COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Business Intelligence	

Lecturer(s)	Department(s) where the course unit (module) is delivered
Coordinator: teaching assistant Viktorija Bielinė	Faculty of Economics and Business Administration Saulėtekio ave. 9, II building, LT 10222 Vilnius

Study cycle	Type of the course unit (module)
Second	Compulsory

Mode of delivery	Period when the course unit (module) is delivered	Language(s) of instruction
Online	Autumn semester	English

Requirements for students
Prerequisites: business research, business statistics

Course (module) volume in credits	Total student's workload	Contact hours	Self-study hours
5	130	32	98

Purpose of the course unit (module): programme competences to be developed		
Purpose of this course – provide high-level knowledge about the essence, specifics, and possibilities of business intelligence in the modern business environment. Moreover, this course aims to introduce students to data-driven decision making and creation of actionable insights while using various analytical tools dedicated to business intelligence.		
Learning outcomes of the course unit (module)	**Teaching and learning methods**	**Assessment methods**
Student will be able to extract and critically evaluate collected data, investigate business problems.	Problem-based teaching, discussion, case studies, independent study of mandatory and additional material, practical sessions with BigQuery, MS Excel, IBM SPSS Statistics and Looker Studio software	Practical individual SQL tasks, data story and its presentation, dashboard report and its presentation, feedback, final written test
Student will be able to generate actionable insights that are used to make data-driven business decisions.		
Student will be able to apply different methods of data analysis and use the obtained results to solve business problems.		
Student will be able to properly visualize and communicate results of business data analysis.		

Content: breakdown of the topics	Contact hours							Self-study work: time and assignments	
	Lectures	Tutorials	Seminars	Exercises	Laboratory work	Internship	**Contact hours**	**Self-study hours**	**Assignments**
1. An overview of business intelligence: concepts, functions, processes	2						**2**	**8**	Scientific literature reading, case study analysis, discussions
2. Data in business, data types, data warehousing, data mining and other decision support systems	4						**4**	**12**	Scientific literature reading, practice of given tasks
3. Analytics in business, types of analytics and data-driven decision making in business	4						**4**	**12**	Scientific literature reading, practice of given tasks
4. Metrics, key performance indicators (KPIs), data visualization	2						**2**	**10**	Scientific literature reading, practice of given tasks
5. OLAP processes, ETL processes	4						**4**	**12**	Scientific literature reading, practice of given tasks
6. Data querying using the SQL programming language	4		4				**8**	**14**	Scientific literature reading, practice of given tasks, query writing
7. Supervised and unsupervised machine learning methods in data-driven decision making	4						**4**	**12**	Scientific literature reading
8. Artificial intelligence in data-driven decision making	2						**2**	**6**	Scientific literature reading
9. Dashboard creation, insight creation and data storytelling	2						**2**	**12**	Scientific literature reading, practice of given tasks, case study analysis, discussion
Total	28		4				**32**	**98**	

Assessment strategy	Weight, %	Deadline	Assessment criteria
Practical individual SQL tasks	20	During the semester	4 practical individual SQL tasks are presented, each of which is worth 5 points. These tasks are not mandatory.
Data story and its presentation	20	During a pre-scheduled lecture	Student presents a specified and coherent data story. The presentation is up to 5 minutes. Data story evaluation on a 10-point scale. Assessed: 1. relevance and originality of the selected topic 2. identified stakeholder and correctly delivered information to the selected stakeholder 3. suggestiveness, correspondence of the proposed solution to the problem 4. used technical/creative solution for the delivery of the story 5. clear and coherent presentation 6. personal approach ***Nota bene***: a live presentation of a data story is a must in order to take the exam.
Dashboard report – solving a chosen business problem using at least 3 analytical	20	During a pre-scheduled lecture	Dashboard report evaluation on a 10-point scale. The results of the project are placed into a data dashboard, which is presented live during a coherent and engaging

methods presented during the lectures, preparing data dashboard, formulating insights, and telling a consistent and meaningful data story during the presentation.			data storytelling. Assessed: 1. Database selection (using individually selected publicly available databases (e.g., BigQuery Public Database) and formulation of the business problem 2. Stakeholder identification 3. SQL query to access data from the database – the query is saved in a text file and presented briefly during the presentation (not mandatory) 4. Appropriate choice of statistical data analysis method 5. Correct implementation of the statistical data analysis method 6. Interpretation of the obtained results 7. Preparation of insights 8. Appropriate layout of the data dashboard 9. Appropriate visualization of the results 10. Coherent data storytelling during the presentation 11. Time management during the presentation (5 min. for presentation + 3 min. for answering questions) ***Nota bene***: a live presentation of a dashboard report is a must to take the exam.
Feedback for dashboard report	10	During a pre-scheduled lecture	Live constructive feedback and comments after another fellow student's dashboard report presentation.
Written test	30	During the exam, end of semester	30 close-ended questions (each question is worth 1 point). Exam duration – 45 mins. ***Nota bene***: the subject is passed when at least 50% of possible points are scored in the exam.
Final grade			The final grade is calculated by summing up the evaluation points of the practical individual SQL tasks (these tasks are not mandatory), data story and its presentation, dashboard report and its presentation, the provision of feedback and constructive comments after other student's dashboard report presentation, and the written test. 95-100 points - 10 (excellent), 85-94 point - 9 (very good), 75-84 points - 8 (good), 65-74 points – 7 (on average), 55-64 points – 6 (satisfactory), 50-54 points – 5 (weak), < 50 points - unsatisfactory when the minimum requirements are not met: 4, 3, 2, 1.

Author	Year of publication	Title	Issue of a periodical or volume of a publication	Publishing place and house or web link
Compulsory reading				
Dykes, B.	2020	Effective Data Storytelling	1st ed.	John Wiley and Sons
Nussbaumer Knaflic, C.	2015	Storytelling with Data	1st ed.	John Wiley and Sons
Sharda, R., Delen, D., Turban, E.	2018	Business Intelligence, Analytics, and Data Science: a Managerial Perspective	4th ed.	Pearson Education
Phillips-Wren, G., Daly, M., Burstein, F.	2021	Reconciling business intelligence, analytics and decision support systems: More data, deeper insight		https://doi.org/10.1016/j.dss.2021.113560

Complementary reading				
Chaudhary, K., Alam, M.	2021	Big Data Analytics	1st ed.	Auerbach Publications
Hurst, L.	2020	Hands on with Google Data Studio: a Data Citizen's Survival Guide	1st ed.	John Wiley and Sons
Skyrius, R.	2016	Business Information: Needs and Satisfaction	1st ed.	Informing Science Press
Zhao, A.	2021	SQL Pocket Guide	3rd ed.	O'Reilly Media

Additional literature may be specified during the course.