

Subject card

Subject name and code	Mathematical Logic, PG_00178979						
Field of study	Mathematics						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2025/2026		
Education level	Bachelor's studies		Subject group		Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		6.0		
Learning profile	academic		Assessment form		exam		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Rafał Filipów				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	0.0	0.0	60
	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	60		10.0		80.0	150
Subject objectives	The aim of the course is to familiarize students with the basic concepts of mathematical logic.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[MATL3_K06] is ready to formulate opinions on basic mathematical issues	Is able to formulate opinions on basic mathematical issues.	[SK8] observation of student's independent or team work
	[MATL3_K04] is ready to understand and appreciate the importance of intellectual honesty in one's own and other people's actions; is willing to act ethically	Understands and appreciates the importance of intellectual honesty in one's own actions and those of others; acts ethically.	[SK8] observation of student's independent or team work
	[MATL3_K02] is ready to precisely formulate questions to deepen his/her own understanding of a given topic or to find missing elements of reasoning	Can formulate precise questions that serve to deepen one's understanding of a topic or identify missing elements of reasoning.	[SK8] observation of student's independent or team work
	[MATL3_U08] is able to formulate definitions and theorems in an understandable way, both orally and in writing, and present correct mathematical reasoning regarding the acquired issues	Verifies basic properties and proves simple facts about measures and integrals and measurable mappings.	[SU4] test/exam - oral or written
	[MATL3_U09] is able to plan how to solve a specific problem and prepare a correct record of this solution, providing strict and precise justification for the correctness of his reasoning	Verifies basic properties and proves simple facts about measures and integrals and measurable mappings.	[SU4] test/exam - oral or written
	[MATL3_W09] knows and understands the role and importance of proof in mathematics, as well as the concept of the importance of assumptions	Knows and understands the basic concepts, theorems and methods of mathematical logic.	[SW4] test/exam - oral or written
	[MATL3_K01] is ready to accept the limitations of his/her own knowledge and understands the need for further education	Knows the limitations of his/her own knowledge and understands the need for further education.	[SK8] observation of student's independent or team work
Subject contents	1. Relational Systems 2. Boolean Algebras 3. Terms and Formulas 4. Theories and Models 5. Theorems and Proofs 6. Theorems of First-Order Logic 7. Completeness of First-Order Logic 8. Definability 9. Peano Arithmetic 10. Skolem-Lowenheim Theorem 11. Ultraproducts		
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%
	egzam	51.0%	50.0%
	tests	51.0%	50.0%
Recommended reading	Basic literature	1. A. Adamowicz, P. Zbierski, Logic of Mathematics - A Modern Course of Classical Logic 2. W. Marek, J. Onyszkiewicz, Elements of logic and foundations of mathematics in problems	
	Supplementary literature	1. H.E. Enderton, A mathematical introduction to logic 2. Shoenfield, Mathematical logic	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. Write a definition of a term and a formula 2. Prove that every theorem has a proof 3. Write a definition of a model with a given signature 4. Prove that sentences that have a proof in a given theory are true in the model of that theory		
Work placement	Not applicable		

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