

SDAŃSK UNIVERSITY 的 OF TECHNOLOGY

Subject card

Subject name and code	Financial and Insurance Mathematics, PG_00050162							
Field of study	Economic Analytics							
Date of commencement of studies	October 2021		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			blended-learning		
Year of study	1		Language of instruction			Polish		
Semester of study	2		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	Subject supervisor	dr inż. Ewa Mazurek-Krasodomska						
of lecturer (lecturers)	Teachers		dr inż. Ewa Mazurek-Krasodomska					
			dr Piotr Kaspr	zak				
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM
of instruction	Number of study hours	15.0	30.0	0.0	0.0		0.0	45
	E-learning hours inclu	ded: 15.0				I		
	Adresy na platformie eNauczanie:							
	Matematyka finansowa i ubezpieczeniowa - Moodle ID: 21040 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21040							
Learning activity and number of study hours	Learning activity	earning activity Participation in didactic classes included in stud plan		Participation in consultation hours		Self-study		SUM
	Number of study hours	45		5.0		25.0		75
Subject objectives	Introducing students to the basic mathematical concepts and tools used in finance, banking and insurance.							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
	[K6_U08] Has the ability to use mathematical and IT tools to analyse economic phenomena and make decisions by economic entities.		Student uses a learned mathematical tools to analyze financial events in banking and insurance.			[SU4] Assessment of ability to use methods and tools		
	[K6_W01] Has a basic knowledge of the nature of economic sciences and their place in the system of social sciences and relations to other areas of science.		Student knows the valuation methods of the time value of money and their importance in the economy			[SW1] Assessment of factual knowledge		
Subject contents	t contents LECTURES: Time value of money introduction; Simple interest, discount rate, compound interest, continuous compounding; Inflation rate and real rate of interest; Valuation of short-term securities; Annuities Payments varying in arithmetic and geometric progression; Repayment of debts analysis; Valuation of long-term securities; Fundamentals of actuarial mathematics; Using a spreadsheet in financial mathematics.							st, es; Annuities; ation of long- ematics.
	TUTORIALS: 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 long-term securities; Introduction to the valuation of derivative instruments; Life expectancy tables; The average time of life; Annuities and life insurance.							
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 Exam	60.0%	30.0%			
	Additional tasks	0.0%	10.0%			
Recommended reading	Basic literature	 Kellison S. G., The Theory of Interest, McGraw-Hill, 2008; Podgórska M., Klimkowska J., Matematyka finansowa, Wydawnictwo Naukowe PWN, Warszawa 2020; Cegłowski B., Podgórski B., <i>Finanse z arkuszem kalkulacyjnym</i>, Wydawnictwo Naukowe PWN, Warszawa 2014. Kowalczyk P., Poprawska E., Ronka-Chmielowiec W., Metody aktuarialne, Wydawnictwo Naukowe PWN, Warszawa 2013 				
	Supplementary literature	 Borowski J., Golański R., Kasprzyk K., Melon L., Pogórska M., Matematyka finansowa: przykłady, zadania, testy, rozwiązania, SGH, Warszawa 2003; Piasecki K., Ronka-Chmielowiec W., <i>Matematyka finansowa</i>, C. H. Beck, Warszawa 2011. Błaszczyszyn B., Rolski T., <i>Podstawy matematyki ubezpieczeń na życie</i>, WNT 2004. Hull J., <i>Kontrakty terminowe i opcje. Wprowadzenie</i>, WIG Press, Warszawa 1998. Sobczyk M., Matematyka finansowa: podstawy teoretyczne, przykłady, zadania, Agencja Wydawnicza Placet, Warszawa 2011 				
	eResources addresses	Matematyka finansowa i ubezpieczeniowa - Moodle ID: 21040 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21040				
Example issues/ example questions/ tasks being completed	Calculation of the time value of money, the future value of investments, credit instalments, the value of pensions, insurance premiums.					
Work placement	Not applicable					