

Subject card

Subject name and code	Descriptive Statistics, PG_00189366						
Field of study	Mathematical Modeling and Data Analysis						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Bachelor's 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		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		3.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Division of Set Theory -> Institute of Mathematics -> Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Filip Strobina, prof. UG				
	Teachers		dr hab. Filip Strobina, prof. UG				
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: 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		2.0		28.0	75
Subject objectives	To familiarise the student with the basic concepts of descriptive statistics and its practical application using a computer programme for statistical data analysis.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[MMiADL3_W08] knows and understands, at an advanced level, at least one software package used for symbolic or numerical calculations	knows and understands a chosen statistical package	[SW2] presentation/project/paper/report
	[MMiADL3_W07] knows and understands, at an advanced level, computational techniques and programming that support work in professions related to mathematical modeling and data analysis, and understands their limitations	has knowledge of computational techniques and programming in statistics and understands their limitations	[SW2] presentation/project/paper/report [SW5] implementation of a problem task
	[MMiADL3_U04] is able to correctly use the concepts of probability and statistics, is able to apply the theorems and methods of these fields and is able to interpret the obtained results	is prepared to analyze data from the perspective of statistic analysis and present the resulting conclusions in an accessible and understandable way	[SU2] presentation/project/paper/report [SU8] observation of student's independent or team work
	[MMiADL3_W04] knows and understands at an advanced level selected concepts, methods and theorems of probability and statistics, as well as basic examples both illustrating specific concepts in this field and allowing to refute false hypotheses or invalid reasoning	knows and understands the basic concepts, theorems and methods of descriptive statistics, as well as examples illustrating these concepts and allowing to draw conclusions or refute the untrue statements about the statistical distribution of data	[SW2] presentation/project/paper/report [SW3] text preparation/written work
	[MMiADL3_U06] is able to use a known software package or a known programming language for data analysis and to solve selected problems in the learned fields	Is able to use a selected software package or programming language to solve problems in statistics	[SU2] presentation/project/paper/report [SU8] observation of student's independent or team work
Subject contents	1. Computer programmes used in statistical data analysis. 2. Preparation of data for statistical analysis. 3. Empirical distribution of a random sample (e.g. empirical distribution and frequency and histogram). 4. Tabular and graphical presentation of statistical data. 5. Classical measures of central tendency and variation (e.g. mean and variance of a random sample). 6. Positional measures of central tendency and variation (e.g. median and quartiles of a random sample). 7. Measures of asymmetry and measures of flattening of a random sample distribution. 8. Methods of analysing the dynamics of phenomena (time series, index methods, absolute and relative growth, individual dynamic indices, chronological average).		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	implementation of projects	51.0%	60.0%
	observation of the student's attitude	51.0%	0.0%
	completion of the credit work	51.0%	40.0%

Recommended reading	Basic literature	A. Literature required for final course credit: A.1. used during the class 1. J. Wierziński, Statystyka opisowa, Wydawnictwo WZ, Warszawa 2006. 2. P. Biecek, Przewodnik po pakiecie R, Wrocław : Oficyna Wydawnicza GIS, cop. 2008. 3. W. Kryszicki, J. Bartos, W. Dyczka, K. Królikowska, M. Wasilewski, Rachunek prawdopodobieństwa i statystyka matematyczna w zadaniach. Część 2, PWN, 2007. A.2. Studied independently by the student 1. A.D. Aczel; Statistics in management; PWN, Warsaw 2000 . 2. J. Verzani, Using R for Introductory Statistics, Boca Raton [etc.] : Chapman & Hall/CRC, [post 2007], cop. 2005. 3. H. Wickham, ggplot2, Elegant graphics for data analysis, Springer.
	Supplementary literature	B. Complementary literature: 1. S. Ostasiewicz, Z. Rusnak, U. Siedlecka, Statistics; Wydawnictwo AE; Wrocław 1995. 2. Wierczkowska. G. Wierziński, J. Statystyka: analiza badań społecznych. Wydawnictwo Naukowe SCHOLAR, Warszawa 2007. 3. W. Makać, D. Urbanek-Krzysztofiak, Methods of statistical description, Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego, 1995.
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Example issues/ example questions/ tasks being completed	no applicable	
Work placement	Not applicable	

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