



## Subject card

Subject name and code	Essentials of Statistics, PG_00044436						
Field of study	Engineering Management						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2023/2024		
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	Part-time studies (on-line)	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	3	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						
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	16.0	0.0	16.0	0.0	0.0	32
	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	32	8.0	85.0	125		
Subject objectives	<ol style="list-style-type: none"> <li>1. Introduction to basic concepts of descriptive statistics.</li> <li>2. Learning practical skills in statistical methods.</li> <li>3. Ability to analyze statistical data and formulating the correct conclusions.</li> </ol>						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U09] obtains data for analysis and interpretation of results using information technology	The student is able to choose the description method to the type of data, using both accounting calculations and statistical software. On the basis of the obtained results (descriptive measures of the structure, correlation, dynamics of phenomena) the student makes an interpretation.			[SU1] Assessment of task fulfillment [SU4] Assessment of ability to use methods and tools		
	[K6_W06] has a basic knowledge of methods and tools for conducting research and analyses related to particular areas of the enterprise's operations and its environment	The student has basic knowledge about the statistical nature of economic phenomena, knows the methods and tools, including data acquisition techniques, appropriate for creating their statistical description. The student is able to correctly determine the nature and strength of the relationship between the examined features in the sample.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W11] has the basic knowledge of mathematics, physics and chemistry necessary to solve technical problems	The student is able to use mathematical models to describe the relations between selected economic variables.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W05] knows the statistical and IT methods and tools that enable the acquisition and presentation of data on the organisation's resources, including technical resources	The student has basic knowledge of the statistical nature of economic phenomena, knows the methods and tools, including data acquisition techniques, appropriate for creating their statistical description.			[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Non-parametric description of the distribution of the sample: the ranks of distribution, histogram, empirical distribution function.</p> <p>Parametric description of the distribution of the sample: measures of location, variability, asymmetry and concentration, measurement of economic inequality: Lorenz curve, Schutz-Pietra measures of inequality, Gini coefficient, Atkinson etc., two or more dimensional nonparametric description of the distribution of the sample: frequency distribution (two-dimensional), histograms, scatter plots.</p> <p>Parametric description of the two-dimensional population: moments, covariance, correlation coefficient, partial and multiple correlation coefficient, Spearman's rank correlation coefficient, multiple regression functions, the method of least squares, introduction to time series analysis, classical decomposition of time series, Introduction to the theory of indices: dynamics' indices, price indices, equivalence scales.</p>											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1" data-bbox="448 490 1477 591"> <thead> <tr> <th data-bbox="448 490 794 521">Subject passing criteria</th> <th data-bbox="794 490 1141 521">Passing threshold</th> <th data-bbox="1141 490 1477 521">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 521 794 553">Written exam</td> <td data-bbox="794 521 1141 553">60.0%</td> <td data-bbox="1141 521 1477 553">50.0%</td> </tr> <tr> <td data-bbox="448 553 794 591">Final test</td> <td data-bbox="794 553 1141 591">60.0%</td> <td data-bbox="1141 553 1477 591">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Written exam	60.0%	50.0%	Final test	60.0%	50.0%
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Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. How do we define variance and standard deviation?</li> <li>2. What is variable correlation?</li> <li>3. What is regression?</li> <li>4. Give the correct conditions for the application of the Pearson's linear correlation coefficient.</li> <li>5. What are the tasks of the regression function?</li> <li>6. What limitations exist for the analysis of relationships using chi-square statistics?</li> <li>7. What are contingency factors and what do they tell us about?</li> </ol>											
Work placement	Not applicable											