

**Subject card**

Subject name and code	Statistics with elements of mathematics in biological sciences, PG_00142890						
Field of study	Natural Resources Conservation						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2025/2026		
Education level	undergraduate 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	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			3.0		
Learning profile	academic	Assessment form					
Conducting unit	Pracownia Fizjologii Roślin i Toksykologii -> Katedra Biologii Eksperymentalnej i Biotechnologii Roślin -> Faculty of Biology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Agnieszka Baścik-Remisiewicz				
	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						
Additional information: solving tasks in groups or/and individual work							
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	<p>1. To prepare students to use basic methods of statistical analysis and to apply them in the interpretation of biological phenomena and processes.</p> <p>2. To acquaint students with the tools of mathematics necessary to understand the laws of nature and to describe life processes.</p>						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[OZPL3_U05] The graduate is able to apply basic statistical methods and computer techniques and tools to describe phenomena and analyse biological data	The graduate is able to apply basic statistical and mathematical methods to describe phenomena and analysis of biological data.			[SU4] test/exam - oral or written [SU5] implementation of a problem task [SU8] observation of student's independent or team work		
	[OZPL3_W08] The graduate possesses advanced knowledge and understanding of data analysis tools required to comprehend natural laws and describe biological processes	The graduate know and understand the tools of mathematics and statistics necessary to understand the laws of nature and to describe biological processes.			[SW4] test/exam - oral or written [SW5] implementation of a problem task		
	[OZPL3_K01] The graduate is ready to recognise the limitations in his/her own knowledge and understands the need for continuous learning and development	The graduate is ready to recognise the imitations in his/her own knowledge and understand the need for continuous learning and development.			[SK8] observation of student's independent or team work		
	[OZPL3_W12] The graduate possesses knowledge of statistical methods and IT tools relevant to the field of study.	The graduate has knowledge of the use of statistical methods in the field related to the field of study.			[SW4] test/exam - oral or written [SW5] implementation of a problem task		

Subject contents	<p>Examples of practical application of selected statistical and mathematical methods covered in the lecture topics.</p> <p><b>Statistics:</b> Basic concepts of statistics (types of variables, principles of number approximation). Descriptive statistics: sample size, arithmetic mean, variance, standard deviation, standard error. Binomial and normal distributions. Statistical hypothesis testing. Homogeneity of variance (Snedecor's F test). Student's t-test. One-way analysis of variance.</p> <p><b>Mathematics:</b> Introduction to the calculus of probability. Number sequences. Derivative of a function and its application. Integral calculus of functions of one variable: the indeterminate and determinate integral, methods of calculating integrals and their application.</p>											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1" data-bbox="448 524 1487 622"> <thead> <tr> <th data-bbox="448 524 794 555">Subject passing criteria</th> <th data-bbox="794 524 1141 555">Passing threshold</th> <th data-bbox="1141 524 1487 555">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 555 794 586">statistics exam</td> <td data-bbox="794 555 1141 586">51.0%</td> <td data-bbox="1141 555 1487 586">60.0%</td> </tr> <tr> <td data-bbox="448 586 794 622">mathematics exam</td> <td data-bbox="794 586 1141 622">51.0%</td> <td data-bbox="1141 586 1487 622">40.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	statistics exam	51.0%	60.0%	mathematics exam	51.0%	40.0%
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eResources addresses	Adresy na platformie eNauczanie:											
Example issues/ example questions/ tasks being completed												
Work placement	Not applicable											

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