

Subject card

Subject name and code	Data Visualization Platforms, PG_00158211						
Field of study	Information Science and Econometrics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2024/2025		
Education level	postgraduate studies		Subject group		Obligatory subject group in the field of study 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	1		Language of instruction		English		
Semester of study	2		ECTS credits		6.0		
Learning profile	academic		Assessment form				
Conducting unit	Katedra Informatyki Ekonomicznej -> Faculty of Management						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Dorota Buchnowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	45.0	0.0	0.0	60
	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	60		20.0		70.0	150
Subject objectives	Familiarizing students with: - the market and functionality of data analysis and visualization applications, - forms and principles of data visualization, - practical possibilities of using data analysis and visualization tools (e.g. Tableau, Power BI, Qlick) in business data analysis.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[liEMU2_U04] The student is able to plan, design, and program information systems at an advanced level, supporting the operation of business entities.	The student is able to create and use IT solutions at an advanced level that support the functioning of business entities through data analysis and visualization.	[SU2] presentation/project/paper/report [SU5] implementation of a problem task
	[liEMU2_W05] The student has an in-depth knowledge of socio-economic data sources, their databases and how to create them.	The student has in-depth knowledge of the sources of socio-economic data, their databases, how they are created and the possibilities of using them for data analysis and visualization.	[SW4] test/exam - oral or written
	[liEMU2_W04] The student has an in-depth knowledge of advanced mathematical, statistical, econometric and IT methods that enable the acquisition, processing and analysis of data reflecting the functioning and growth of the national economy and its components, as well as the phenomena and processes occurring in their environment.	The student has in-depth knowledge of advanced IT methods and tools enabling the acquisition, processing and analysis of data reflecting the functioning of enterprises and the processes taking place in their environment.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[liEMU2_K02] The student can communicate freely with the public on specialised topics in the field of computer science and econometrics in and outside the workplace, communicate his knowledge and share his skills through various media. Culturally participates in discussions, is not afraid to ask questions and knows how to give constructive criticism.	The student is able to freely communicate with the environment on specialist topics in the field of data analysis and visualization platforms, convey their knowledge and share their skills using various media. They participate in discussions in a cultured manner, are not afraid to ask questions and are able to express constructive criticism.	[SK2] presentation/project/paper/report
	[liEMU2_U02] The student is able to proficiently acquire detailed information about economic processes and phenomena through direct observation, planned experimentation or database queries, as well as collect and process it using modern information technology tools.	The student is able to efficiently obtain detailed information about economic processes and phenomena by querying databases and collect, process and visualize it using modern IT tools.	[SU2] presentation/project/paper/report [SU5] implementation of a problem task [SU8] observation of student's independent or team work
	[liEMU2_K01] The student understands the need for continuous completion and deepening of acquired knowledge. The student inspires and organizes others' learning processes.	The student understands the need to continually supplement and deepen the acquired knowledge in the field of methods and tools for data analysis and visualization; inspires and organizes the learning process of other people.	[SK2] presentation/project/paper/report
	[liEMU2_K03] The student is able to communicate freely with the public inside and outside the workplace, transfer his knowledge and share his skills through various media.	The student is able to communicate freely with the environment in the workplace and outside it, convey his/her knowledge and share his/her skills in the use of data visualization platforms.	[SK2] presentation/project/paper/report

Subject contents	Lecture (15h) 1. The importance of visualization in the data analysis process. 2. Principles of business data visualization. Data storytelling. 3. Business analytics maturity model. 4. Classification of advanced data analysis tools. 5. Augmented analytics. 6. Cognitive application development platforms (e.g. IBM Watson, AWS) 7. Performance Management application of analytics in business applications (CRM, ERP). 8. Directions of development of data analysis and visualization platforms. Exercises (45h) Practical tasks performed using data visualization platforms: 1. Data acquisition from various sources. 2. Data cleaning. 3. Combining data sources relationship, join, blending. 4. Creating measures and dimensions. 5. Creating interactive visualizations using filters, parameters. 6. Creating personalized forms of data visualization. 7. Creating interactive dashboards. 8. Creating and publishing business reports.		
	Prerequisites and co-requisites		
	Knowledge of the types and purposes of management information systems.		
	Assessment methods and criteria		
	Subject passing criteria	Passing threshold	Percentage of the final grade
	tasks performed during classes	70.0%	40.0%
	knowledge test	51.0%	20.0%
	final project	51.0%	40.0%
Recommended reading	Basic literature	1. Materials posted on the Educational Portal 2. Paradowski M., Wizualizacja danych dużo więcej, niż prezentacja, Materiały konferencji Wizualizacja wiedzy, Lublin 2011. 3. Buchnowska D., Systemy CRM i analityka biznesowa, [w:] Wrycza S., Maślankowski J. (red.), Informatyka ekonomiczna. Teoria i zastosowania, Wydanie II, PWN, Warszawa 2019 (rozdział 18)	
	Supplementary literature	1. GUS, Graficzna prezentacja danych statystycznych, Warszawa 2014, 2. Biecek P., Odkrywać! Ujawniać! Objaśniać! Zbiór esejów o sztuce prezentowania danych, Fundacja Naukowa SmarterPoland.pl Warszawa 2012	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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