

Subject card

Subject name and code	Statistical methods in biology and medicine, PG_00154704						
Field of study	Biology						
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		
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		3.0		
Learning profile	academic		Assessment form				
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Włodzimierz Meissner				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		8.0		37.0	75
Subject objectives	To understand the basic concepts related to descriptive statistics and the verification of statistical hypotheses. To learn and understand methods of analysing numerical data. To acquire the ability to select methods for statistical analysis. To acquire skills in the use of computer statistical programs.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLMU2_W02] the graduate knows and applies the principle of strict, empirically based interpretation of biological phenomena and processes in research work and practical activities	interprets phenomena and facts using rigorous, verifiable methods	[SW4] test/exam - oral or written
	[BIOLMU2_K06] the graduate is prepared to take responsibility for assessing the risks arising from the research techniques used and for creating ergonomic and safe working conditions	is responsible for the equipment entrusted to him and respects the work of others	[SK8] observation of student's independent or team work
	[BIOLMU2_U05] the graduate is able to use statistical methods and computer techniques and tools to describe biological phenomena and analyse specialised data	selects and applies statistical techniques and tools appropriate to the problems of the biological sciences specialty studied	[SU4] test/exam - oral or written
	[BIOLMU2_U06] the graduate is able to use the acquired expertise in the biological sciences to interpret the collected empirical data and to make inferences	use of specialised computer software	[SU4] test/exam - oral or written
	[BIOLMU2_W07] the graduate is familiar with specialised bioinformatics tools, useful in solving problems of the studied specialisation of biological sciences	works in a team and leads the work of a small team in the statistical analysis of biological data	[SW4] test/exam - oral or written
	[BIOLMU2_W06] the graduate is familiar with advanced statistical tools relevant to the problems of the biological sciences specialisation studied	has knowledge of methods of descriptive statistics, analysis of associations between variables, formulation of statistical hypotheses and their testing	[SW4] test/exam - oral or written
Subject contents	Descriptive statistics, statistical hypothesis testing, parametric and non-parametric tests, ANOVA, regression and correlation		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		51.0%	34.0%
		51.0%	33.0%
		51.0%	33.0%
Recommended reading	Basic literature	Meissner W.2010. Przewodnik do ćwiczeń z przedmiotu metody statystyczne w biologii. Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk	
	Supplementary literature	Stanisz A. 2006. Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny. Tom 1. Statystyki podstawowe. StatSoft Polska, Kraków. Stanisz A. 2007.Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny. Tom 2. Modele liniowe i nieliniowe. StatSoft Polska, Kraków. Ferguson G.A., Takane Y. 2008. Analiza statystyczna w psychologii i pedagogice. Wyd. III. Wydawnictwo Naukowe PWN, Warszawa.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Selection of appropriate tests to verify hypotheses about differences between means and distributions: for two and for multiple samples. Testing the relationship between variables using correlation coefficients and linear, multiple and segmented regression. Practical application of attendance analysis in biological research. Preparation and analysis of graphs based on statistical data.		
Work placement	Not applicable		

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