University of Gdańsk

Subject card

Subject name and code	Data Visualization (PowerBI), PG_00199355		
Field of study	Economics		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Master'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	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	5.0
Learning profile	academic	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Stanisław Umiński	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	45.0	0.0	45.0	0.0	90

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	90	0.0	35.0	125

Subject objectives

As part of the course " Data Visualization (PowerBI) ", students will learn 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
[EKONMU2_U15] can independently expand and improve acquired knowledge and skills in economics; is open to new ideas and techniques; tends to learn using any accessible method and to interact with other participants of the learning process	The student independently complements and improves the acquired knowledge and skills in the field of data analysis and visualization, is open to new techniques, is inclined to learn using any method and draws on interaction	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report

Course outcome	Subject outcome	Method of verification

Course outcome	Subject outcome	Method of verification
	The student independently complements and improves the acquired knowledge and skills in the field of data analysis and visualization, is open to new techniques, is inclined to learn using any method and draws on interaction The student independently complements and improves the acquired knowledge and skills in the field of data analysis and visualization, is open to new techniques, is inclined to learn using any method and draws on interaction	
[EKONMU2_U01] can creatively interpret and explain economic and social phenomena and relations between them, using acquired knowledge of economics, finance and management sciences	The student interprets and explains economic and social phenomena and the relationships between them, using advanced methods for data visualization	[SU1] oral statement/conversation/ discussion [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 independently analyze economic and social phenomena and processes, has the ability to assess these phenomena in a theoretical way, using an appropriately selected research method including quantitative and qualitative analyses with the use of automated techniques of visual representation of the results of the analysis	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[EKONMU2_K01] recognises the importance of knowledge in the field of economics in the process of identifying and solving economic problems and of consulting experts when having difficulties in solving them independently	The student appreciates the importance of knowledge and data visualization techniques in the process of identifying and solving economic problems and seeking expert opinions	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report
[EKONMU2_U03] can analyse causes and course of economic and social processes and phenomena, formulate his/her own opinions on the subject, construct research hypotheses, and select and apply methods of their verification	The student analyzes the causes and course of economic and social processes and phenomena, formulates opinions on the subject, formulates research hypotheses, and verifies them	[SU1] oral statement/conversation/ discussion [SU2] 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 limitations of his/her knowledge in the field of data analysis and visualization, understands the need to deepen and update this knowledge throughout his/her life	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report

Course outcome	Subject outcome	Method of verification
[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 forecasts and models complex economic and social processes using data visualization methods	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[EKONMU2_W06] has an in-depth understanding of statistical and econometric methods and tools for describing and modelling macro- and microeconomic economic structures and public institutions, as well as the processes taking place within them.	The student knows statistical and econometric methods and tools of data visualization for macro- and microeconomic modeling, taking into account the conditions of an open economy subjected to increasing competitive pressure	[SW1] oral statement/ conversation/discussion [SW2] 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)

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
	50.0%	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 (2024) Sektor nowoczesnych usług biznesowych w Polsce 2024, 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	body, .ms-Pivot, .ts-footer, .ms-Panel-main { background: #e6e6e6 }.ui.selection.dropdown .menu, .ts-textfield-container { background-color: #fdfdfd ! important }.ui.selection.dropdown .menu>.message, .ui.dropdown .menu>.item:hover { color: #444444 }.ts-control-button, .ts-settings-button, .ts-back-button, .ts-settings-text, .ms-Checkbox-text { color: #444444 }.ts-translation-menu-label-text, .ms-Label, .ms-Pivot-text, .ms-TextField-field { color: #444444 !important }.ts-semantic-menu input, .ts-semantic-menu > .text, .ts-semantic-menu > .icon, .ts-SwitcherButton-colorful, .ts-iconButton-colorful .ms-Icon, .ts-translation-completion i, .ts-translation-completion .ms-Icon, .ts-translation-completion .ts-completion-label, .ts-translation-menu-contextual-menu button, .ms-Spinner-label, .ts-microfeedback-buttons, .ms-Link { color: #2b579a !important }.ts-SwitcherButton-colorful:hover, .ms-Link:hover { color: #3c65a4 !important }.ts-SwitcherButton-colorful:active, .ms-Link:active { color: #124078 ! important }.ms-Spinner-circle { border-color: #3c65a4 #124078 #124078 }.ts-button-colorful, .ts-document-ok-button, .ts-document-cancel-button { background-color: #2b579a }.ts-button-colorful:hover, .ts-document-ok-button:hover, .ts-document-cancel-button:hover { background-color: #3c65a4 }.ts-button-colorful:active, .ts-document-ok-button:active, .ts-document-cancel-button:active { background-color: #124078 }.ts-button-colorful:focus, .ts-document-ok-button:focus, .ts-document-cancel-button:focus, .ms-Pivot-link:focus { outline: 1px dotted #2b579a !important }.ms-Pivot-link.is-selected::before { border-bottom: 2px solid #2b579a !important }.ts-settings-button:hover { color: #2b579a !important }.ms-Pivot, .ts-footer { color: #444444 }.ui.selection.dropdown .item, .ui.dropdown .menu .selected.item { color: #444444 }.ms-Checkbox-checkbox { border-color: #444444 } PowerBI Configuration Basics Creating relationships in databases Create calendars in DAX Sales visualization , seasonality , structure Create charts in Power BI
Work placement	Not applicable

Document generated electronically. Does not require a seal or signature.