University of Gdańsk

Subject card

Subject name and code	Statistical Inference II, PG_00102819						
Field of study	Mathematical Modeling and Data Analysis						
Date of commencement of studies	October 2023		Academic year of realisation of subject	2025/2026			
Education level	Bachelor's studies		Subject group				
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	3		Language of instruction	Polish			
Semester of study	6		ECTS credits	4.0			
Learning profile	academic		Assessment form	exam			
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Janusz Przewocki				
	Teachers						
Lesson types	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: 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	60		0.0		0.0	60
Subject objectives	To familiarize students with models that allow for inferences based on data and predictions.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[MMiADL3_U13] knows how to use computer programmes in the field of data analysis	Is able to construct statistical models using the known software	[SU2] presentation/project/paper/ report
[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 construct statistical models using the known software	[SU2] presentation/project/paper/ report
[MMiADL3_U04] correctly uses the concepts of probability theory and statistics, is able - at a simple and medium level of difficulty - to apply the theorems and methods of these fields, and is able to interpret the results obtained	Is able to perform statistical inferences based on models	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[MMiADL3_W04] knows the basic concepts, methods and theorems of the theory of probability and statistics, and basic examples both illustrating specific concepts in these areas, and allowing to refute incorrect hypotheses or unauthorized reasoning	Knows and understands basic probability distributions used in the theory of linear models	[SW4] test/exam - oral or written
[MMiADL3_K10] is ready to analyse data and communicate the conclusions of such analysis in an accessible form	Student jest gotów do analizowania danych i komunikowania wniosków z takiej analizy w przystępnej formie	[SK2] presentation/project/paper/ report
[MMiADL3_W09] knows and understands the basics of computational and programming techniques supporting mathematician's work and understands their limitations	Knows and understands the basic methods of model fitting	[SW4] test/exam - oral or written

Subject contents

1. Basic probability distributions used in statistics

2. Simple regression model: interpretation of coefficients, correlation coefficients, correlation and causation

3. Multiple regression model, interpretation of coefficients

4. Fitting models using the least squares and maximum likelihood methods 5. One- and multi-factor analysis of variance

Prerequisites and co-requisites

Knowledge of the content discussed during lectures: probability theory, descriptive statistics and statistical inference I.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
observation of the student's attitude	51.0%	0.0%
project	51.0%	0.0%
writing exam	51.0%	50.0%
test exam	51.0%	50.0%

Recommended reading

Basic literature	1. RD. Cook, S. Weisberg, Applied regression including computing and graphics, Wiley & Sons, 2009 2. P. Biecek, Analiza danych z programem R, PWN, 2022
Supplementary literature	1. D. Rasch, D. Schott, Mathematical statistics, Wiley & Sons, 2018
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable