



Subject card

Subject name and code	FINANCIAL MATHEMATICS, PG_00061176						
Field of study	Management						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2025/2026		
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		English		
Semester of study	3		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department Of Finance -> Faculty Of Management And Economics -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Piotr Kasprzak				
	Teachers						
Lesson types and methods of instruction	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	Identifies concepts and mathematical tools used in finance and banking						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W02] demonstrates comprehensive preparation in terms of methods, techniques for formulating and solving problems		selects appropriate mathematical methods and techniques to analyze financial problems		[SW1] Assessment of factual knowledge		
	[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		
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%		80.0%		
	Final test		60.0%		20.0%		

Recommended reading	Basic literature	<p>A. Pascucci, W. J. Runggaldier Financial Mathematics: Theory and Problems for Multi-period Models (UNITEXT) 2012th Edition, Springer 2012</p> <p>S. Chandra, S. Dharmaraja, Aparna Mehra, R. Khemchandani, Financial Mathematics: An Introduction 1st Edition, Alpha Science International, 2013</p> <p>D.G. Saari, Mathematics of Finance: An Intuitive Introduction (Undergraduate Texts in Mathematics) 1st ed. 2019 Edition, Springer, 2019</p> <p>M. B. Miller, Mathematics and Statistics for Financial Risk Management 2nd Edition, Wiley Finance Series, 2018</p>
	Supplementary literature	<p>D.R. Chambers, Q. Lu, Introduction to Financial Mathematics With Computer Applications, Chapman and Hall/CRC, 2021</p> <p>K. J. Hastings, Introduction to Financial Mathematic, Chapman and Hall/CRC, 2015</p>
	eResources addresses	Adresy na platformie eNauczanie:
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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