



Ljubljana Summer School

Online courses

6 – 20 July 2020

Big Data Management and Technologies

Master course (7 ECTS)

16.00 – 19.00 (CEST)

Course leader:

POPOVIC Ales

University of Ljubljana, School of Economics and Business, Slovenia

Aims and objectives of the course:

In The recent explosion of social media and the digitalization of every aspect of business activity resulted in the creation of big data: ample amounts of mostly unstructured data. In a parallel development, we are able to reliably and inexpensively store huge volumes of data, efficiently analyse them, and extract relevant business information.

In the course, we first explore and discuss key big data concepts, then the most commonly used data analytical techniques and tools are presented. The core part of the course is designed as a hands-on learning experience. Case studies are used to illustrate and enrich the lecture material.

The course covers the following core topics:

- Introduction to Big Data
- Key enablers for the growth of Big Data
- Technologies for Big Data
- Big Data Architecture
- Data Integration, Cleansing and Transformation
- Big Data Storage and Processing Technology: Hadoop
- Predictive Analytics Technologies: Data Mining Techniques
- Text Mining
- Big Data Implementation Issues

At the end of this course, the student will become familiar with the fundamental concepts of Big Data management and analytics; will become competent in recognizing opportunities of using Big Data Analytics and to transform data into knowledge for business decision-making.



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Course syllabus:

Monday, July 6		
Introduction		
16.00 - 19.00	Introduction to Big Data: - Big Data Defined - Enablers - Big Data Technologies - Analytics Technologies - Big Data Value and Challenges	<i>Lecture</i>
Tuesday, July 7		
Data Mining for Big Data Analytics		
16.00 - 19.00	Data Mining Methods for Big Data Analytics with Rapid Miner (1)	<i>Practical Computer lecture</i>
Wednesday, July 8		
Data Mining for Big Data Analytics		
16.00 - 19.00	Data Mining Methods for Big Data Analytics with Rapid Miner (2)	<i>Practical Computer lecture</i>
Thursday, July 9		
Data Mining for Big Data: CASE		
16.00 - 19.00	- Data Mining Methods for Big Data Analytics with Rapid Miner (3) - Case analysis	<i>Practical Computer lecture, Interactive lecture</i>
Friday, July 10		
Text Mining		
16.00 - 19.00	Text Mining with Rapid Miner (1)	<i>Practical Computer lecture</i>
Monday, July 13		
Text Mining		
16.00 - 19.00	Text Mining with Rapid Miner (2)	<i>Practical Computer lecture</i>
Tuesday, July 14		
Hadoop		
16.00 - 19.00	Big Data Storage and Processing: Hadoop	<i>Practical Computer lecture</i>
Wednesday, July 15		
Hadoop		
16.00 - 19.00	Big Data Storage and Processing: Hadoop	<i>Practical Computer lecture</i>
Thursday, July 16		
Work on projects		
16.00 - 19.00	Work on the projects (1)	<i>Group work</i>
Friday, July 17		
Work on projects		
16.00 - 19.00	Work on the projects (2)	<i>Group work</i>



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Monday, July 20		
TBA	Project presentations	

Course materials/List of readings:

- Davenport T. H.: Big Data @ Work: Dispelling the Myths, Uncovering the Opportunities. Harvard Business Review Press, 2014.
- Provost F. & Fawcett T.: Data Science for Business: What You Need to Know About Data Mining and Data-Analytic Thinking. O'Reilly, 2013.

Selected papers will be available on the course web page.

Teaching methods:

- Lectures and class discussions (students are expected to actively participate in the discussions)
- Case study
- Assignments
- Practical computer lessons
- Projects

Evaluation method and grading scale:

- Homework (40%)
 - Individual work
 - 4 assignments of 10 points each
 - Instructions for a specific assignment will be provided by the responsible instructor
- Project (60%)
 - Group projects
 - Each group consists of 3 members; exceptions allowed upon agreement with course coordinators
 - Possible grades: 1 – 10
 - The project grade has to be 6 or more (i.e. positive) in order to pass the course.
 - Project assessment criteria: problem complexity, depth of the analysis, presentation & discussion.

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	



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Prerequisites for attending the course:

No prerequisites.

Note: If approved by the home institution, Bachelor students in their final year of study can register for this Master course.