GDAŃSK UNIVERSITY OF TECHNOLOGY

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 Lebiedź	
	Teachers	mgr Piotr Lebiedź	

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

The lectures and exercises are conducted according to the following list of topics:

1. Introduction to the basics of the insurance market
2. Elementary concepts of financial mathematics
3. Various loan structures
4. Additional tasks in financial mathematics
5. Life expectancy
6. Life insurance
7. Life annuities
8. Calculation of net premiums
9. Net reserves
10. Group policies

Prerequisites and co-requisites

Knowledge of the basics:

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	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. Skałba, "Ubezpieczenia na życie", Wyd. Naukowo-Techniczne, Warszawa, 2003	
	Supplementary literature	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	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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