

**AGH**AGH UNIVERSITY OF SCIENCE
AND TECHNOLOGY

Module name: Data mining

Academic year: 2015/2016 Code: BIT-1-706-s ECTS credits: 3

Faculty of: Geology, Geophysics and Environmental Protection

Field of study: Applied Computer Science Specialty: —

Study level: First-cycle studies Form and type of study: Full-time studies

Lecture language: English Profile of education: Academic (A) Semester: 7

Course homepage: —

Responsible teacher: prof. dr hab. inż. Walanus Adam (a@adamwalanus.pl)

Academic teachers: dr inż. Chuchro Monika (chuchro@geol.agh.edu.pl)

Description of learning outcomes for module

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Connections with FLO	Method of learning outcomes verification (form of completion)
Social competence			
M_K001	Potrafi zbadać jakość danych	IT1A_K04, IT1A_K01	Activity during classes
Skills			
M_U001	Potrafi wykonać regresję w MS Excel, Matlab i Statistica	IT1A_U01, IT1A_U16, IT1A_U14, IT1A_U02	Activity during classes
Knowledge			
M_W001	Zna podstawy statystyki	IT1A_W01	Activity during classes
M_W002	Potrafi obliczyć i zinterpretować statystyki jednej zmiennej	IT1A_W01	Activity during classes
M_W003	Potrafi zinterpretować macierz korelacji	IT1A_U01, IT1A_U07, IT1A_U06, IT1A_U02	Activity during classes

FLO matrix in relation to forms of classes

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Form of classes										
		Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Others	E-learning
Social competence												
M_K001	Potrafi zbadać jakość danych	-	-	-	-	-	-	+	-	-	-	-
Skills												
M_U001	Potrafi wykonać regresję w MS Excel, Matlab i Statistica	+	-	-	-	-	-	+	-	-	-	-
Knowledge												
M_W001	Zna podstawy statystyki	+	-	-	-	-	-	+	-	-	-	-
M_W002	Potrafi obliczyć i zinterpretować statystyki jednej zmiennej	+	-	-	-	-	-	+	-	-	-	-
M_W003	Potrafi zinterpretować macierz korelacji	+	-	-	-	-	-	+	-	-	-	-

Module content

Lectures

1. Variables, experimental data, measurements, scales, dependent vs. independent variables
2. Relations between variables
3. Statistical significance of results (p-value)
4. Normal distribution and other probability distributions
5. Basic statistics
6. Regression
7. Classification
8. Multivariate analysis
9. Data quality, data clearing, transformations
10. Multidimensional scaling
11. Machine Learning
12. Data mining in industrial engineering

Practical classes

1. Variables, experimental data, measurements, scales, dependent vs. independent variables
2. Relations between variables
3. Statistical significance of results (p-value)
4. Normal distribution and other probability distributions
5. Basic statistics
6. Regression
7. Classification

8. Multivariate analysis
9. Data quality, data clearing, transformations
10. Multidimensional scaling
11. Machine Learning
12. Data mining in industrial engineering

Method of calculating the final grade

Średnia z ocen zdobywanych w trakcie ćwiczeń

Prerequisites and additional requirements

Znajomość metod numerycznych i elementów programowania

Recommended literature and teaching resources

WWW, MS Excel, Statistica

Scientific publications of module course instructors related to the topic of the module

Additional scientific publications not specified

Additional information

udział „praktycznych” punktów ECTS: 2

udział „teoretycznych” punktów ECTS: 1

Student workload (ECTS credits balance)

Student activity form	Student workload
Participation in lectures	15 h
Realization of independently performed tasks	15 h
Participation in practical classes	30 h
Preparation for classes	30 h
Summary student workload	90 h
Module ECTS credits	3 ECTS