GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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| Subject name and code | SPATIAL ECONOMETRICS - A TEAM PROJECT, PG_00066382 | | |
| Field of study | Economic Analytics | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | 2024/2025 |
| Education level | second-cycle studies | Subject group | Obligatory subject group in the field of study<br>Subject group related to scientific research in the field of study |
| Mode of study | Part-time studies (on-line) | Mode of delivery | blended-learning |
| Year of study | 1 | Language of instruction | Polish |
| Semester of study | 2 | ECTS credits | 4.0 |
| Learning profile | general academic profile | Assessment form | exam |
| Conducting unit | Department of Statistics and Econometrics -> Faculty of Management and Economics | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | Dagna Wleklińska | |
| | Teachers | Dagna Wleklińska | |

**Lesson types and methods of instruction**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 8.0 | 0.0 | 16.0 | 0.0 | 0.0 | 24 |

E-learning hours included: 18.0

**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 | 24 | 4.0 | 72.0 | 100 |

**Subject objectives**

Analyzes socio-economic phenomena using spatial data, creating innovative solutions to complex problems as a team

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K7_U01] Develops innovative solutions for complex and unstructured processes, considering unpredictable environmental conditions by synthesizing information from multiple sources | creates innovative solutions to complex and unstructured problems by adapting the methods used to the nature of the analyzed economic phenomena by synthesizing information from many sources | [SU4] Assessment of ability to use methods and tools |
| [K7_W02] Understands the significance and interrelationships of key components describing economic processes, drawing on in-depth knowledge aligned with major developmental trends in scientific disciplines related to the field of economic analytics. | identifies interactions in space between variables describing socio-economic phenomena, using knowledge consistent with the main trends in the development of econometric research | [SW1] Assessment of factual knowledge |
| [K7_U05] Collaborates with others in team projects, effectively fulfilling both leadership and team member roles to achieve established goals | performs analytical work demonstrating the ability to work in a team | [SU3] Assessment of ability to use knowledge gained from the subject |

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| Subject contents | I. Spatial Data Analysis II. Inference and Spatial Data III. Spatial Statistics; Spatial Econometrics: First Motivations IV. Spatial and Temporal Autocorrelation V. Mutual Influences of Cross-Sectional Observations; Networks of Cross-Sectional Relationships VI. Autocorrelation Tests and Model Specification VII. Spatial Autoregressive Models: Conditional (CAR) and Simultaneous (SAR) VIII. Estimating Spatial Models: Methods (GMM, ML, Bayesian) IX. Eigenvectors and Eigenvalues of Networks of Cross-Sectional Relationships X. Non-Orthogonality of Regression and Autoregressive Coefficients XI. Prediction and Spatial Models XII. Spatial Panel Models XIII. LMM, GLMM, GAM Models, Discrete Spatial Econometric Models XIV. Multilevel Spatial Models |
| Prerequisites and co-requisites | |

Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Project | 55.0% | 70.0% |
| Oral exam | 55.0% | 30.0% |
| | 0.0% | 0.0% |

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| Recommended reading | Basic literature | Kopczewska K., Ekonometria i Statystyka przestrzenna z wykorzystaniem programu R Cran, Wyd. CeDeWu Warszawa 2007<br>Suchecki B. red. nauk., Ekonometria przestrzenna. Metody i modele, analizy danych przestrzennych, Wyd. C.H.Beck, Warszawa 2010<br>Suchecki B. red. nauk., Ekonometria przestrzenna II. Modele zaawansowane, Wyd. C.H.Beck, Warszawa 2012 |
| | Supplementary literature | Baltagi B.H., Econometric Analysis of Panel Data, 5th ed, Wiley, Chichester 2014<br>Suchecka J. red.nauk., Statystyka przestrzenna. Metody analizy struktur przestrzennych, Wyd. C.H.Beck, Warszawa 2014 |
| | eResources addresses | Adresy na platformie eNauczanie:<br>Ekonometria przestrzenna (2024_2025_NST_online) - projekt zespołowy - Moodle ID: 42969<br>https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42969 |
| Example issues/ example questions/ tasks being completed | | |
| Work placement | Not applicable | |

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