



## Subject card

Subject name and code	Financial Mathematics, PG_00044439						
Field of study	Engineering Management						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2023/2024		
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	Part-time studies (on-line)	Mode of delivery			blended-learning		
Year of study	2	Language of instruction			Polish		
Semester of study	4	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 inż. Marcin Potrykus				
	Teachers		dr inż. Marcin Potrykus				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	16.0	0.0	0.0	0.0	16
	E-learning hours included: 12.0						
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	16	6.0		53.0		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_W11] has the basic knowledge of mathematics, physics and chemistry necessary to solve technical problems		The student perceives the need to expand knowledge and is able to develop it.		[SW1] Assessment of factual knowledge		
	[K6_U02] analyses economic problems, including financial ones in various areas of the organisation's functioning, also when formulating and solving engineering tasks		Student solves the financial problems of financial institutions and their clients		[SU1] Assessment of task fulfilment		
	[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 identifies methods of valuing money over time.		[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). Ordinary Annuity and annuity due. Perpetuities. Annuities payable more and less frequently than interest is convertible. Repayment of debts analysis. Valuation of long-term securities.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Colloquium		60.0%		100.0%		

Recommended reading	Basic literature	Podgórska, M., Klimkowska, J. (2022). Matematyka finansowa. Warszawa: Wydawnictwo Naukowe PWN. Redo, M., Prewysz-Kwinto, P. (2021). Matematyka finansowa. Warszawa: Wydawnictwo Naukowe PWN. Sobczyk, M. (2011). Matematyka finansowa: podstawy teoretyczne, przykłady, zadania. Warszawa: Agencja Wydawnicza Placet.
	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. Kellison, S. G. (2008). Theory of interest. New York: McGraw-Hill. Piasecki, K., Ronka-Chmielowiec W. (2011). Matematyka finansowa. Warszawa: C.H. Beck.
	eResources addresses	Adresy na platformie eNauczanie: Matematyka finansowa Sem. Lato 23/24 - Moodle ID: 35932 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35932">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35932</a>
Example issues/ example questions/ tasks being completed	Calculation of the future value of investments, credit instalments and expected retirement value.	
Work placement	Not applicable	