University of Gdańsk

Subject card

Subject name and code	Advanced GIS in socio-economic geography A, PG_00202210		
Field of study	Socio-economic geography with elements of GIS		
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	5.0
Learning profile	academic	Assessment form	credit
Conducting unit	Division of Socio-Economic Geography -> Institute of Socio-Economic Geography and Spatial Management -> Faculty of Social Sciences -> Rector		
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	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	8.0	72.0	125

Subject objectives
Acquiring the ability to conduct advanced spatial socio-economic analyzes using a GIS program Acquiring the ability to perform statistical analyzes using a GIS program Correct presentation of spatial data on thematic maps

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GSEMU2_K01] is ready to critically assess knowledge and received content in the field of socio-economic geography and Geographic Information Systems	verifies and critically evaluates the analyzed i presented issues arising from the use of GIS tools	[SK8] observation of student's independent or team work
[GSEMU2_W04] recognises in-depth methods and tools (quantitative, qualitative, cartographic) of research in socio-economic geography	knows and understands methods to an in-depth level cartographic presentation of spatial data	[SW1] oral statement/ conversation/discussion
[GSEMU2_U04] adapts existing research tools and methods to solve complex and unusual problems occurring in the anthropogenic environment	adapts research methods and tools from the GIS environment in order to perform spatial analyzes of real estate, commercial and service establishments and other types of facilities	[SU5] implementation of a problem task
[GSEMU2_U03] selects and applies appropriate social research methods (including statistical and cartographic ones) and research tools with particular emphasis on information technologies and GIS software	selects and uses appropriate methods and tools GIS software to present population, economic and communication	[SU5] implementation of a problem task
[GSEMU2_U02] properly selects sources and information derived from them, with particular regard to sources of spatial information; evaluatesthem critically and interpret them creatively	properly selects spatial data sources, imports data from the Central Statistical Office and GUGiK into the GIS environment program and critically evaluates them	[SU5] implementation of a problem task

Subject contents

B. Issues on classes: B.1 The use of GIS in the study of real estate losses caused by a natural disaster B.2 Searching for the best location for commercial and service outlets and other types of facilities B.3 Connecting databases to the program from the GIS environment. B.4 Creating cartograms and cartodiagrams of population and economic issues. B.5 Visualization of travel time to urban centers B.6 Selected methods of automating the processing and analysis of spatial data (e.g. Model Builder). B.7 Internet sources of spatial data and methods of obtaining them. B.8 Network analyses on the example of public transport networks B.9 Transport accessibility analyses using available tools in GIS programs B.10. Raster analyses, including those using satellite images B.11 Geostatistical analyses

Prerequisites and co-requisites

knowledge of the basics of cartographic data presentation, ability to perform simple statistical analyses, knowledge of English at an intermediate level

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
One point for each completed project	51.0%	100.0%

Recommended reading

Basic literature

Iwańczak B., 2020, QGIS 3.14. Map creation and analysis, Helion Publishing House.

Pieniążek M., Zych M., 2017. Statistical maps. Data preparation and presentation. 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

	Supplementary literature	Ballas D., Clarke G., Franklin R., Newing A., 2017, GIS and the Social Sciences, Taylor & Francis, London New York. Keranen, Kathryn, and Lyn Malone. Instructional Guide for the ArcGIS Imagery Book. Esri Press, 2017. Cliquet, Gérard, ed. Geomarketing: Methods and strategies in spatial marketing. John Wiley & Sons, 2013. Bolstad P., 2016. GIS Fundamentals: A First Text on Geographic Information Systems. Fifth Edition, New York Iwaniak A.,Olszewski R., Gotlib D., 2008. GIS. Areas of application. PWN Scientific Publishing House, Warsaw
	eResources addresses	
Example issues/ example questions/ tasks being completed	Make any cartogram and cartodiagram presenting socio-economic phenomena. Make an isochron map. Indicate the best location for a youth center. Calculate spatial autocorrelation based on available indicators for counties. Use Model Builder to automate any process using tools from the Spatial Analysis Tools box.	
Work placement	Not applicable	

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