University of Gdańsk

Subject card

Subject name and code	Data mining, PG_00119611		
Field of study	Economics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	Master's studies	Subject group	Obligatory subject group in the field of study Specialty subject group
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	2.0
Learning profile	academic	Assessment form	exam
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr Tomasz Czuba	
	Teachers	dr Tomasz Czuba	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	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	0.0	0.0	15

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_K05] correctly identifies, diagnoses and solves 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_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_W06] knowsin advanced stage statistical and econometric methods and tools for description and macro- and microeconomic modelling of economic structures and public institutions and processes occurring in 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

<table>
<tr><td>Subject contents</td><td>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.

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.

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).

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.

15. Group presentations</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Group presentations of data mining projects</td><td>100.0%</td><td>100.0%</td></tr>
</table>
</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>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</td></tr>
<tr><td>Supplementary literature</td><td>T. Hastie, R. Tibshirani, J. H. Friedman, The elements of statistical learning: Data mining, inference, and prediction. New York: Springer 2001.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table>
</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>1. Analysis of the structure of databases
2 Types of databases
3 Statistical methods in database analysis</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
</table>

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