Course Descriptions None 2024-2025

Course Title	Knowledge Discovery and Data Visualization
Course Code	EBC1045
ECTS Credits	6,5
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
2	28-10-2024	15-12-2024		X		X	

Level	Introductory
Coordinator	Roselinde Kessels, Freija Lent For more information:r.kessels@maastrichtuniversity.nl; f.vanlent@maastrichtuniversity.nl
Language of instruction	English
Goals	* Students understand data preparation, modelling, data mining algorithms and visualization techniques within the Cross-Industry Standard Process for Data Mining. * Starting from a messy database, students prepare the data for mining, apply modeling and visualization techniques and interpret the results for business cases. * Students provide arguments why certain techniques within the Cross-Industry Standard Process for Data Mining are more suitable than others for specific data situations. * Students evaluate the statistical appropriateness of different modelling techniques using model evaluation techniques and reflect upon the results. * Students understand the importance and impact of modern data-driven technologies to different business industries and institutions. * Students understand the ethical principles of objectivity, carefulness and respect for data privacy regulations. * Students write reports including appropriate visualizations, deliver presentations and discuss the results in teams. * Students know how to be self-reliant and self-sustaining when learning and implementing statistical methodologies that are new to them. * Students collaborate and brainstorm in intercultural teams.
Description	This course gradually sheds light on the complex relationships hidden within large datasets in business and economics, which are becoming more widespread every day. These datasets are large both in terms of the number of observations and variables collected. Large datasets require new methods for extracting relevant information, prediction and business decisions. This course introduces students to a set of modern statistical and data mining methods accompanied by supporting visualization approaches to process large data in business and economics. Topics include data cleaning and exploration, data mining methods such as k-nearest neighbour and regression trees, and model evaluation techniques. To learn how to apply the methods, the course walks students through a collection of hands-on analysis problems that make use of the basic functionality of the free software R for statistical computing and graphics.
Literature	Larose Daniel T. & Larose Chantal D. (2014). Discovering Knowledge in Data: An Introduction to Data Mining. John Wiley & Sons, ISBN: 978-0-4709-0874-7. The book is accessible at https://onlinelibrary.wiley.com/doi/book/10.1002/9781118874059. Wickham Hadley & Grolemund Garrett (2016). R for Data Science: Visualize, Model, Transform, Tidy, and Import Data. O'Reilly, ISBN: 978-1-4919-1039-9. The book is also accessible at http://r4ds.had.co.nz/.
Prerequisites	
Keywords	
Teaching methods	PBL / Presentation / Lecture / Assignment / Groupwork / Skills / Coaching
Assessment methods	Participation / Written Exam / Assignment / Presentation / Take home 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)