

Subject card

Subject name and code	Mathematics - lecture, PG_00054146						
Field of study	Geography						
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		
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		2.0		
Learning profile	academic		Assessment form				
Conducting unit	Division of Geometry -> Institute of Mathematics -> Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Pawel Klinga				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	0.0	0.0	0.0	0.0	20
	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	20		20.0		20.0	60
Subject objectives	To familiarize students with the elements of mathematical analysis and linear algebra, which can be used in the methods of description of research objects, phenomena and processes in the field of geographical sciences.To develop in students the ability to understand problems abstractly.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GEOGRL3-U01] identify and analyze basic natural and socio-economic processes and phenomena and analyze their causes and course	selects the techniques of higher mathematics to the extent necessary for understanding and describing processes and phenomena occurring in the natural environment of the Earth, Curriculum content: 1-5	[SU4] test/exam - oral or written
	[GEOGRL3-W07] on advanced level methods of acquiring data on the natural and anthropogenic environment, including operation of specialized equipment	Operation of numerically programmed devices	[SW4] test/exam - oral or written
	[GEOGRL3-K02] bear full responsibility for the actions taken actions and adhere to the principles of professional ethics and principles of intellectual honesty, is aware of the importance of a professional approach in professional life professional life	preparing to make key decisions	[SK4] test/exam - oral or written
	[GEOGRL3-W03] in an advanced degree the processes and phenomena occurring in the natural environment of the Earth, with particular emphasis on the processes and phenomena occurring on the territory of Poland, especially the Coastal and South Baltic Lake Districts	describing processes similar to mathematical models	[SW4] test/exam - oral or written
	[GEOGRL3-W08] at an advanced level methods and principles development of data on the natural and anthropogenic environment, and methods of their analysis and interpretation	KW_07, KW_08 - knows and understands selected facts, theories and methods of mathematics, the relationship between them and their relationship to methods of description of processes and phenomena occurring in the natural environment of the Earth, as well as methods of obtaining and compiling data on the natural and anthropogenic environment, methods of their analysis and interpretation, Curriculum content: 1-5	[SW4] test/exam - oral or written
Subject contents	Notation, mathematical symbols. Elements of trigonometry. Elements of vector and matrix calculus. Examples of methods for solving systems of equations. Elements of differential calculus.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	51.0%	100.0%

Recommended reading	Basic literature	T. Jurlewicz, Z. Skoczylas, Algebra liniowa 1. Przykłady i zadania M. Gewert, Z. Skoczylas, Analiza matematyczna 1. Przykłady i zadania G. Kwiecińska: Matematyka : kurs akademicki dla studentów nauk stosowanych. Cz. 1, Wybrane zagadnienia algebry liniowej G. Kwiecińska: Matematyka : kurs akademicki dla studentów nauk stosowanych. Cz. 2, Analiza funkcji jednej zmiennej W. Krysicki, L. Włodarski: Analiza matematyczna w zadaniach. 1
	Supplementary literature	W. Oktała, E. Niedokos: Matematyka i podstawy statystyki matematycznej Marian Gewert, Zbigniew Skoczylas: Analiza matematyczna 1: definicje, twierdzenia, wzory Teresa Jurewicz, Zbigniew Skoczylas: Algebra liniowa 1: definicje, twierdzenia, wzory
	eResources addresses	
Example issues/ example questions/ tasks being completed	What is the limit of a function What is the derivative of a function	
Work placement	Not applicable	

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