GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Statistics I, PG_00044148		
Field of study	Economics		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2020/2021
Education level	first-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	e-learning
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Economic Sciences -> Faculty of Management and Economics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Karol Flisikowski	
	Teachers	dr Błażej Kochański dr inż. Karol Flisikowski mgr inż. Sabina Szymczak	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	30.0	0.0	0.0	60

E-learning hours included: 60.0

STATYSTYKA I - wykład (lato 2020_21) - Moodle ID: 13487
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=13487

Statystyka (EK I sem 2) - laboratorium - lato 2020_21 - Moodle ID: 12976
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=12976

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	60	10.0	55.0	125

Subject objectives

The lecture aims to familiarize students with the process of combining theoretical knowledge with methodological fundamentals of statistical description in a specific situation. The lecture will introduce content needed to understand the research process, regarding planning and interpretation of results.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U04] can properly analyse the causes and course of specific socio-economic processes and phenomena	The student is set to search for information and analysis to make the right decisions to reach goals.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K6_W06] knows the methods and tools of data acquisition appropriate for economic sciences, which allow to describe processes taking place in them and relations between them	The student knows the basics of descriptive statistics, mathematical analysis, the basis of probability.	[SW1] Assessment of factual knowledge
[K6_K03] understands the social role of the economist's profession. Recognises the importance of intellectual honesty in their own and others' actions	The student works in a group and solves problems.	[SK5] Assessment of ability to solve problems that arise in practice
[K6_W07] has the knowledge of basic quantitative and qualitative methods used in economic sciences	The student knows selected methods and mathematical models used in decision-making in business management in various aspects of its functioning.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge

Subject contents	1. Elements of probability. The concept and the representation of the distribution characteristics of 2. Measures of statistical location: arithmetic mean, geometric mean, fashion, median, quartiles) 3. Measures of dispersion (variance, standard deviation, coefficient of variation, spacing kwartylowy) 4. Asymmetry and flattening distribution, measures of asymmetry (the third time relative kwartylowy skewness coefficient), a measure of flattening (relative fourth moment, kurtosis) 5. Analysis of two-dimensional random variables, analysis of interdependencies between quantitative traits (correlation, Pearson's correlation coefficient, linear regression: function parameters, measurements match) 6. Analysis of the correlation between quality characteristics (rank correlation coefficients, contingency coefficients) 7. Statistical indices (individual and aggregate indices price, volume and value Laspeyres, Paasche and Fisher indexes Single base and chain) 8. Elements of descriptive analysis of time series (function linear and non-linear trend, periodic fluctuations in relative and absolute, calculated over the average level of the phenomenon and the trend trend, random fluctuations) 9. The expected value, variance and standard deviation of a random variable displacement. 10. Selected distributions of discrete variables (zerojedynkowy distribution, binomial, Poisson) 11. Continuous random variable, the notion of probability density function 12. Normal distribution, standardization of normal random variable.
Prerequisites and co-requisites	the basis of mathematical analysis, the basis of probability
Assessment methods and criteria	

Subject passing criteria	Passing threshold	Percentage of the final grade
Final test (laboratory)	60.0%	40.0%
Final exam (lecture)	60.0%	40.0%
Moodle quiz, assignments	60.0%	20.0%

Recommended reading	Basic literature	1. Jóźwiak J., Podgórski J., Statystyka od podstaw, PWE, Warszawa. 2. Makać W., Urbanek-Krzysztofiak D.: Metody opisu statystycznego, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk.
	Supplementary literature	1. Amir D.Aczel: „Statystyka w zarządzaniu”, Wydawnictwo Naukowe PWN, Warszawa.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Task. During the research on the test station determines the basic parameters of a random motor vehicle leaving the production line. Amount of fuel consumed on the basis of produced cars had a normal distribution with an average 6.5 litres/100 km and variance 2.4 litres squared/100 km squared. If the variance of consumed fuel of a random car is more than 2.7 litres squared/100 km squared this car is aimed to replace the motor. 1. Calculate what percentage of cars back to improve .... 2. Calculate the percentage of cars are within a span of plus / minus 75% of the standard deviation relative to the mean value .... Questions. 1. What is the distribution of characteristics? 2. What is the decomposition of a time series? Present and review the components of the time series. 3. Give the central limit theorem.	
Work placement	Not applicable	