, and you can also apply similar techniques for ranking sport teams or universities. The subject areas covered in this course are fundamental for the mathematical aspect of data science and for most branches of mathematics and engineering sciences. Both the intuition behind the concepts and their formal definitions will be presented along with simple examples of formal mathematical proofs.

Literature

Prerequisites This course is in transition.

The following rule applies to bachelor Business Analytics students who started the programme prior to academic year 2022/23.

TRANSITIONAL REGULATION (EBC1043):

Students who started their Bachelor's study programme Business Analytics in or prior to September 2021 and did not successfully complete Mathematical Analysis (EBC1043) and/or Statistics (EBC1044) before September 2023 have an exam only option to pass the course(s) in academic year 2023-2024.

See the Transitional Regulations section in the Bachelor Education and Examination Regulations for more information.

Keywords

Teaching methods

PBL / Lecture

Assessment methods

Written Exam

Evaluation in previous academic year

For the complete evaluation of this course please click <http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM>

This course belongs to the following programme / specialisation

Transitional Regulations

See prerequisites