

Subject card

Subject name and code	Geographical information systems, PG_00154331						
Field of study	Natural Resources Conservation						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		3.0		
Learning profile	academic		Assessment form				
Conducting unit	Katedra Taksonomii Roślin i Ochrony Przyrody -> Faculty of Biology -> Rektor						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Magdalena Lazarus				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	0.0	45
	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	45		4.0		26.0	75
Subject objectives	Familiarization with Geographic Information Systems (GIS) and the possibilities of their practical use in the work of a naturalist. Acquiring the ability to solve basic problems in the field of spatial analysis. Acquiring skills in working with a GPS receiver.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OZPL3_W10] The graduate possesses a comprehensive understanding of current issues in protection of natural resources and related fields	The student presents and describes contemporary problems in biology and disciplines related such as cartography and computer science.	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
	[OZPL3_U07] The graduate is able to draw correct conclusions on the basis of analysis and synthesis of data from various sources	The student analyzes and synthesizes data from various sources (botanical, zoological, habitat properties, distribution of protected areas data) and draws appropriate conclusions on this basis.	[SU1] oral statement/conversation/ discussion [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[OZPL3_U05] The graduate is able to apply basic statistical methods and computer techniques and tools to describe phenomena and analyse biological data	The student applies basic statistical methods and IT techniques such as map algebra, data interpolation methods to describe phenomena and analyze biological data.	[SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[OZPL3_K07] The graduate is prepared to demonstrate responsibility for the equipment/ materials entrusted and respects the work of others	The student is responsible for the entrusted equipment/materials (computer, GPS device).	[SK6] demonstration of practical skills [SK8] observation of student's independent or team work
	[OZPL3_W12] The graduate possesses knowledge of statistical methods and IT tools relevant to the field of study.	The student has knowledge of the use of IT tools for introducing, collecting, processing and visualizing nature spatial data.	[SW5] implementation of a problem task
	[OZPL3_U03] The graduate is able to search for and use available sources of biological information, including electronic sources, and critically analyse them	The student searches for and uses available sources of biological information, including electronic databases and critically analyzes them.	[SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[OZPL3_K01] The graduate is ready to recognise the limitations in his/her own knowledge and understands the need for continuous learning and development	The student knows the limits of their own knowledge and understands the need for constant learning and development.	[SK1] oral statement/conversation/ discussion [SK8] observation of student's independent or team work
Subject contents	Tools for analyzing spatial data and preparing maps in QGIS and ArcGIS. Creating vector layers and editing them. Display and symbolization of objects. Map elements and their functions. Toolbox as a source of data analysis tools. Spatial data sources. Basic tools for working with raster data. Working with a GPS device.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Practical assessment (QGIS)	51.0%	50.0%
	Practical assessment (ArcGIS)	51.0%	50.0%
Recommended reading	Basic literature	Urbański J. 2008. GIS w badaniach przyrodniczych. Wyd. UG. Gdańsk.	
	Supplementary literature	Longley P.A., Goodchild M.F., Maguire D.J., Rhind D.W. 2008. GIS Teoria i praktyka. PWN, WarszawaManikowska-Słepowrońska B., Lazarus M., Żółkoś K., Jakubas D. 2016. Influence of landscape features on the location of grey heron Ardea cinerea colonies in Poland. Comptes Rendus Biologies 339(11-12).Paślawski J. 2010. Wprowadzenie do kartografii i topografii. Wyd. Nowa Era, Warszawa.Urbański J. 1997. Zrozumieć GIS. Analiza informacji przestrzennej. PWN, Warszawa.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1. Prepare the map according to the given example. 2. Calculate the area of protected areas in the Pomeranian Voivodeship.		
Work placement	Not applicable		

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