University of Gdańsk

Subject card

Subject name and code	GIS - laboratory, PG_00201710						
Field of study	Oceanography						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2026/2027			
Education level	Master's studies		Subject group	Obligatory subject group in the field of study Optional 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	credit			
Conducting unit	Geographic Information System (GIS) Laboratory -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	mgr Zbigniew Trusewicz					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	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	30		2.0		18.0	50
Subject objectives	Utilization of Geographic Information Systems (GIS) in oceanography for processing, visualization, and analysis of spatial data with a particular focus on environmental issues.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANMU2-U06] is able to use specialized computer software as well as advanced mathematical and statistical methods to analyze data and describe processes and phenomena occurring in the marine and coastal environment; evaluates their reliability and usefulness and performs critical analysis	The student is able to use specialized GIS software and mathematical and statistical methods to analyze spatial data concerning phenomena and processes occurring in the natural environment. Contents: B.1-B.9.	[SU4] test/exam - oral or written
[OCEANMU2-U05] is able to use source information in Polish and a chosen foreign language, including archival and electronic databases, within the field of oceanography; critically analyzes and synthesizes information, and is capable of performing critical interpretation and synthesis of data	The student can utilize information from various sources, such as literature and electronic databases. Contents: B.1-B.9.	[SU5] implementation of a problem task
[OCEANMU2-U04] is ready to develop in an analytical and synthetic way research and analysis results and based on them creating conclusions	The student is able to analytically and synthetically process research results and spatial analyses using GIS. Contents: B.1-B.9.	[SU4] test/exam - oral or written
[OCEANMU2-W05] knows and understands the principles of planning and conducting field and laboratory research as well as advanced methods and tools of scientific research, especially in the field of the studied specialty	The student knows and understands advanced techniques, research methods, and geoinformatics tools used in oceanography to describe and interpret phenomena and processes occurring in the aquatic environment, relevant to their field of study. Contents: B.1-B.9.	[SW4] test/exam - oral or written
[OCEANMU2-K03] is ready to effectively organize his/her own work, is active and persistent and punctuality in completing tasks, is ready to carrying out evaluation of their own activities	The student is prepared for effective self-organization of their work, demonstrates activity, persistence, and punctuality in task completion, is self-critical, and draws conclusions based on self-analysis. Contents: B.1-B.9.	[SK5] implementation of a problem task

Subject contents

B1. Advanced symbolization techniques including labeling procedures.
B2. Data processing in the context of modifying cartographic projections.
B3. Concept and creation of geodatabases.
B4. Remote sensing methods for environmental monitoring.
B5. Using DEM and DSM to identify areas meeting selected input criteria - "case study."
B6. Application of interpolation techniques for mapping based on point data.
B7. 2D and 3D modeling of geospatial data.
B8. Vector modeling using geospatial analysis tools.
B9. Raster modeling using geospatial analysis tools.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Completion of a problem-based task	51.0%	60.0%
Test	51.0%	40.0%

Recommended reading

Basic literature

- GIS w badaniach przyrodniczych, J. Urbański, 2008, Wydawnictwo UG.

- Davis D., 2004, GIS dla każdego, Wydawnictwo Mikom, Warszawa.

- Medyńska-Gulij B., 2024, Kartografia - geomatycznie i geomedialnie, Wydawnictwo Naukowe PWN, Warszawa,

	Supplementary literature	- Wright D.J., Blongewicz, Halpin P.N., Breman J., 2007, Arc Marine. GIS for a Blue Planet, ESRI Press - Wright D. J.,(ed.),2002, Undersea with GIS, ESRI Press. - Urbański J., 2001 Modelowanie kartograficzne w strefie brzegowej morza. Wyd. UG, Gdańsk.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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