



Subject card

Subject name and code	FINANCIAL MATHEMATICS, PG_00061333						
Field of study	Engineering Management						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Economic Analysis and Finance -> Faculty of Management and Economics						
Name and surname of lecturer (lecturers)	Subject supervisor		Filip Borysewicz				
	Teachers		Filip Borysewicz				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	0.0	0.0	0.0	45
	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	45		7.0		73.0	125
Subject objectives	Identifies concepts and mathematical tools used in finance and banking						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U04] formulates logical solutions to complex or unstructured problems		analyzes the impact of various factors influencing the studied phenomenon, striving to obtain an optimal solution		[SU2] Assessment of ability to analyse information		
	[K6_W02] demonstrates advanced preparation in the methods and techniques of formulating and solving problems		selects appropriate mathematical methods and techniques to analyze financial problems		[SW1] Assessment of factual knowledge		
Subject contents	Time value of money introduction Simple interest, discount rate, compound interest, continuous capitalization Nominal, equivalent, effective and average interest rate Inflation rate and real interest rate Valuation of short-term debt securities (bills and other debt securities) Models of installments payable in arrears and in advance Perpetual installment Models of equal installments with capitalization more frequent and less frequent than installments Models of installments increasing according to arithmetic and geometric progression Debt repayment Ratios in credit assessment Investment profitability analysis Valuation of long-term debt securities Introduction to the valuation of derivatives The use of a spreadsheet in financial mathematics						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Tests during the semester		60.0%		100.0%		
Recommended reading	Basic literature		Podgórska M., Klimkowska J., Matematyka finansowa, Wydawnictwo Naukowe PWN, Warszawa 2005 Sobczyk M., Matematyka finansowa: podstawy teoretyczne, przykłady, zadania, Agencja Wydawnicza Placet, Warszawa 2006				

	Supplementary literature	Bień W., Bień A., Kalkulacja ceny pieniądza w lokatach, pożyczkach i kredytach, Difin, Warszawa 2006 Borowski J., Golański R., Kasprzyk K., Melon L., Pogórska M., Matematyka finansowa: przykłady, zadania, testy, rozwiązania, SGH, Warszawa 2003 Kellison S. G., The Theory of Interest, McGraw-Hill, 2008 Małoka M., Światłowski J., Matematyka finansowa i funkcje finansowe arkusza kalkulacyjnego, Wydawnictwo WSB, Poznań 2003
	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	Calculation of the future value of deposits, loan installments, and the expected size of a pension	
Work placement	Not applicable	

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