

Subject card

Subject name and code	Advanced Methods for Data Visualisation and Reporting, PG_00157368						
Field of study	Informatics and Econometrics						
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 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	4		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Statistics -> Faculty of Management -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Arkadiusz Kozłowski				
	Teachers		dr Arkadiusz Kozłowski				
			mgr Katarzyna Raca				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	0.0	0.0	15
	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	15		5.0		10.0	30
Subject objectives	Learning the principles of creating a visual presentation of data. Acquiring the ability to create advanced charts and synthetic summarization of large data sets using various software.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[liEMU2_U08] The student can analyse business needs and, as appropriate, configure and apply modern information and communication technologies in business management and business communication.	Is able to install, configure and use modern information and telecommunications technologies, including Tableau and R.	[SU2] presentation/project/paper/report
	[liEMU2_U05] The student is able to make a statistical description of basic and detailed economic categories at an advanced level, formulate and verify hypotheses about their formation.	Is able to make statistical descriptions and visualize large data sets.	[SU2] presentation/project/paper/report
	[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.	Knows advanced methods of creating charts and data transformation in Tableau and R.	[SW2] presentation/project/paper/report
	[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 knows how gain knowledge about data visualization	[SK1] oral statement/conversation/discussion
	[liEMU2_W05] The student has an in-depth knowledge of socio-economic data sources, their databases and how to create them.	Has in-depth knowledge of the sources of socio-economic data. Can read data saved in various formats.	[SW2] presentation/project/paper/report
Subject contents	1. Graphical presentation and data processing in the R environment: - Rules for creating charts in the graphics package. Types of graphics windows. Graphic parameters (par). Export graphics to other formats. Lower and higher level graphical functions. - Statistical maps. - Creating graphics in the ggplot2 package. - Creating interactive web visualizations in the Shiny package.		
	1. Graphical presentation and data processing in Tableau. - Preparing data (Tableau Prep) - Creating interactive data visualizations (Tableau Desktop) - Creating dashboards and stories (Tableau Desktop)		
Prerequisites and co-requisites	Descriptive statistics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	project	51.0%	100.0%

Recommended reading	Basic literature	Few S., Information Dashboard Design: Displaying Data for at-a-glance Monitoring, Analytics Press, 2013. Tufte E. R., Visual explanations: images and quantities, evidence and narrative, Cheshire: Graphics Press, 2002. Wickham H., ggplot2: Elegant Graphics for Data Analysis, Springer, 2016. Wilkinson L., The grammar of graphics, Springer, 2005. Venables W. N., Smith D. M., R Core Team, An Introduction to R, cran.r-project.org. Claus O. Wilke, Podstawy wizualizacji danych. Zasady tworzenia atrakcyjnych wykresów, 2020.
	Supplementary literature	Sleeper R., Practical Tableau. 100 Tips, Tutorials, and Strategies from a Tableau Zen Master, 2018. Khan A., Jumpstart Tableau, A Step-By-Step Guide to Better Data Visualization, 2016. Jones B., Communicating Data with Tableau, 2014.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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