

## Subject card

|                                             |                                                                                                                                              |                                                          |                                         |                                     |                                                                                   |            |     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Advanced GIS in socio-economic geography A, PG_00149819                                                                                      |                                                          |                                         |                                     |                                                                                   |            |     |
| Field of study                              | Socio-economic geography with elements of GIS                                                                                                |                                                          |                                         |                                     |                                                                                   |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                 |                                                          | Academic year of realisation of subject |                                     | 2025/2026                                                                         |            |     |
| Education level                             | Master's studies                                                                                                                             |                                                          | Subject group                           |                                     | Obligatory subject group in the field of study<br>Humanistic-social subject group |            |     |
| 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                         |                                     |                                                                                   |            |     |
| 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                                                       |                                         | 30.0                                |                                                                                   | 50.0       | 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_U04] adapt 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_K01] 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_U02] properly select sources and information derived from them, with particular regard to sources of spatial information; evaluate them 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                  |
|                                 | [GSEMU2_U03] select and apply 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_W04] 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           |
| 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. Publishing analysis results on the Internet using Web-GIS tools. B.5 Visualization of travel time to urban centers B.6 Selected methods of automating the processing and analysis of spatial data 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             | <p>Basic literature</p> <p>Iwańczak B., 2020, QGIS 3.14. Map creation and analysis, Helion Publishing House.</p> <p>Pieniążek M., Zych M., 2017. Statistical maps. Data preparation and presentation. Central Statistical Office, Warsaw</p> <p>Szczepanek R., 2017. Spatial information systems with QGIS. PK Publishing House, Kraków.</p> <p>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</p>                                                                                                                                                                                 |                                                                                                                                                                                     |                                                         |

|                                                                |                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                  | <p>Ballas D., Clarke G., Franklin R., Newing A., 2017, GIS and the Social Sciences, Taylor &amp; Francis, London New York.</p> <p>Keranen, Kathryn, and Lyn Malone. Instructional Guide for the ArcGIS Imagery Book. Esri Press, 2017.</p> <p>Cliquet, Gérard, ed. Geomarketing: Methods and strategies in spatial marketing. John Wiley &amp; Sons, 2013.</p> <p>Bolstad P., 2016. GIS Fundamentals: A First Text on Geographic Information Systems. Fifth Edition, New York</p> <p>Iwaniak A., Olszewski R., Gotlib D., 2008. GIS. Areas of application. PWN Scientific Publishing House, Warsaw</p> |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                      | Adresy na platformie eNauczanie:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Example issues/<br>example questions/<br>tasks being completed | Make any cartogram and cartodiagram presenting socio-economic phenomena. Make an isochron map. Indicate the best location for a retirement home. 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                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

Document generated electronically. Does not require a seal or signature.