



## Subject card

Subject name and code	Statistics II, PG_00021508						
Field of study	Mathematics						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Optional subject group 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	2	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Nonlinear Analysis and Statistics -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Karol Dziejul					
	Teachers	dr hab. Karol Dziejul Michał Maj					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	0.0	15.0	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	5.0		60.0	125	
Subject objectives	The ability to use information criteria: Akaike criterion, Bayes criteria. Precise understanding the origin of these criteria.  For the model comparison methods of estimation and hypothesis verification methods.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_U10	we develop analysis in handling multi-dimensional data. They require the use of mathematical tools			[SU1] Assessment of task fulfilment		
	K7_W12	Work on the procedures in SAS			[SW1] Assessment of factual knowledge		
	K7_W05	we develop analysis in handling multi-dimensional data. They require the use of mathematical tools			[SW1] Assessment of factual knowledge		
	K7_U08	This knowledge is necessary to identify the models			[SU1] Assessment of task fulfilment		
K7_K02	Students prepare presentations			[SK2] Assessment of progress of work			
Subject contents	Statistical decision functions: the loss function, risk function, acceptable decision rules, and priori distributions, Bayesian decisions, minimax decision rules. Tw. Rao-Blackwell theorem Hodges Lehmana. Informacje Kulbacka Leibler, Akaike Information Criteria. Nonparametric estimation						
Prerequisites and co-requisites	Mathematical Statistics and Statistics with SAS, Probabilistics						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Half the exercises half an oral examination	60.0%			100.0%		

Recommended reading	Basic literature	M. Krzyśko Statystyka matematyczna II Wydawnictwo Naukowe UAM 2005 J. Bartoszewicz Wykłady ze Statystyki matematycznej PWN Warszawa 1989  Sadanori Konishi, Genshiro Kitagawa: "Information Criteria and Statistical Modeling" Springer Series in Statistics 2008
	Supplementary literature	R. Zieliński Siedem wykładów wprowadzających do statystyki matematycznej PWN Warszawa 1990
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Describe the method of Akaike	
Work placement	Not applicable	