

Subject card

Subject name and code	Statistic in Environmental Protection, PG_00054843						
Field of study	Environmental Protection						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Master'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		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Magdalena Remisiewicz				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		2.0		8.0	25
Subject objectives	1. Understanding basic concepts related to descriptive statistics and hypothesis testing. 2. Learning and understanding methods of numerical data analysis. 3. Acquiring the skills to select methods for statistical data analysis.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OŚMU2_W02] Has the thorough knowledge of statistical methods and modeling in environmental protection.	Interprets phenomena and facts using rigorous, verifiable methods.	[SW4] test/exam - oral or written
	[OŚMU2_K02] Recognises threats, creates safe work conditions and is responsible for the safety of own and other people's work.	Work in a team and lead the work of a small group in the field of statistical data analysis	[SK1] oral statement/conversation/discussion [SK8] observation of student's independent or team work
	[OŚMU2_W06] Analyses the impact of human activities on biodiversity and environmental quality on a local, regional and global scale.	Applies statistical methods and IT techniques and tools to describe phenomena in the field of environmental protection and to analyze specialized data.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion
	[OŚMU2_W07] Distinguishes between legal and administrative mechanisms and procedures in environmental protection and interprets its international dimension.	Applies statistical methods and IT techniques and tools to describe phenomena in the field of environmental protection and to analyze specialized data.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion
	[OŚMU2_U05] Searches, selects and analyses the literature achievements of environmental sciences, including scientific journals and databases, reading and understanding scientific texts in her/his native language and in English.	Selects and applies statistical techniques and tools appropriate to the problems of the studied specialty	[SU1] oral statement/conversation/discussion [SU8] observation of student's independent or team work
	[OŚMU2_K06] Recognises the importance of knowledge in solving encountered cognitive and practical problems and consults experts in the event of difficulties in solving a problem on her/his own.	Has knowledge in the area of descriptive statistics methods, formulation of statistical hypotheses and their testing, and analysis of relationships between variables.	[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written
Subject contents	Descriptive statistics. Preparation and analysis of charts based on statistical data. Arithmetic, geometric, and harmonic means. Median and mode. Variance, standard deviation, coefficient of variation. Standard error and confidence interval. Hypothesis testing about differences between means and relationships between variables. Methods for assessing the consistency of measurement methods.		
Prerequisites and co-requisites	none		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test with open questions, 45min	51.0%	100.0%
Recommended reading	Basic literature	Zar J.R. 2018. Biostatistical Analysis. 5th Edition. Pearson. ISBN: 0134995449.	
	Supplementary literature	Quinn G.P., Keough M.J.2023. Experimental Design and Data Analysis for Biologists. Cambridge University Press. Sokal R. R., Rohlf F.J. 1994. Biometry: The Principles and Practices of Statistics in Biological Research 3rd Edition. W. H. Freeman	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. Descriptive statistics. 2. Arithmetic, geometric, and harmonic means. 3. Median and mode. 4. Variance, standard deviation, coefficient of variation. 5. Standard error and confidence interval. 6. Hypothesis testing about differences between means and relationships between variables. 7. Methods for assessing the consistency of measurement methods.		
Work placement	Not applicable		