

Subject card

Subject name and code	Mathematics and Statistics - auditorium exercises II, PG_00091508						
Field of study	Water Management and Protection of Water Resources						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
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		2.0		
Learning profile	practical		Assessment form				
Conducting unit	Climate Research Laboratory -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Mirosława Malinowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	30.0	0.0	0.0	0.0	30
	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	30		10.0		20.0	60
Subject objectives	Acquire the ability to determine basic quantities in descriptive statistics and interpret them. Determine confidence intervals of basic elements, determine the minimum sample size, determine the relationship between two variables using correlation and linear regression and the statistical significance of the relationship						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[GWOZWL3-U08] use basic mathematical and statistical methods to analyze data and describe phenomena and processes occurring in the environment, as well as methods of information technology to assess the risk of threats to the of the environment, especially the hydrosphere		knows how to use basic mathematical and statistical methods to analyze data and describe environmental phenomena and processes		[SU4] test/exam - oral or written		
	[GWOZWL3-K03] systematic further education and professional development, updating and expand their knowledge and skills, understands the limitations of his own knowledge in the context of civilization progress and recognizes authorities in the professional and scientific environment		Systematically further educates himself and improves professionally, expands his knowledge and skills, understands the limitations of his own knowledge in the context of the progress of civilization and recognizes the authorities in the professional and scientific environment		[SK4] test/exam - oral or written		
Subject contents	Detailed and distributional series, measures of position, dispersion, skewness and flattening,Analysis of interdependence and correlationRegression and trend functionProbability - introduction.Graphical data presentation techniques						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Knowledge of the statistical methods discussed in class	51.0%	100.0%
Recommended reading	Basic literature	Makać W., Urbanek-Krzysztofak D., 2004. Methods of statistical description. Wyd. UG, Gdańsk.Balicki A., Makać W., 2010, Methods of statistical inference, Wyd. UG, Gdańsk.	
	Supplementary literature	Krysicki w., Bartos J., Dyczka W., Królikowska K., Wasilewski M., 1986. Probability calculus and mathematical statistics in tasks. Part II. Mathematical statistics, PWN, 328pp.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. Based on the data presented, determine the mean median, dominant, standard deviation and kurtosis coefficient.2. the lake has frozen 20 times in the last 100 years. Calculate the probability that this lake will freeze at least once in the next 10 years.3. The output of a certain source has a normal distribution with a mean of 80l/s and a standard deviation of 10 l/s. Calculate the probability that the output of the source will be between 60-90 l/s.4. Test whether there is a statistically significant relationship between precipitation in a certain catchment area and flows of the main river in the closing profile. Calculate the strength of this relationship.		
Work placement	Not applicable		

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