

DESCRIPTION OF THE COURSE OF STUDY

Course code	0532.6.GEO1.D.GGF	
Name of the course in	Polish	<i>GIS w geografii fizycznej</i>
	English	<i>GIS in Physical Geography</i>

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	Geography
1.2. Mode of study	stationary / extramural
1.3. Level of study	First - Bachelor's Degree
1.4. Profile of study*	general academic
1.5. Person/s preparing the course description	Grzegorz Walek PhD
1.6. Contact	grzegorz.walek@ujk.edu.pl, tel. 41-349-64-09

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	Polish
2.2. Prerequisites*	Basic GIS knowledge

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	Classes	
3.2. Place of classes	Classes in the classrooms of the Jan Kochanowski University	
3.3. Form of assessment	Credit with grade	
3.4. Teaching methods	With the use of a computer: blended learning (work with the software with the support of the teacher, tasks to be solved), demonstration, discussion.	
3.5. Bibliography	Required reading	De Smith M.J., Goodchikd M.F., Longley P.A., 2018, Geospatial Analysis, a Comprehensive Guide to Principles, Techniques and Software. 6th Edition. Urbański J., 2008, GIS w badaniach przyrodniczych. Wyd. UG, Gdańsk Wężyk P., red., 2015, Podręcznik dla uczestników szkoleń z wykorzystania produktów LiDAR, Wyd. 2., Warszawa.
	Further reading	Magnuszewski A., 1999, GIS w geografii fizycznej. PWN, W-wa. Szczepanek R., 2017, Systemy informacji przestrzennej z QGIS: podręcznik akademicki. Cz. 1 i 2. Wydawnictwo PK, Kraków. Cimmery V., 2018, User Guide for SAGA (version 5.0)

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1. Course objectives (including form of classes)
C1 - gaining advanced knowledge about geographic information systems and the possibilities of their application in physical geography C2 - equipping students with practical skills enabling the use of geographic information systems in research on the natural environment C3- learning to use selected geoinformation programs enabling computer modeling of geographic data in order to conduct advanced environmental analyzes
4.2. Detailed syllabus (including form of classes)
Classes Raster and vector data models and their applications in physical geography. Digital altitude model (CMW) in the analysis of processes taking place in the natural environment. Generation and application of numerical terrain models (DTM) in physical geography. The use of GIS in hydrological and geomorphological research. GIS and digital satellite images. The use of GIS and comparative mapping in the analysis of changes in forest cover and surface water networks over time. Digital spatial databases describing the components of the natural environment.

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE:		
W01	knows research methods, including data acquisition techniques, applied in the field of physical geography with the use of geographic information systems	GEO1A_W01

W02	has knowledge of GIS, knowledge of data types and software that allows for their analysis in order to model and study phenomena occurring in the natural environment	GEO1A_W06
W03	interprets natural phenomena and processes in the spatial and temporal system with the use of GIS	GEO1A_W04
w zakresie UMIEJĘTNOŚCI:		
U01	uses correctly selected software and appropriate data models in order to correctly study phenomena occurring in nature	GEO1A_U01
U02	uses available information sources in the form of text, cartographic and statistical information, both in analog and electronic form, in the field of physical geography	GEO1A_U03
U03	analyzes problems related to the natural environment and finds solutions to them using selected methods of spatial analysis in GIS	GEO1A_U08
w zakresie KOMPETENCJI SPOŁECZNYCH:		
K01	is responsible for the entrusted equipment, the safety of his own and others' work, as well as for the implementation of undertaken tasks	GEO1A_K01
K02	is aware of the role of GIS and digital spatial data in analyzes of the natural environment	GEO1A_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*			Others* e.g. standardized test used in e-learning		
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes		
	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...
W01					X																
W02					X																
W03					X									X							
U01														X							
U02														X							
U03					X									X							
K01											X			X							
K02											X										

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes		
Form of classes	Grade	Criterion of assessment
classes (C)* (including e-learning)	3	Student defines the basic concepts of data models in GIS. Lists the most popular types of digital elevation models (DEMs). Identifies, on the basis of the properties of the layers, the data presentation model with which they were made. Describes the use of GIS in physical geography.
	3,5	As above, and also gives examples of spatial data sources necessary for the analysis of the natural environment. It presents the most popular types of GIS software and the possibilities of its application to specific tasks in physical geography. Explains the use of the digital elevation models in the analysis of the geographical environment. Describes the possibilities of using satellite images and historical maps in the analysis of the geographical environment with the use of GIS
	4	As above, and moreover, he analyzes the digital elevation models, satellite images and archival cartographic materials in terms of their suitability for specific research purposes. Uses the functionality of the GIS software to create numerical terrain models from the DEMs. Categorizes the capabilities of GIS software in terms of its application in physical geography.
	4,5	As above, and moreover, it organizes the correct GIS database necessary to carry out advanced spatial analyzes. Generates result maps. Plans stages of research work in the field of physical geography, using GIS techniques.
	5	As above, and moreover, it critically evaluates the available data and source materials in terms of their application in physical geography with the use of GIS. It justifies the need to conduct specific GIS analyzes in order to solve the research problem. Correctly interprets the results of spatial analyzes. Estimates errors in the conducted spatial analyzes.

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/	15	7
<i>Participation in lectures*</i>		
<i>Participation in classes, seminars, laboratories*</i>	15	7
<i>Preparation in the exam/ final test*</i>		
<i>Others (please specify e.g. e-learning)*</i>		
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	35	43
<i>Preparation for the lecture*</i>		
<i>Preparation for the classes, seminars, laboratories*</i>	20	25
<i>Preparation for the exam/test*</i>	10	10
<i>Gathering materials for the project/Internet query*</i>	5	8
<i>Preparation of multimedia presentation</i>		
<i>Others *</i>		
TOTAL NUMBER OF HOURS	50	50
ECTS credits for the course of study	2	2

**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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