



Subject card

Subject name and code	FINANCIAL MATHEMATICS, PG_00061176						
Field of study	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			English		
Semester of study	3	ECTS credits			3.0		
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	dr Piotr Kasprzak					
	Teachers	dr Piotr Kasprzak					
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		
	Final test		60.0%		20.0%		
	Tests during the semester		60.0%		80.0%		

Recommended reading	Basic literature	A. Pascucci, W. J. Runggaldier Financial Mathematics: Theory and Problems for Multi-period Models (UNITEXT) 2012th Edition, Springer 2012 S. Chandra, S. Dharmaraja, Aparna Mehra, R. Khemchandani, Financial Mathematics: An Introduction 1st Edition, Alpha Science International, 2013 D.G. Saari, Mathematics of Finance: An Intuitive Introduction (Undergraduate Texts in Mathematics) 1st ed. 2019 Edition, Springer, 2019 M. B. Miller, Mathematics and Statistics for Financial Risk Management 2nd Edition, Wiley Finance Series, 2018
	Supplementary literature	D.R. Chambers, Q. Lu, Introduction to Financial Mathematics With Computer Applications, Chapman and Hall/CRC, 2021 K. J. Hastings, Introduction to Financial Mathematic, Chapman and Hall/CRC, 2015
	eResources addresses	Adresy na platformie eNauczanie: Financial mathematics (exercises) STACJONARNE LATO 2024 - Moodle ID: 36501 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36501
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	