University of Gdańsk

Subject card

Subject name and code	Methods of Business Intelligence and Data Visualization, PG_00199889		
Field of study	Economics		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study
Mode of study	part-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish Polish
Semester of study	6	ECTS credits	4.0
Learning profile	academic	Assessment form	exam
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Stanisław Umiński, prof. UG	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	10.0	10.0	0.0	6.0	0.0	26

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	26	0.0	74.0	100

Subject objectives

As part of the course students will learn basic methods of data transformation in order to use them in making tactical and strategic decisions in business processes . BI tools concern the methods of acquiring , integrating and analyzing data sets and their effective presentation in the form of tables , maps , graphics , charts and advanced reports . Effective data analysis allows you to optimize decision-making processes and improve the competitive position of the organization .

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[EKONL3_U01] can correctly interpret economic and social phenomena and apply knowledge of economics, finance and management sciences to explain economic phenomena	The student acquires the ability to independently use database and data visualization applications. Student is able to interpret economic and social phenomena using business intelligence methods as well as data analysis and visualisation tools supporting decision-making processes within organisations. The student demonstrates a willingness to engage in project-based learning and recognizes the advantages of the project method.	[SU2] presentation/project/paper/ report
	[EKONL3_U06] uses the knowledge acquired in economics, finance and management to solve economic and social dilemmas arising in the professional context	The student is able to present the results of analyses in a competent and transparent manner in the form of reports	[SU2] presentation/project/paper/ report
	[EKONL3_W08] has an advanced knowledge of the processes of changing elements, enterprises and whole structures of economic organisations, as well as the processes of changing social institutions, knows what their causes, course, scale, consequences are and what the influence of external stakeholders is on them	Student has advanced knowledge of data analysis and visualisation methods used to identify and interpret changes occurring within enterprises and business organisations, including changes related to business processes, organisational performance, and the market environment.	[SW2] presentation/project/paper/ report
	[EKONL3_W10] knows and understands concepts and principles of industrial property, intellectual property and copyright law	Student knows and understands the principles of ethical and lawful use of data, information sources, and analytical and visualisation tools, including issues related to intellectual property protection and copyright law.	[SW2] presentation/project/paper/ report
	[EKONL3_W07] has an advanced knowledge of the economic and financial principles of the functioning and management of economic entities and organisations as well as the legal, organisational, moral and ethical norms and rules governing the functioning of public institutions	Student has advanced knowledge of the use of business intelligence and data analysis tools in the management of business organisations and understands the importance of organisational, legal, ethical, and information security principles in the processes of data collection, processing, and presentation.	[SW2] presentation/project/paper/ report
	[EKONL3_K01] recognises the importance of economic knowledge in identifying and solving economic problems and of consulting experts when difficulties in solving them independently	The student will understand that due to the volatility of the economy, lifelong learning is necessary. Based on the acquired knowledge, he will be able to inspire others to learn	[SK2] presentation/project/paper/ report
	[EKONL3_W01] has advanced knowledge of the nature of social sciences, their place in the system of sciences, knows the role of economic sciences in this system and uses universal economic terminology	The student will learn the basics of BI and data visualization. The most important concepts and concepts concerning the subject will be presented and explained. The student learns the importance of BI and data visualization for the functioning of a business organization in a volatile, open and competitive economic environment. The student defines the planes of translating data analysis into tactical and strategic decisions	[SW2] presentation/project/paper/ report
	[EKONL3_K06] is willing to be guided in his professional life by business ethics and corporate social responsibility, to respect others and to be loyal to his employer	The student will be able to independently supplement and improve the acquired knowledge and BI skills	[SK2] presentation/project/paper/ report

Subject contents	1. Introduction to databases (data acquisition, database integration, relationships in databases, retrieving data from databases, queries) 2. Introduction to PowerBI 3. Basic BI tools (pivot tables, mapping, visualization methods, project) 4. Basic functions of DAX 5. Variables, VAR submission 6. Create interactive reports using MS Office tools Students' doubts or interpretation problems will also be solved during consultations.
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Visualisation Project in PowerBi	51.0%	100.0%

Recommended reading

Basic literature	1. Russo M., Ferrari A., (2019) Kompletny przewodnik po DAX. Analiza biznesowa przy użyciu Microsoft Power BI, SQL Server Analysis Services i Excel, wyd. 2, APN Promise, Warszawa 2. Russo M., Ferrari A., (2020) DAX Patterns, 2nd edition, SQLBICorp, Las Vegas, USA 3. Michael A., Wehrbe B., Decker J., (2019) *Analizy Business Intelligence. Zaawansowane wykorzystywanie Excela*, Helion, ISBN 978-83-283-5808-9 4. Kirk A., (2019) Data Visualisation. A Handbook for Data Driven Design, 2nd edition, Sage Publications, Los Angeles 5. O. Wilke C., (2019) Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures, O'Reilly, Beijing, Boston
Supplementary literature	ABSL (2026) Sektor nowoczesnych usług biznesowych w Polsce 2026, Warszawa (współautorzy raportu T. Brodzicki, S. Umiński) ABSL (2023) Strategic Foresight in the Business Services Sector 2023, Warszawa (współautorzy raportu T. Brodzicki, S. Umiński)
eResources addresses	

Example issues/ example questions/ tasks being completed	PowerBI Configuration Basics Creating relationships in databases Create calendars in DAX Sales visualization , seasonality , structure Create charts in Power BI
Work placement	Not applicable

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