



Subject card

Subject name and code	Financial Mathematics, PG_00067926						
Field of study	Economics						
Date of commencement of studies	October 2025		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	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		4.0		
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						
	Teachers						
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		5.0		50.0	100
Subject objectives	Identifies mathematical concepts and mathematical tools used in finance and banking						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W02] possesses advanced knowledge of methods and techniques that enable precise formulation and effective problem solving.		selects appropriate methods and mathematical techniques to analyse financial problems		[SW1] Assessment of factual knowledge		
	[K6_U04] develops logical solutions to complex or unstructured problems, even under conditions of uncertainty.		analyzes the influence of various factors which influence 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 model (SIM), Capital Gains Tax. Compound interest model (CIM) with annual, sub-period and continuous capitalization. The calculation of the mathematical and commercial discount. Valuation of short-term securities. Real capital value, real interest rate. The basis for building an investment portfolio. Annuities - without capitalization, with capitalization, equal, compatible and non-compatible. Construction of the loan repayment schedule, APRC calculation. Valuation of long-term securities. Introduction to the valuation of derivatives using the example of options.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Midterm colloquium		60.0%		60.0%		
	Final test		60.0%		30.0%		
	Additional tasks		0.0%		10.0%		

Recommended reading	Basic literature	Kellison, S. G. (2008). Theory of interest. New York: McGraw-Hill. Piasecki, K., Ronka-Chmielowiec W. (2011). Matematyka finansowa. Warszawa: C.H. Beck. Podgórska, M., Klimkowska, J. (2022). Matematyka finansowa. Warszawa: Wydawnictwo Naukowe PWN. Redo, M., Prewysz-Kwinto, P. (2021). Matematyka finansowa. Warszawa: Wydawnictwo Naukowe PWN.
	Supplementary literature	Borowski, J., Golański, R., Kasprzyk, K., Melon, L., Pogórska, M. (2003). Matematyka finansowa: przykłady, zadania, testy, rozwiązania. Wałbrzych: Szkoła Główna Handlowa. Cegłowski, B., Podgórski, B. (2021). Finanse z arkuszem kalkulacyjnym. Warszawa: Wydawnictwo Naukowe PWN. Sobczyk, M. (2011). Matematyka finansowa: podstawy teoretyczne, przykłady, zadania. Warszawa: Agencja Wydawnicza Placet.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Calculation of the time value of money. Calculation of the future value of investments. APRC calculation.	
Work placement	Not applicable	

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