



Subject card

Subject name and code	Financial Mathematics, PG_00040560						
Field of study	Engineering Management						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2021/2022		
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			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						
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=11362 Adresy na platformie eNauczanie:						
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	6.0	39.0	75		
Subject objectives	Introducing students to the basic mathematical concepts and tools used in finance and banking.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U02] analyses economic problems, including financial ones in various areas of the organisation's functioning, also when formulating and solving engineering tasks						
	[K6_W06] has a basic knowledge of methods and tools for conducting research and analyses related to particular areas of the enterprise's operations and its environment	Student knows the valuation methods of the time value of money.			[SW1] Assessment of factual knowledge		
	[K6_W11] has the basic knowledge of mathematics, physics and chemistry necessary to solve technical problems				[SW1] Assessment of factual knowledge		
Subject contents	Time value of money – introduction; Simple interest, discount rate, compound interest, continuous compounding; Nominal, equivalent, effective and average rate of interest; Inflation rate and real rate of interest; Valuation of short-term securities (bonds and other securities); Annuity – immediate and annuity – due ; Perpetuities; Annuities payable more and less frequently than interest is convertible; Payments varying in arithmetic and geometric progression; Repayment of debts analysis' Measurement of investment performance; Valuation of long-term securities; Introduction to the valuation of derivative instruments; Using a spreadsheet in financial mathematics.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Midterm colloquium	60.0%			100.0%		

Recommended reading	Basic literature	1. Podgórska M., Klimkowska J., Matematyka finansowa, Wydawnictwo Naukowe PWN, Warszawa 2005. 2. Sobczyk M., Matematyka finansowa: podstawy teoretyczne, przykłady, zadania, Agencja Wydawnicza Placet, Warszawa 2006.
	Supplementary literature	1. Bień W., Bień A., Kalkulacja ceny pieniądza w lokatach, pożyczkach i kredytach, Difin, Warszawa 2006. 2. Borowski J., Golański R., Kasprzyk K., Melon L., Pogórska M., Matematyka finansowa: przykłady, zadania, testy, rozwiązania, SGH, Warszawa 2003. 3. Kellison S. G., The Theory of Interest, McGraw-Hill, 2008. 4. Matłoka M., Światłowski J., Matematyka finansowa i funkcje finansowe arkusza kalkulacyjnego, Wydawnictwo WSB, Poznań 2003
	eResources addresses	
Example issues/ example questions/ tasks being completed	Calculation of the future value of investments, credit instalments and expected retirement value.	
Work placement	Not applicable	