University of Gdańsk

Subject card

Subject name and code	Mathematics - classes, PG_00193057						
Field of study	Geology						
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	3.0			
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		Anna Wąsik				
	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						
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		3.0	42.0	75	
Subject objectives	The exercise aims to present the knowledge, skills and mathematical competencies necessary in the further education process in a given field.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GEOLL3_W02] knows and understands the terminology appropriate in science and natural sciences	The student has extended and deepened knowledge of mathematics useful for formulating and solving tasks/problems appropriate in exact and natural sciences, in particular: • knows basic mathematical symbols, transformations of algebraic expressions, • understands the adopted assumptions, definitions and previously derived results and theorems, • classifies basic elementary functions and lists their properties, • lists the basic formulas of differential and integral calculus, • lists the basic formulas of matrix calculus.	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
[GEOLL3_U04] is able to use specialized computer software and mathematical and statistical methods in the analysis of geological data	The student is able to link a problem in the field of algebra and mathematical analysis and their applications with an appropriate theoretical problem.	[SU1] oral statement/conversation/ discussion [SU5] implementation of a problem task
[GEOLL3_W06] knows statistical and IT tools as well as the principles of preparing engineering and geological documentation and cartographic materials	The student is able to use mathematical methods to analyze numerical data, in particular: • expresses the meaning of selected mathematical symbols, transforms algebraic expressions, • uses basic differential and integral calculus formulas to solve problems, • uses the basic formulas of linear algebra, • justifies his/her conclusions using correct mathematical language.	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task

Subject contents

Equations and inequalities of elementary functions of one variable.

Limits and continuity of functions, asymptote equations.

Formulas for the derivative of a function, the equation of a tangent to a graph.

Monotonicity intervals and local extrema of functions.

Integral calculus and determining areas bounded by curves.

Operations on complex numbers, canonical and trigonometric forms.

Elements of matrix calculus used in systems of equations.

Elements of analytical geometry and vector calculus.

Prerequisites and co-requisites

A. Formal requirements:

Lack

B. Entrance requirements:

High-school mathematics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
two tests (on whole class time)	51.0%	100.0%

Recommended reading	Basic literature	• 1. Włodarski W., Krysicki L., Analiza matematyczna w zadaniach, Część I i II, Wyd. Naukowe PWN. • 2. Gewert M., Skoczylas Z., Analiza matematyczna ; definicje, twierdzenia, wzory. Wyd. GiS • 3. Gewert M., Skoczylas Z., Analiza matematyczna ; przykłady i zadania. Wyd GiS • 4. Jurlewicz T., Skoczylas Z., Algebra liniowa ; definicje, twierdzenia, wzory. Wyd. GiS • 5. Jurlewicz T., Skoczylas Z., Algebra liniowa ; przykłady i zadania, Wyd. GiS
	Supplementary literature	• 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
	eResources addresses	
Example issues/ example questions/ tasks being completed	• Formulas for the derivative of a function, the equation of a tangent to a graph. • Integral calculus and determining areas bounded by curves. • Elements of matrix calculus used in systems of equations.	
Work placement	Not applicable	

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