

Subject card

Subject name and code	Elementary Mathematics, PG_00153242						
Field of study	Mathematical Modeling and Data Analysis						
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		3.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Institute of Mathematics -> Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Adrian Karpowicz				
	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		5.0		40.0	75
Subject objectives	Familiarizing students with the basic issues and tools of elementary mathematics. Developing students' ability to abstractly understand problems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[MMiADL3_K06] is ready to formulate opinions on basic mathematical issues	The student is ready to formulate opinions on basic mathematical issues.	[SK2] presentation/project/paper/report [SK5] implementation of a problem task [SK8] observation of student's independent or team work
	[MMiADL3_K09] is ready to critically evaluate arguments, find gaps in reasoning, and constructively criticise other people's reasoning	The student is ready to critically evaluate arguments, find gaps in reasoning and constructively criticize other people's reasoning.	[SK2] presentation/project/paper/report [SK5] implementation of a problem task
	[MMiADL3_K02] is ready to precisely formulate questions to deepen his/her own understanding of a given topic or to find missing elements of reasoning	The student is willing to formulate precise questions aimed at deepening their own understanding of a given topic or identifying missing elements in reasoning within the context of the subject's curriculum.	[SK8] observation of student's independent or team work
	[MMiADL3_K01] is ready to accept the limitations of his/her own knowledge and understands the need for further education	The student is willing to acknowledge the limitations of their own knowledge and is ready to continue their education in topics related to the subject matter.	[SK8] observation of student's independent or team work
	[MMiADL3_U02] correctly uses the concepts of mathematical analysis, is able - on a simple and medium level of difficulty - to apply the learned theorems and methods in this field, and is able to interpret the results obtained	The student is able to apply the known methods of solving tasks, correctly uses the learned concepts, is able to interpret the obtained results and solve practical tasks related to the subject.	[SU2] presentation/project/paper/report [SU5] implementation of a problem task
	[MMiADL3_W02] knows the basic concepts, methods and theorems of mathematical analysis, and basic examples both illustrating specific concepts in this field, and allowing to refute incorrect hypotheses or unauthorized reasoning	The student knows and understands proof methods, the importance of strict reasoning and precise formulation, knows the basic concepts regarding the properties of functions, knows the properties of elementary functions, knows basic examples both illustrating specific concepts in this field and allowing to refute erroneous hypotheses or unauthorized reasoning.	[SW5] implementation of a problem task
Subject contents	1. Elements of logic and methods of proof. 2. Function properties. 3. Linear and quadratic function. 4. The absolute value. Polynomials. 5. Rational functions, domain. 6. Power function (rational exponent). 7. Trigonometry. Cyclometric functions. 8. Exponential and logarithmic functions. 9. Solving equations and inequalities based on a function graph.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	observation of the student's attitude	51.0%	0.0%
	tests and quizzes	51.0%	100.0%
Recommended reading	Basic literature	1. Hammack R., Book of Proof, Third eition, 2018 2. Bryński M., Dróbka N., Szymański K., Matematyka dla zerowego roku studiów, Wydawnictwo WNT, 2012; 3. Leksiński W., Macukow B., Żakowski W., Matematyka dla maturzystów, Wydawnictwo WNT; 4. Kowalczyk R., Niedziałomski K., Obczyński C., Matematyka dla studentów i kandydatów na wyższe uczelnie. Repetytorium, Warszawa, 2022	
	Supplementary literature	1. Uryga J., Nowa matura. Matematyka. Rozwiązywanie zadań, Wydawnictwo Szkolne PWN, 2010; 2. Karolak T., Repetytorium z matematyki, Skrypt, 2004; 3. Kurlyandchik L., Matematyka elementarna w zadaniach Tom I i II, Aksjomat Toruń, 2005.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	none		
Work placement	Not applicable		

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