

DESCRIPTION OF THE COURSE OF STUDY

Course code	0719-2ID-F46-UM	
Name of the course in	Polish	Uczenie maszynowe
	English	Machine learning

1. LOCATION OF THE COURSE OF STUDY within the system of studies

1.1. Field of study	Data engineering
1.2. Mode of study	full-time
1.3. Level of study	first-cycle degree
1.4. Profile of study*	general academic
1.5. Person/s preparing the course description	Agnieszka Łysak
1.6. Contact	agnieszka.lysak@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE course of study

2.1. Language of instruction	polish
2.2. Prerequisites*	Basics of Mathematics Basics of Neural Networks

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	lectures, classes	
3.2. Place of classes	classes held in a teaching room at UJK	
3.3. Form of assessment	lectures – exam laboratory classes – graded credit	
3.4. Teaching methods	lecture using the interactive teaching method classes using problem-based learning	
3.5. Bibliography	Required reading	1. Mitchell, T. M. (1997). Machine learning (Vol. 1). McGraw-hill New York
	Further reading	2. Flasiński M. (2011). Wstęp do sztucznej inteligencji. Wydawnictwo Naukowe PWN Warszawa 3. Sutton, R. S., Barto, A. G. (2020). Reinforcement Learning: An Introduction. The MIT Press

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1.	Course objectives (including form of classes) C1. Lecture: Introduction to the basic methods of supervised, unsupervised, and reinforcement machine learning. C2. Classes: Acquiring skills in applying machine learning methods to problems of data processing, classification, regression, clustering, and control.
4.2.	Detailed syllabus (including form of classes) Lecture: Preliminary data analysis and processing. Supervised learning. Decision trees. Artificial neural networks. Classification and regression problems. Unsupervised learning. Clustering analysis. Reinforcement learning. Control. Optimization. Performance evaluation. Laboratory classes: Practical application of the machine learning methods discussed in the lecture on selected examples of real data sets. Project: Students (in teams) carry out a project / task of low or medium complexity.

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
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within the scope of KNOWLEDGE:		
W01	Knows machine learning methods	ID1A_W06 ID1A_W07
within the scope of ABILITIES:		
U01	Is able to apply machine learning methods to practical problems	ID1A_U08 ID1A_U09
within the scope of SOCIAL COMPETENCE:		
K01	Is aware of the role of an engineer in providing society with competent information in the field of machine learning	ID1A_K03

4.4. Methods of assessment of the intended learning outcomes																		
Teaching outcomes (code)	Method of assessment (+/-)																	
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*		
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes		
	L	C	P	L	C	P	L	C	P	L	C	P	L	C	P	L	C	P
W01	+									+								
U01					+				+					+				+
K01									+									+

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes		
Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	Achievement of <50-60% of the requirements applied in the assessment methods
	3,5	Achievement of <60 - 70) % of the requirements applied in the assessment methods
	4	Achievement of <70 - 80) % of the requirements applied in the assessment methods
	4,5	Achievement of <80 - 90) % of the requirements applied in the assessment methods
	5	Achievement of <90 - 100) % of the requirements applied in the assessment methods
classes (C)* (including e-learning)	3	Achievement of <50 - 60) % of the requirements applied in the assessment methods
	3,5	Achievement of <60 - 70) % of the requirements applied in the assessment methods
	4	Achievement of <70 - 80) % of the requirements applied in the assessment methods
	4,5	Achievement of <80 - 90) % of the requirements applied in the assessment methods
	5	Achievement of <90 - 100) % of the requirements applied in the assessment methods
project (P)* (including e-learning)	3	Achievement of <50 - 60) % of the requirements applied in the assessment methods
	3,5	Achievement of <60 - 70) % of the requirements applied in the assessment methods
	4	Achievement of <70 - 80) % of the requirements applied in the assessment methods
	4,5	Achievement of <80 - 90) % of the requirements applied in the assessment methods
	5	Achievement of <90 - 100) % of the requirements applied in the assessment methods

5. BALANCE OF ECTS CREDITS - STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	75	
Participation in lectures*	30	
Participation in classes, seminars, laboratories*	30	
Others: project	15	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	50	
Preparation for the lecture*	10	
Preparation for the classes, seminars, laboratories*	10	
Preparation for the exam/test*	10	
Gathering materials for the project*	20	
TOTAL NUMBER OF HOURS	125	
ECTS credits for the course of study	5	

*delete as appropriate

Accepted for execution *(date and legible signatures of the teachers running the course in the given academic year)*

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