



Subject card

Subject name and code	Actuarial mathematics, PG_00055429						
Field of study	Mathematics						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Applied Mathematics -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	mgr Piotr Lebieź					
	Teachers	mgr Piotr Lebieź					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	0.0	0.0	60
	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	60	5.0		35.0	100	
Subject objectives	The aim of the course is to familiarize students with and stimulate their interest in the topic of actuarial mathematics, focusing on the concept of time value of money and basic life insurance structures, including calculating expected remaining lifetimes, reserves, and insurance premiums.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
Subject contents	<p>The lectures and exercises are conducted according to the following list of topics:</p> <ol style="list-style-type: none">1. Introduction to the basics of the insurance market2. Elementary concepts of financial mathematics3. Various loan structures4. Additional tasks in financial mathematics5. Life expectancy6. Life insurance7. Life annuities8. Calculation of net premiums9. Net reserves10. Group policies						
Prerequisites and co-requisites	<p>Knowledge of the basics:</p> <ol style="list-style-type: none">1. probability theory,2. statistics,3. mathematical analysis.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	2 exams	50.0%	90.0%
	Activity	0.0%	10.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. J. Czarnowska, K. Dziedziul, "Ubezpieczenia na życie i komunikacyjne", Wyd. Politechnika Gdańska, Gdańsk, 2012 2. B. Błaszczyszyn, T. Rolski, "Podstawy matematyki ubezpieczeń na życie", Wyd. Naukowo-Techniczne, Warszawa, 2004 3. H.U. Gerber, "Life insurance mathematics", Wyd. Springer-Verlag, Berlin, Heidelberg, New York, 1995 4. M. Skalba, "Ubezpieczenia na życie", Wyd. Naukowo-Techniczne, Warszawa, 2003 	
	Supplementary literature	<ol style="list-style-type: none"> 1. J. Jakubowski, R. Sztencel, "Wstęp do rachunku prawdopodobieństwa", Wyd. Script, Warszawa, 2001 	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> 1. Calculating interest rates 2. Calculating the value of money at different points in time 3. Calculating loan installments with given parameters 4. Calculating remaining life expectancy 5. Calculating reserves for various life insurance policies 6. Calculating premiums for various life insurance policies 		
Work placement	Not applicable		

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