Course Descriptions None 2025-2026

Course Title	Statistics
Course Code	BENC1006
ECTS Credits	5,0
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
4	2-2-2026	27-3-2026		X		X	L

Level	Introductory
Coordinator	Tobias Hartl For more information:tobias.hartl@maastrichtuniversity.nl
Language of instruction	English
Goals	* Recognize the importance of data collection, identify limitations in data collection methods and other sources of statistical bias, and determine their implications and how they affect the scope of inference. * Use statistical software to summarize data numerically and visually, and to perform data analysis. * Have a conceptual understanding of the unified nature of statistical inference. * Apply estimation and testing methods to analyse single variables or the relationship between two variables in order to understand natural phenomena and make data-based decisions. * Model numerical response variables using a single explanatory variable or multiple explanatory variables in order to investigate relationships between variables. * Interpret results correctly, effectively, and in context without relying on statistical jargon. * Critique data-based claims and evaluate data-based decisions. * Complete two research projects: one that employs simple statistical inference and another that employs more advanced modelling techniques.
Description	In our course, we will focus on the following topics: * Methods of data collection, and types of data. * Descriptive statistics: describing important characteristics of populations or samples by numerical methods as the mean, median, mode (measures of central tendency), variance and standard deviation (measures of spread) as well as by graphical methods, like histograms, bar charts or Box-and-Whiskers displays. * Probability theory, as an introduction to random variables. * Discrete random variables and the most important discrete probability distribution: the binomial distribution; continuous random variables and two continuous probability distributions: the uniform and the normal distribution. * Sampling theory, as the foundation of inferential statistics, or inductive reasoning. * The construction of confidence intervals to estimate unknown population parameters. * Hypothesis testing for both the proportion and means cases. * Regressions analysis and ANOVA: the investigation of relationships.
Literature	OpenIntro Statistics, 4th Edition, 2019, by David Diez, Çetinkaya-Rundel, Christopher D. Barr (https://www.openintro.org/stat/textbook.php?stat_book=os) MyOpenMath digital learning environment (www.myopenmath.com)
Prerequisites	None.
Keywords	Statistics; descriptive statistics; probability models; random variables; hypothesis testing; inferential statistics; regression analysis; analysis of variance.
Transitional Regulations	
Teaching methods	PBL / Lecture / Assignment / Papers / Groupwork
Assessment methods	Participation / Written Exam / Assignment
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 Engineering	Year 1 Compulsory Courses