

Subject card

Subject name and code	General Insurance Data Analysis, PG_00174264						
Field of study	Mathematical Modeling and Data Analysis						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2025/2026		
Education level	Bachelor's studies		Subject group				
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		6.0		
Learning profile	academic		Assessment form		exam		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Monika Wrzosek				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	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		0.0		0.0	60
Subject objectives	To familiarize participants with property insurance models at the actuarial examination level.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[MMiADL3_U10] is able to recognise problems, including practical issues, that can be solved algorithmically; can make a specification of such a problem		can solve algorithmic problems related to data analysis in property insurance		[SU4] test/exam - oral or written		
	[MMiADL3_U11] knows how to arrange and analyse an algorithm in accordance with the specification and save it in the selected programming language		is able to create and analyze an algorithm related to data analysis in property insurance		[SU4] test/exam - oral or written		
	[MMiADL3_K02] is ready to precisely formulate questions to deepen his/her own understanding of a given topic or to find missing elements of reasoning		is ready to precisely formulate questions related to understanding the topic of property insurance		[SK8] observation of student's independent or team work		
	[MMiADL3_W09] knows and understands the basics of computational and programming techniques supporting mathematician's work and understands their limitations		knows and understands the basics of programming related to data analysis in property insurance		[SW4] test/exam - oral or written		

Subject contents	1. Conditional expected value. Moment generating functions. 2. Distributions of random sums, parameters of these distributions and generating functions. Approximations by selected distributions. 3. Classical risk process. Probability of ruin for this process (martingale approach). 4. Lundberg and Cramer-Lundberg estimation. Maximum loss, record values. 5. Discrete risk model. 6. Reinsurance models.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam	51.0%	50.0%
	test	51.0%	50.0%
	observation of the student's attitude	51.0%	0.0%
Recommended reading	Basic literature	• W.Otto, <i>Ubezpieczenia majątkowe</i>. Teoria ryzyka, WNT 2004. • J. Grandell, <i>Aspects of risk theory</i>, Springer, 1992. • E. Straub, <i>Non-life Insurance Mathematics</i>, Springer, 1997.	
	Supplementary literature	none	
	eResources addresses		
Example issues/ example questions/ tasks being completed	not included		
Work placement	Not applicable		

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