

Subject card

Subject name and code	Historical GIS - laboratory, PG_00193826						
Field of study	Geography						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2027/2028		
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 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	15.0	0.0	0.0	15
	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	15		5.0		30.0	50
Subject objectives	The aim of the course is to prepare students for independent work with historical data in a GIS environment, including data acquisition, digitization, calibration, and analysis of spatial information from various sources. Students will learn to integrate cartographic and non-cartographic data, create multi-temporal databases of administrative units, and analyze demographic changes, land use, urban morphology, and transport networks from a historical perspective. The course emphasizes both quantitative and qualitative data analysis and effective presentation of research results through geovisualization.						

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 geovisualization tools to effectively present HGIS research results and evaluates their usefulness in addressing spatial problems.	[SU4] test/exam - oral or written [SU5] 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 HGIS research based on diverse historical data sources, both cartographic and non-cartographic, working individually or in a team.	[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 historical data, including creating multi-temporal databases and applying methods for analyzing changes in land use, demographics, transport networks, and urban morphology.	[SW4] test/exam - oral or written [SW5] implementation of a problem task
	[GEOGRL3-W02] knows and understands key concepts and theories in geography, as well as advanced processes and phenomena related to spatial diversity and the distribution of processes and phenomena on the Earth's surface at various spatial scales, particularly in Poland	The student understands and applies key concepts and theories in historical GIS and geography, including the analysis of spatial processes and phenomena from a historical perspective.	[SW5] implementation of a problem task
Subject contents	1. Data sources in HGIS: from archives to GIS layers non-cartographic and cartographic data sources 2. Georeferencing and advanced calibration of archival materials 3. Design and implementation of multi-temporal databases of administrative units 4. Historical spatial demography statistical cartography and issues of data comparability 5. Analysis of land use and land cover (LULC) changes and landscape transformation 6. HGIS in the analysis of urban morphology and historical transport networks 7. Historical geovisualization and synthesis of HGIS analyses		
Prerequisites and co-requisites	Completion of the course: GIS and Remote Sensing I lecture and practical exercises		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	51.0%	35.0%
	practical exercises	51.0%	65.0%
Recommended reading	Basic literature	- Gregory, I. N., Ell, P., 2008, Historical GIS: Technologies, Methodologies, and Scholarship. Cambridge University Press, Cambridge, UK. - Tyszkiewicz J., 2014, Geografia historyczna: zarys problematyki. Warszawa: Wydawnictwo DiG. - Woźniak, M., 2023, Mapowanie przeszłości. Systemy Informacji Geograficznej (GIS) a badanie przeszłości, Res Historica, nr 56, Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, Lublin. - Affek, A., 2012, Kalibracja map historycznych z zastosowaniem GIS. Prace Komisji Krajobrazu Kulturowego, Tom 16.	
	Supplementary literature	- Szady B., 2013, Czasowo-przestrzenne bazy danych jako narzędzie w geografii historycznej (Spatio-temporal databases as a tool for historical geography), Acta Universitatis Lodzensis, Folia Geographica Socio-oconomica, Vol 14, pp. 1732. - Panecki T., 2015: Modelowanie obiektów topograficznych w bazach danych historycznych (Modelling of topographic objects in historical databases), Acta Universitatis Lodzensis, Folia Geographica Socio-oconomica, Vol 21, pp. 3751.	
	eResources addresses	Supplementary https://ihgis.ipums.org/ - An online database providing standardized statistical tables from historical population and agricultural censuses from various countries around the world, along with associated GIS boundary files, which can be used for spatial analyses and temporal demographic comparisons. https://wol.mirabilium.dlibra.pslnc.pl/ - An interactive online platform that allows users to browse and analyze maps in a spatio-temporal context, combining historical geographic data with current information within a single environment.	

Example issues/ example questions/ tasks being completed	1. How can the spatial accuracy of historical maps be assessed before importing them into a GIS database? 2. What problems may arise when integrating data from different time periods?
Work placement	Not applicable

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