University of Gdańsk

Subject card

Subject name and code	Advanced GIS, PG_00201361		
Field of study	Spatial Management		
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 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	2	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr Grzegorz Masik	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	30.0	0.0	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	4.0	16.0	50

Subject objectives

Acquire skills in conducting socio-economic and environmental analyses using GIS software and IT tools. Properly present statistical data on thematic and physiogeographic maps.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GPMU2_W04] lists in-depth methods and tools (quantitative, qualitative, cartographic) of research in spatial management	Has advanced knowledge of cartographic methods and GIS tools used in spatial analyses.	[SW5] implementation of a problem task
[GPMU2_U03] chooses and uses appropriate methods (including statistics) and research tools with particular emphasis on information technology and GIS software	Is able to proficiently select appropriate methods and tools to present quantitative and qualitative data in a spatial perspective, in particular is able to create extensive choropleth maps and cartodiagrams.	[SU5] implementation of a problem task
[GPMU2_K01] is ready to critically assess the possessed knowledge and received content	Possesses the ability to critically select and apply appropriate methods to analyze the effects of socio-economic and environmental phenomena occurring in space using GIS tools.	[SK5] implementation of a problem task

Subject contents

Application of GIS methods and tools to present quantitative and qualitative data in a spatial manner and to conduct in-depth socio-economic and environmental analyses.

Prerequisites and co-requisites

knowledge of the basics of cartographic data presentation

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Number of completed projects	51.0%	100.0%

Recommended reading		
	Basic literature	Iwańczak B., 2020, QGIS 3.14. Map creation and analysis, Helion Publishing House. Statistical maps. Data studies and presentation, 2019, Central Statistical Office, Warsaw. Szczepanek R., 2017. Spatial information systems with QGIS. PK Publishing House, Kraków. Masik G., 2017. Differences in the standard of living in the Pomeranian Voivodeship (in:): The demographic situation of the Pomeranian Voivodeship as a challenge for social and economic policy / Hrynkiewicz Józefina, Potrykowska Alina (ed.), vol. 14, Warsaw, Government Population Council, p. .218-239, ISBN 978-83-7027-659-1 Medyńska-Gulij B., 2017, Kartografia zasady i zastosowania geowizualizacji, Wydawnictwo Naukowe PWN, Warszawa. Rock A., Malhoski R., 2018, Mapping with ArcGIS Pro, Packt Publishing, Birmingham. Corbin T., 2018, ArcGIS Pro 2. x Cookbook: Create, Manage, and Share Geographic Maps, Data, and Analytical Models Using ArcGIS Pro, (1st ed.), Packt Publishing, Limited, Birmingham. Jażdżewska I., Lechowski Ł., 2018, Wstęp do geoinformacji z ArcGIS, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.
	Supplementary literature	Ballas, D., Clarke, G., Franklin, R., & Newing, A. (2017). GIS and the Social Sciences. Taylor & Francis Slocum, T. A., McMaster, R. B., Kessler, F. C., & Howard, H. (2022). Thematic Cartography and Geovisualization (4th ed.). Taylor & Francis. Peterson, G. N. (2020). GIS Cartography (3rd ed.). Taylor & Francis. Iwaniak A., Olszewski R., Gotlib D., 2008. GIS. Areas of application. PWN Scientific Publishing House, Warsaw. Kunz M. (ed.), 2007. Geographic Information Systems in practice. Application study. Nicolaus Copernicus University Publishing House, Toruń. Graser A., 2018, QGIS: becoming a gis power user: Master data management, visualization, and spatial analysis techniques in QGIS and become a GIS power user, (1st edition), Packt Publishing, Birmingham. Medyńska-Gulij B., 2021, Kartografia i Geomedia, Wydawnictwo Naukowe PWN, Warszawa.
	eResources addresses	

Example issues/ example questions/ tasks being completed	Presentation of socio-economic phenomena using cartographic methods, including choropleth maps and cartograms. Analysis of the percentage of the urban population with the most favorable access to their chosen means of transportation. Conducting a spatial analysis of the diversity and structure of land cover.
Work placement	Not applicable

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