GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Statistics , PG_00049165		
Field of study	Spatial Development		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	Obligatory subject group 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	4.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Economic Sciences -> Faculty of Management and Economics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. arch. Piotr Lorens	
	Teachers	prof. dr hab. inż. arch. Piotr Lorens	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	0.0	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	7.0	48.0	100

Subject objectives	To familiarise students with basic concepts in the field of statistics and methods of testing regularities occurring in mass processes. Shaping the practical skills of using statistical software to process statistical data and interpret the obtained results. Developing creativity in collecting statistical data from public internet sources for the needs of conducting innovative analyses.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W03] has knowledge in the field of mathematics and physics relating to issues related to space management, including the basic mathematical methods used in urban design, as well as analytical and design methods using information technology used in planning processes of settlement structures	The student can choose the description method depending on the data type, using both accounting calculations and statistical software.	[SW3] Assessment of knowledge contained in written work and projects
[K6_U04] prepares analyses of spatial assumptions on an agglomeration, city and district scale; demonstrates the ability to correctly interpret and assess the existing condition based on data from various sources; formulates guidelines for urban and architectural design and develops concepts for the transformation of urbanized structures	The student can interpret the results of his/her statistical analyzes.	
[K6_U07] evaluates the usefulness of standard methods and tools used in planning and management of spatial development and is able to select and apply the most appropriate ones	The student has a basic knowledge of the spatial nature of socio-economic phenomena. The student knows and can choose the appropriate tools for the analysis of spatial phenomena.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information

Subject contents

- Variables type. Measurement scales.
- Grouping and presentation of statistical material
- Measures of central tendency and diversity
- Asymmetry and kurtosis measures
- Analysis of relationship between qualitative variables
- Analysis of relationship between quantitative variables
- Regression
- Dynamics analysis - index method
- Dynamics analysis - trend and seasonality models
- Spatial weight matircies
- Visualization of spatial data
- Spatial autocorrelation
- Spatial regression models

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Tutorial exam	60.0%	33.0%
Written exam	60.0%	33.0%
Tutorial exam	60.0%	34.0%

Recommended reading

Basic literature	• Kot, S.M., Sokołowski, A., Jakubowski, J., "Statysyka", Difin, Warszawa 2011. • Kukuła, K., "Elementy statystyki w zadaniach", PWN, Warszawa 2011. • Piłatowska, M., "Reptytorium ze statystyki", PWN, Warszawa 2007. • S Suchecka J. (red.), "Statystyka przestrzenna. Metody analiz struktur przestrzennych"
Supplementary literature	• Sobczyk, M., "Statystyka", PWN, Warszawa 2008. • Sej-Kolasa, M., Zielińska A., "Excel w statystyce. Materiały do ćwiczeń", • Wydawnictwo Akademii Ekonomicznej im. O. Langego we Wrocławiu, Wrocław 2004. • Jóźwik, J., Podgórski J., "Statystyka od postaw", PWE, Warszawa 2000. • Kopczewska K., "Ekonometria i statystyka przestrzenna z wykorzystaniem programu R Cran"
eResources addresses	

Example issues/ example questions/ tasks being completed

Based on the prepared data set calculate and interpret measures of central tendency, diveristy, asymmetry and kurtosis.

Check whether there is a correlation between variable X and Y.

Estimate the multiple regression model for the variable X. Interpret goodness-of-fit measures.

Check if variable X is spatially autocorrelated. Justify your answer.

Work placement	Not applicable

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