University of Gdańsk

Subject card

Subject name and code	Historical GIS - laboratory, PG_00193826		
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	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-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
[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-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-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

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
practical exercises	51.0%	65.0%
test	51.0%	35.0%

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 CurieSkłodowskiej, 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 Lodziensis, Folia Geographica Socio-oeconomica, Vol 14, pp. 1732. • Panecki T., 2015: Modelowanie obiektów topograficznych w bazach danych historycznych (Modelling of topographic objects in historical databases), Acta Universitatis Lodziensis, Folia Geographica Socio-oeconomica, Vol 21, pp. 3751.
eResources addresses	

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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