

## RTU Course "Business Analytics"

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**General data**

Code	DE0750
Course title	Business Analytics
Course status in the programme	Compulsory/Courses of Limited Choice
Responsible instructor	Ilze Birzniece
Volume of the course: parts and credits points	1 part, 6.0 credits
Language of instruction	LV, EN
Annotation	The volume of data worldwide is growing daily and potential business value lay in the data. Looking for new business opportunities in data today is an essential part of the growth of business in any sector. Knowledge discovery from data is a helical process that includes data retrieval, data pre-processing, selection and application of appropriate analytical methods, and interpretation of results. Data mining is the use of statistical and machine-learning techniques on historical data aiming to obtain an explanation or prediction. The course deals with key data mining approaches from supervised and unsupervised learning – regression, classification, clustering and association rules mining - by introducing the most popular methods in each of them. The need and opportunities for analytics arise in variety of tasks., e.g, sensor data processing, social network analysis, customer relationship etc. Text mining and dealing with unstructured and semi-structured data is one of the topical classification targets. The course focuses on comprehension and practice, using freeware tool Weka (additionally - Python language for experienced users) to analyse real data sets and interpret the insights. Students work in teams and apply their knowledge and skills in data analysis to develop a capstone project.
Goals and objectives of the course in terms of competences and skills	The goal of the course is to provide knowledge of data analytics capabilities and skills to select and apply appropriate approaches to particular business data needs.  The objectives of the course: 1. Introduce the needs and opportunities of business analytics. 2. Raise awareness of data extraction and processing to acquire data-driven knowledge. 3. Provide knowledge and skills to work with data mining techniques and tools. 4. Promote analytical capabilities, critical thinking and academic writing skills.
Structure and tasks of independent studies	Through independent studies, students perform both individual and group works to learn the main course subjects, drill the practical skills and explore in depth individual subjects. These activities are done in accordance to the principles of academic integrity. Independent studies include home works – analysis of the relevant literature, essays, capstone project development, as well as preparing to demonstrate achieved results in presentations and examination.
Recommended literature	Obligātā / Mandatory: 1.Data Mining, 4th Ed., Ian H. Witten, Eibe Frank, Mark A. Hall, Christopher Pal, 2016 (3rd Ed. 2011) 2.Fundamentals of Business Intelligence, Wilfried Grossmann, Stefanie Rinderle-Ma, 2015  Papildu / Additional: 1.Data Mining and Machine Learning: Fundamental Concepts and Algorithms, 2nd Ed., Mohammed J. Zaki and Wagner Meira, Jr, 2020 (online book: <a href="https://dataminingbook.info/book_html/">https://dataminingbook.info/book_html/</a> ) 2.Data Mining for Business Analytics: Concepts, Techniques and Applications in Python, Galit Shmueli, Peter C. Bruce, Peter Gedeck, Nitin R. Patel, 2019 3.Business Analytics: Data Analysis and Decision Making, 7th Ed., S. Christian Albright, Wayne L. Winston, 2020
Course prerequisites	Basic knowledge about data storage and processing.

**Course contents**

Content	Full- and part-time intramural studies		Part time extramural studies	
	Contact Hours	Indep. work	Contact Hours	Indep. work
Business intelligence, metrics, key performance indicators, dashboards for managerial decision making	12	14	0	0
Data analytics: business needs analysis, data exploratory analysis, preprocessing, statistics, data representation	16	20	0	0
Data mining: regression, classification, clustering, association rules. Credibility. State-of-the-art data mining applications	14	18	0	0
Data mining tools, their practical application in data analysis	14	28	0	0
Demonstration of learning outcomes through presentations and examination	8	16	0	0
<b>Total:</b>	<b>64</b>	<b>96</b>	<b>0</b>	<b>0</b>

**Learning outcomes and assessment**

Learning outcomes	Assessment methods
Characterize data pre-processing tasks and conduct data transformations	Project, examination
Discriminate data mining approaches, select and apply appropriate methods for particular data	Practical works, project, examination
Analyze business needs and link them to capabilities data analytics	Home works, project, examination
Derive data-driven business decisions	Home work, project, examination, practical works
Apply at least one data mining tool	Practical works, project
Perform different tasks according the principles of academic integrity	Home works, group work, project, examination, practical works

**Evaluation criteria of study results**

Criterion	%
Home works	15
Practical woks (labs)	25
Group project	30
Examination	30
Total:	100

**Study subject structure**

Part	CP	Hours			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	6.0	32.0	32.0	0.0		*	