University of Gdańsk

Subject card

Subject name and code	GIS and Remote Sensing II - laboratory, PG_00204491						
Field of study	Geography						
Date of commencement of studies	October 2027		Academic year of realisation of subject	2028/2029			
Education level	Bachelor's studies		Subject group	Obligatory subject group in the field of study 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	2		Language of instruction	Polish			
Semester of study	3		ECTS credits	2.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Geographic Information System (GIS) Laboratory -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Maciej Markowski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	20.0	0.0	0.0	20
	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	20		2.0	28.0	50	
Subject objectives	- Familiarization with the capabilities and practical applications of GIS - Learning the principles of cartographic image composition - Understanding selected methods of graphic analysis - Ability to analyze geographic data using GIS - Presentation of results, map composition, and printing - Proficiency in GIS software						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GEOGRL3-U04] can apply field and laboratory methods and research tools, spatial analysis methods, and methods of presenting research results in the field of geography, assess their usefulness for tasks in which the application goal of geography can be realized	The student applies spatial analysis methods and data visualization tools to effectively present GIS research results and evaluates their usefulness in addressing spatial problems.	[SU5] implementation of a problem task
[GEOGRL3-W06] knows advanced methods of acquiring, processing, and compiling geographic environmental data, as well as methods of analyzing and interpreting such data	The student independently acquires, processes, and analyzes spatial data in a GIS environment, creating databases using both spatial and non-spatial data and applying various metadata formats.	[SW4] test/exam - oral or written
[GEOGRL3-K02] is prepared to bear full responsibility for the actions taken actions and adhere to the principles of professional ethics and principles of intellectual honesty, is aware of the importance of a professional approach in professional life professional life	The student ensures the transparency of the research process by documenting data sources and methodology (metadata), thereby guaranteeing the reproducibility and integrity of the presented cartographic results.	[SK5] implementation of a problem task
[GEOGRL3-U03] can plan and conduct, independently and as part of a team, simple research in the field of geography under the supervision of a scientific advisor, based on the necessary information from professional literature and other sources	The student can plan and conduct GIS analyses based on diverse spatial data sources, both individually and collaboratively in a team.	[SU5] implementation of a problem task

Subject contents

B.6 Georectification of raster and vector sources
B.7 Importing and processing data in various formats
B.8 Exploration and analysis of spatial data
B.9 Modeling vector data in interpolation
B.10 Digital Elevation Model (DEM) analysis
B.11. GIS in Open-Source Software

Prerequisites and co-requisites

Completion of the course GIS and Remote Sensing I

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
practical and theoretical exercises	51.0%	60.0%
test	51.0%	40.0%

Recommended reading

Basic literature

- Davis D., 2004, GIS dla każdego, Wydawnictwo Mikom, Warszawa.
- Gotlib D., Iwaniak A., Olszewski R., 2007. GIS. Obszary zastosowań. PWN Warszawa.
- Urbański J., 2012, GIS w badaniach przyrodniczych (ebook), Centrum GIS, Uniwersytet Gdański.
- Głażewski A., Kałamucki K., Kowalski P.J., Stankiewicz M., 2015, Podstawy wizualizacji kartograficznej. Wydawnictwo UMCS, Lublin.

Supplementary literature

- Tomlinson R., Thinking about GIS, 2013, Esri Press.
- Zwoliński Z. (red.), 2010, GIS woda w środowisku. Bogucki Wydawnictwo Naukowe, Poznań.
- Markowski M., Golus W., Kwidzińska M., 2015, Aplikacyjność metod oceny wielkości opadów zasilających oczka Pomorza Gdańskiego [w:] D. Absalon, M. Matysik, M. Ruman [red.] Nowoczesne metody i rozwiązania w hydrologii i gospodarce wodnej, Komisja Hydrologiczna Polskiego Towarzystwa Geograficznego, Sosnowiec, s. 287-298.
- Bajkiewicz-Grabowska E., Markowski M., Lemańczyk K., 2016, Application of geoinformation techniques to determine zones of sediment resuspension induced by wind waves in lakes (using two lakes from Northern Poland as examples), Limnological Review 1/2016.

eResources addresses

Example issues/ example questions/ tasks being completed	• What does the process of georeferencing raster and vector data involve, and for what purpose is it performed? • What are the basic stages of importing and processing spatial data in different formats? • What types of analyses can be performed using a Digital Elevation Model (DEM), and what are they used for?
Work placement	Not applicable

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