

Subject card

Subject name and code	Data mining, PG_00199390						
Field of study	Economics						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	academic	Assessment form			exam		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Tomasz Czuba				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	30.0	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		0.0		15.0	75
Subject objectives	To learn how to analyse data using different statistical methods. To search statistical methods for their verification.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[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 use basic computer programmes in the acquisition and analysis of data necessary for professional work.			[SU2] presentation/project/paper/report [SU6] demonstration of practical skills	
	[EKONMU2_K05] correctly identifies, diagnoses and solves advanced dilemmas and alternative solutions related to the profession		Students will be able to correctly interpret economic phenomena, correctly analyse the causes and course of economic processes.			[SK2] presentation/project/paper/report [SK5] implementation of a problem task	
	[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.		Students will learn to prepare speeches and oral presentations in Polish and English on selected topics.			[SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report [SW5] implementation of a problem task	

Subject contents	<p>1-2 Data mining as an analytical process Types of data resources, availability of data, methods of data aggregation, ways of combining data, programs used in the data mining process.</p> <p>3-6 The data mining process - Exploration. Data preparation. Data cleaning and transformation, selection of subsets of records pre-selection of variables (features). Reducing the number of analysed variables to a level that allows to perform the analysis efficiently.</p> <p>7-10 Data mining process - Model building and evaluation. Consideration of a variety of models, selection of the best one. Model evaluation criterion - quality of prediction (i.e. correctness of determining the value of the modelled variable and stability of results for different samples).</p> <p>11-14 Data mining process - Implementation and application of models. Applying for new data the models obtained and considered best. Deriving predicted values or classifications.</p> <p>15. Group presentations</p> <p>Deepens knowledge by solving problems outside of classes and consulting with the instructor.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Group presentations of data mining projects	100.0%	100.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. M. Lasek, Metody Data Mining w analizowaniu i prognozowaniu kondycji ekonomicznej przedsiębiorstw, Difin 2007. 2. D. Larose, Metody i modele eksploracji danych, PWN 2008 3. original studies by T. Czuba (distributed during classes) 4. own databases 	
	Supplementary literature	T. Hastie, R. Tibshirani, J. H. Friedman, <i>The elements of statistical learning: Data mining, inference, and prediction</i> . New York: Springer 2001.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> 1. Analysis of the structure of databases 2 Types of databases 3 Statistical methods in database analysis 		
Work placement	Not applicable		

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