



Subject card

Subject name and code	STATISTICS I, PG_00061097						
Field of study	Management						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle 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		blended-learning		
Year of study	1		Language of instruction		English		
Semester of study	1		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Statistics and Econometrics -> Faculty of Management and Economics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Samuele Lo Piano				
	Teachers		mgr inż. Jakub Czubek				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	E-learning hours included: 25.0						
	eNauczanie source addresses: Moodle ID: 7771 Statistics 1 IM 2026 https://enauczanie.pg.edu.pl/2025/course/view.php?id=7771						
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		6.0		49.0	100
Subject objectives	to prepare students to perform and interpret statistical analyses using reliable data, as well as to develop teamwork skills in solving analytical tasks in the context of socio-economic and business issues						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W06] knows and understands the principles of evaluating the reliability of utilized data, applying in-depth specialized knowledge in the field of economic analysis.		knows and understands the principles of identifying and selecting reliable data sources in the context of statistical analyses related to socio-economic and business processes		[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.		is able to develop and interpret statistical analyses, collaborating within a team on solving analytical tasks in the context of socio-economic and business problem		[SU2] Assessment of ability to analyse information		

Subject contents	Course content – lecture Types of statistical features and measurement scales Distribution visualization (histogram, boxplot) Location measures: arithmetic mean, geometric mean, mode, median, quartiles Dispersion measures Measures of the shape of the distribution Analysis of interdependencies between quantitative and qualitative features (correlation, Pearson's linear correlation coefficient; rank correlation coefficients, contingency coefficients) Index account (individual and aggregate price, quantity and value Laspeyres, Paasche and Fisher indices, single-base and chain indices) Elements of descriptive analysis of a time series (linear and non-linear trend function, seasonality) Elements of linear regression model analysis: function parameters, goodness of fit.		
	Course content – laboratory Practical application of descriptive statistics using Python, R, or Excel. • Import, manage, and classify data by type and measurement scale. • Visualize distributions (histogram, bar chart, boxplot, scatter plot). • Compute and interpret measures of location (mean, median, mode, quartiles, percentiles) and dispersion (range, variance, standard deviation, coefficient of variation). • Assess distribution shape (skewness, kurtosis). • Analyze interdependencies (Pearson correlation, rank correlation, contingency coefficients, chi-square). • Calculate and interpret individual and aggregate indices (Laspeyres, Paasche, Fisher; single-base and chain). • Perform descriptive analysis of time series (trend estimation, seasonality, deseasonalization). • Fit and interpret simple linear regression models (parameters, goodness of fit). • Consolidate skills through a final applied project.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	calculation tasks (test)	60.0%	50.0%
	problem-based question test	60.0%	50.0%
Recommended reading	Basic literature	Barrow, M. (2017). Statistics for Economics, Accounting, and Business Studies. Harlow: Prentice Hall. Newbold, P., Carlson W.L. (2019). Statistics for Business and Economics, New York: Pearson Education.	
	Supplementary literature	Bluman, A. G. (2021). Elementary Statistics: A Step By Step Approach. McGraw-Hill Education. Diez, D. M., Barr, C. D., & Cetinkaya-Rundel, M. (2019). OpenIntro Statistics (4th ed.). OpenIntro.	
	eResources addresses		

Example issues/ example questions/ tasks being completed	<i>"A dataset contains the monthly salaries of employees in a company. Define and explain the main descriptive measures of central tendency, dispersion, and shape. Based on the provided summary statistics, discuss the form of the distribution and its implications for wage inequality."</i> <i>"In a simple linear regression model, interpret the meaning of the slope, intercept, and coefficient of determination. Suppose the regression of house prices on house size yields specific parameter estimates. Explain their interpretation in plain language for a policy maker."</i> <i>"Using R, analyse the distribution of the variable household_income from the dataset. Calculate basic descriptive measures, produce a histogram and a boxplot, and interpret the results by comparing the observed distribution with your expectations about income data."</i> <i>"Using Python, fit a simple linear regression model with mpg as the dependent variable and horsepower as the independent variable. Report the regression equation, assess model fit with R^2, visualize the fitted line with a scatter plot, and interpret the slope in real-world terms."</i>
Practical activities within the subject	Not applicable

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