GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Financial Mathematics, PG_00068009
Field of study	

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 concepts and mathematical tools used in finance and banking

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U04] develops logical solutions to complex or unstructured problems, even under conditions of uncertainty.	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] possesses advanced knowledge of methods and techniques that enable precise formulation and effective problem solving.	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 Matłoka M., Światłowski J., Matematyka finansowa i funkcje finansowe arkusza kalkulacyjnego, Wydawnictwo WSB, Poznań 2003
	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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