University of Gdańsk

Subject card

Subject name and code	Data analysis and visualisation in business, PG_00123426		
Field of study	Economics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	Master's studies	Subject group	Obligatory subject group in the field of study Specialty subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	4.0
Learning profile	academic	Assessment form	credit
Conducting unit	Division of Electronic Economy -> Department of Maritime Transport and Seaborne Trade -> Faculty of Economics -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	mgr Marcin Hofman	
	Teachers	mgr Marcin Hofman	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	30.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						

Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
	Number of study hours	30	0.0	0.0	30

Subject objectives	The objective of this course is to equip students with practical skills in data analysis and visualization using Microsoft Power BI, with a specific focus on the e-commerce industry. Students will learn the principles of visual perception, appropriate chart selection, and data storytelling techniques to transform raw data into actionable business insights supporting decision-making processes.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[EKONMU2_W06] knowsin advanced stage statistical and econometric methods and tools for description and macro- and microeconomic modelling of economic structures and public institutions and processes occurring in them	The student knows methods and tools to measure, analyze and solve issues related to rapidly developing Internet technologies and data analysis tools.	[SW2] presentation/project/paper/ report
	[EKONMU2_U04] can forecast and model complex economic and social processes using quantitative and qualitative methods and tools developed by economic sciences (including statistics and econometrics)	The student is able to analyze quantitative and qualitative data using advanced statistical methods and tools.	[SU2] presentation/project/paper/ report
	[EKONMU2_U08] can independently analyse economic and social phenomena and processes, and can perform a theoretically deepened assessment of such phenomena, using appropriately selected research method	The student is able to properly analyze business data, interpret and use the information obtained to improve the competitiveness of the company.	[SU2] presentation/project/paper/ report
	[EKONMU2_K05] correctly identifies, diagnoses and solves dilemmas and alternative solutions related to the profession	The student correctly identifies, diagnoses and resolves dilemmas and various variants of solutions related to work in the field of data analysis.	[SK2] presentation/project/paper/ report
	[EKONMU2_K02] is aware of the level of their knowledge in the area of solving complex problems in economic,; understands the need to extend and update this knowledge throughout his/her life	The student is aware of the level of his/her knowledge, is able to independently supplement and improve the acquired knowledge in the field of data analysis, is open to new technologies and is able to share his/her experience and knowledge with others.	[SK2] presentation/project/paper/ report
	[EKONMU2_U02] can use acquired knowledge to describe and analyse the causes and course of economic and social processes and phenomena, and can formulate his/her own opinions and critically select data and analysis methods based on the achievements of economic and social sciences	The student is able to use theoretical and specialist knowledge in the selection of methods and tools supporting the analysis of business data, including obtaining Internet data and using available measures in data analysis.	[SU2] presentation/project/paper/ report
	[EKONMU2_W08] has an in-depth knowledge of processes occurring in enterprises and economic organisations and with related areas, as well as of processes of change in public institutions; knows methods of research on the regularities governing these changes, taking into account the influence of external stakeholders on them	The student has in-depth knowledge of the processes taking place in enterprises, knows methods of examining the regularities governing changes in enterprises, taking into account the influence of economic entities cooperating with them on them.	[SW2] presentation/project/paper/ report

Subject contents	**Theory of Data Visualization:** • History of visualization (Playfair, Snow, Minard) and the role of visual perception. • Edward Tufte's principles (data-ink ratio, chartjunk) and Gestalt psychology in chart design. • Overview of chart types and their applications (comparisons, distributions, correlations, maps). **Introduction to Power BI:** • Tool architecture, interface, importing data from various sources (Excel, CSV, Web). **Data Transformation (ETL):** • Power Query Editor: data cleaning, column typing, merging queries. **Modeling and DAX Language:** • Creating relationships between tables. • Basic measures (SUM, AVERAGE, COUNT) and calculated columns. • Filter context and logical functions (CALCULATE, IF, DIVIDE). **E-commerce Analytics (Case Study):** • Sales funnel and conversion analysis. • Shopping basket and returns analysis. • Customer segmentation (NPS, LTV) and marketing campaign analysis. **Dashboard Design and Reporting:** • Navigation, slicers, interactions between visualizations. • Report aesthetics (conditional formatting, colors, layout).
Prerequisites and co-requisites	Knowledge of the basics of e-business.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Practical project	51.0%	50.0%
Test	51.0%	50.0%

Recommended reading	Basic literature	1. Edmondson M., *Google Analytics od podstaw. Analiza wpływu biznesowego i wyznaczanie trendów*, Helion, Gliwice 2023 2. Deckler G., *Pierwsze kroki w Power BI. Kompletny przewodnik po praktycznej analityce biznesowej*, Helion, Gliwice 2023

	Supplementary literature	Zastrożna M., *Godzina dziennie z Web Analytics. Stwórz dobrą strategię e-marketingową*, Helion, Gliwice 2022 Wach D., *Wykorzystanie technologii Real-Time Bidding w e-handlu*, Studia i Materiały ITiHM, nr 9, Gdańsk 2012
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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