University of Gdańsk

Subject card

Subject name and code	Descriptive Statistics, PG_00153253		
Field of study	Mathematical Modeling and Data Analysis		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	Bachelor's 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	1	Language of instruction	Polish no applicable
Semester of study	1	ECTS credits	4.0
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 Strobin	
	Teachers	dr hab. Filip Strobin dr Michał Banacki	

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	5.0	50.0	100

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_W09] knows and understands the basics of computational and programming techniques supporting mathematician's work and understands their limitations	knows and understands the basics of computing and programming techniques to support the work of mathematicians and understands their limitations	[SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[MMiADL3_U13] knows how to use computer programmes in the field of data analysis	knows how to use computer programs for data analysi	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task
[MMiADL3_K10] is ready to analyse data and communicate the conclusions of such analysis in an accessible form	is willing to analyse data and communicate the conclusions of such analysis in an accessible form	[SK2] presentation/project/paper/ report [SK8] observation of student's independent or team work
[MMiADL3_U09] is able to use the learned software package or the learned programming language to solve selected problems from the known fields, in particular from mathematical analysis, linear algebra and statistics	is able to use a software package or a programming language he/ she has learned to solve selected problems in the areas he/she has studied, in particular mathematical analysis, linear algebra and statistics.	[SU2] presentation/project/paper/ report

<table>
<tr><td>Subject contents</td><td>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).</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>no requirements</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>observation of the student's attitude</td><td>100.0%</td><td>0.0%</td></tr>
<tr><td>implementation of projects</td><td>50.0%</td><td>70.0%</td></tr>
<tr><td>completion of the credit work</td><td>50.0%</td><td>30.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>A. Literature required for final course credit:A.1. used during the class
1. J. Wierzbiński, Statystyka opisowa, Wydawnictwo WZ, Warszawa 2006.
2. P. Biecek, Przewodnik po pakiecie R, Wrocław : Oficyna Wydawnicza GIS, cop. 2008.
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.Wicham, ggplot2, Elegant graphics for data analysis, Springer.</td></tr>
<tr><td>Supplementary literature</td><td>B. Complementary literature:
1. S. Ostasiewicz, Z.Rusnak, U. Siedlecka, Statistics; Wydawnictwo AE; Wrocław 1995.
2. Wieczorkowska. G. Wierzbiński, 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.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>no applicable</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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