

Course Descriptions Bachelor 2020-2021

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

| Period | Start | End | Mon | Tue | Wed | Thu | Fri |
|--------|-----------|------------|-----|-----|-----|-----|-----|
| 1 | 31-8-2020 | 16-10-2020 | | X | | X | |

Level no level
 Coordinator Stan van Hoesel For more information:s.vanhoesel@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
 PLEASE NOTE THAT THE INFORMATION ABOUT THE TEACHING AND ASSESSMENT METHOD(S) USED IN THIS COURSE IS WITH RESERVATION. THE INFORMATION PROVIDED HERE IS BASED ON THE COURSE SETUP PRIOR TO THE CORONAVIRUS CRISIS. AS A CONSEQUENCE OF THE CRISIS, COURSE COORDINATORS MAY BE FORCED TO CHANGE THE TEACHING AND ASSESSMENT METHODS USED. THE MOST UP-TO-DATE INFORMATION ABOUT THE TEACHING/ASSESSMENT METHOD(S) WILL BE AVAILABLE IN THE COURSE SYLLABUS.

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
 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

Bachelor Business Analytics Year 1 Compulsory Course(s)