



## Subject card

Subject name and code	Financial Mathematics, PG_00049700						
Field of study	Management						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2022/2023		
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	4		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		exam		
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		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_U04] describes financial problems in different areas of the organisation's functioning		Student can see the financial aspects of the decisions taken in the company.		[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
	[K6_W08] has a basic knowledge of the methods and tools used to conduct research related to particular areas of business activity		Student knows the mathematical tools used to measure the impact of the time to value of money.		[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 Valuation of short and long-term securities; 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 test		60.0%		90.0%		
	Acitivites during the class		60.0%		10.0%		
Recommended reading	Basic literature		1.Kellison, S. G. (2008). Theory of interest. New York: McGraw-Hill. 2.Piasecki, K., Ronka-Chmielowiec W. (2011). Matematyka finansowa. Warszawa: C.H. Beck. 3.Podgórska, M., Klimkowska, J. (2022). Matematyka finansowa. Warszawa: Wydawnictwo Naukowe PWN. 4. Redo, M., Prewysz-Kwinto, P. (2021). Matematyka finansowa. Warszawa: Wydawnictwo Naukowe PWN.				

	Supplementary literature	<p>1. Newnan D. G., Engineering Economic Analysis, Engineering Press, Inc., San Jose, California, 1991.</p> <p>2. Lyuu Y.-D., Financial Engineering and Computation. Principles, Mathematics, Algorithms, Cambridge University Press, 2002.</p> <p>3. Borowski, J., Golański, R., Kasprzyk, K., Melon, L., Pogórska, M. (2003). Matematyka finansowa: przykłady, zadania, testy, rozwiązania. Wałbrzych: Szkoła Główna Handlowa.</p> <p>4. Cegłowski, B., Podgórski, B. (2021). Finanse z arkuszem kalkulacyjnym. Warszawa: Wydawnictwo Naukowe PWN.</p> <p>5. Sobczyk, M. (2011). Matematyka finansowa: podstawy teoretyczne, przykłady, zadania. Warszawa: Agencja Wydawnicza Placet.</p>
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>22/23 F. Math. STAC - Moodle ID: 29671</p> <p><a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29671">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29671</a></p>
Example issues/ example questions/ tasks being completed	Calculation of the future value of investments, credit instalments and expected retirement value.	
Work placement	Not applicable	