University of Gdańsk

Subject card

Subject name and code	Mathematics - lecture, PG_00194261		
Field of study	Geography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
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	credit
Conducting unit	Division of Geometry -> Institute of Mathematics -> Faculty of Mathematics, Physics and Informatics -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Paweł 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	2.0	28.0	50

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-W06] knows advanced methods of acquiring, processing, and compiling geographic environmental data, as well as methods of analyzing and interpreting such data	The student selects advanced mathematics techniques to the extent necessary for understanding and describing processes and phenomena occurring in the Earth's natural environment.	[SW4] test/exam - oral or written
[GEOGRL3-W02] knows and understands key concepts and theories in geography, as well as advanced processes and phenomena related to spatial diversity and the distribution of processes and phenomena on the Earth's surface at various spatial scales, particularly in Poland	The student applies mathematical methods to analyze, model, and interpret geographical processes and phenomena, particularly those concerning spatial differentiation and distribution across various scales.	[SW4] test/exam - oral or written
[GEOGRL3-K02] is prepared to 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	The student demonstrates responsibility for the accuracy of performed analyses and mathematical calculations and adheres to the principles of intellectual integrity, particularly with regard to independent work and the reliable interpretation of results.	[SK4] test/exam - oral or written

<table>
<tr><td>Subject contents</td><td>Notation, mathematical symbols.

Elements of trigonometry.

Elements of vector and matrix calculus.

Examples of methods for solving systems of equations.

Elements of differential calculus.</td></tr>
<tr><td>Prerequisites
and co-requisites</td><td></td></tr>
<tr><td>Assessment methods
and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>test</td><td>51.0%</td><td>100.0%</td></tr>
</table>
</td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>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</td></tr>
<tr><td>Supplementary literature</td><td>W. Oktaba, E. Niedokos: Matematyka i podstawy statystyki matematycznej
Marian Gewert, Zbigniew Skoczylas: Analiza matematyczna 1: definicje, twierdzenia, wzory
Teresa Jurlewicz, Zbigniew Skoczylas: Algebra liniowa 1: definicje, twierdzenia, wzory</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/
example questions/
tasks being completed</td><td>What is the limit of a function

What is the derivative of a function</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
</table>

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