



Data Analytics: Tools for Big Data

Bachelor (final year) & Master course (ECTS: 7)

16.30 – 19.00 (CET Ljubljana)

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Course objectives and learning outcomes:

Our course goals are the following:

1. Students should be able to think critically about data analysis, which includes selecting the right type of analysis for a given task.
2. Students should be able to identify opportunities of applying data analytics, in real business settings.
3. Students should be well equipped to become data-savvy managers.

Prerequisites for attending the course:

Basic Excel knowledge

Course syllabus/Daily topics:

PROGRAMME DAY	ACTIVITY/TOPIC/SESSION
Monday, 5 July	LSS Welcome session (no lectures)
Tuesday, 6 July	Introduction to Data Analytics
Wednesday, 7 July	Visualization: Tableau I
Thursday, 8 July	Visualization: Tableau II
Friday, 9 July	Data Pre-processing and Clustering
Monday, 12 July	Prediction Models: Linear Regression
Tuesday, 13 July	Classification Models: Logistic Regression
Wednesday, 14 July	Prediction and Classification Trees (CART)
Thursday, 15 July	Time Series Analysis
Monday, 19 July	Case Study
Tuesday, 20 July	Qualitative Models in Prediction
Wednesday, 21 July	Study day for students (no lectures)
Thursday, 22 July	Final examination/Project presentations
Friday, 23 July	Meeting hours with students & LSS Farewell session

Online teaching methods and tools/software used:

The course will be a mix of synchronous Zoom sessions as well as asynchronous activities and quizzes. This course introduces data analytic techniques via quantitative tools and sophisticated software (R and Tableau). These techniques are drawn from machine learning, data mining, and optimization. Note that this is not a technical or theoretical course. This course does not aim to produce experts in statistical analysis; rather, the aim is to provide students competency to interact with and manage a team of analytics professionals. Furthermore, this is not a technical or theoretical course; we will instead focus on the application of analytics techniques to real business situations, with the aim of creating insight and value.



Course materials/List of readings:

All the course materials will be posted on the course platform (Canvas).

Online examination methods and evaluation criteria (weighted categories):

Student grades will be calculated applying the following allocation in a simple weighted average:

- 1. Assignments 50%
- 2. Final Exam (Online) 25%
- 3. Asynchronous Quizzes 20%
- 3. Zoom Participation 5%

Grading scale:

DEFINITION	%	LOCAL SCALE	ECTS SCALE	Grade (USA)
exceptional knowledge without or with negligible faults	92-100	10	A	A+, A, A-
very good knowledge with some minor faults	85-91	9	B	B+, B
good knowledge with certain faults	77-84	8	C	B
solid knowledge but with several faults	68-76	7	D	C+, C, C-
knowledge only meets minimal criteria	60-67	6	E	D+, D
knowledge does not meet minimal criteria	<60	5	F	

Short course leader(s) biography:

Hamed Mamani is the Premera Endowed Faculty Professor of Operations Management at the Michael G. Foster School of Business, University of Washington. He received his Ph.D. in Operations Research from the Massachusetts Institute of Technology (MIT). His research interests include operations and supply chain management, data analytics, healthcare operations, healthcare delivery systems, health IT, and public health policy. He has published in Management Science, Operations Research, Production and Operations Management, European Journal on Operations Research, IIE Transactions on Healthcare Systems Engineering, among others.