Course Descriptions None 2026-2027

Course Title	Mathematics and Statistics 2
Course Code	EBC1052
ECTS Credits	6,5
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
2	26-10-2026	11-12-2026	X		X		X

Level	no level
Coordinator	Andrés Perea y Monsuwé, Daniel Velasquez Gaviria For more information:a.perea@maastrichtuniversity.nl; d.velasquezgaviria@maastrichtuniversity.nl
Language of instruction	English
Goals	* Being able to use linear algebra to build and develop mathematical models. * Being able to use linear algebra to solve models. * Understanding of main statistical concepts and methods of inferential statistics for categorical and numerical data, univariate and multivariate models. * Apply main statistical concepts and methods that shape inferential statistics. * Being able to reason what statistical concepts and methods match business analytics cases. * Judging about the correctness of applying statistical concepts and methods in business analytics cases. * Reflect on the choice for methods and their application in business analytics cases.
Description	This course offers a wide range of interesting linear algebra and statistics techniques. The subject areas covered in this course are fundamental for the mathematical and statistical aspects of data science and for most branches of economic and engineering sciences. Both the intuition behind the concepts and their formal definitions will be presented along with simple examples of formal mathematical proofs. In the first part of the 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 matrix arithmetic, systems of linear equations, linear transformations and vector spaces. Statistics focuses on the collection and analysis of numerical data, typically in large amounts. With the ultimate aim of doing inference: formulate conclusions and make decisions that relate to an unknown population, based on data collected in a sample. We call this type of inferential reasoning also induction, to distinguish it from the type of reasoning applied in mathematics: deduction. The topics covered in this second period of statistics education build upon foundational topics that shape the curriculum of the previous period: descriptive statistics, probability theory and sampling theory. In this period, we cover inferential statistics for both categorical data and quantitative data, for the univariate model studying the characteristics of one variable as well as the multivariate model, investigating relationships between several variables. Hypothesis testing, confidence intervals, regression models and analysis of variance models are amongst the topics included. Next to statistical analysis, this course aims to introduce you to statistical computing. R, a software environment for statistical computing and graphics is instrumental in reaching that second aim.
Literature	Elementary Linear Algebra by Kirkwood & Kirkwood (open source) and OpenIntro Statistics, 4th Ed (open source); next the e-tutorials Sowiso and MyOpenMath
Prerequisites	Mathematics and Statistics 1, EBC1051
Keywords	Linear Algebra; Statistics
Transitional Regulations	
Teaching methods	
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 Courses