

Subject card

Subject name and code	General insurance, PG_00155466						
Field of study	Mathematics						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		5.0		
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	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		60.0	125
Subject objectives	To familiarize participants with property insurance models at the actuarial examination level.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[MATMU2_U03] can understand mathematical texts of various types from selected fields of mathematics	The student is able to prove selected theorems in the theory of property insurance.	[SU4] test/exam - oral or written
	[MATMU2_W03] knows and understands in-depth a selected field of theoretical or applied mathematics and is able to understand the formulations of issues in this field that are still at the research stage and knows the connections of issues in this field with other areas of mathematics	The student knows and understands the proofs of selected theorems in the field of property insurance.	[SW4] test/exam - oral or written
	[MATMU2_U05] can perform proofs in a selected field and, if necessary, also use tools from other areas of mathematics	The student is able to solve selected issues in the field of property insurance using probabilistic tools.	[SU4] test/exam - oral or written
	[MATMU2_U01] can construct mathematical reasoning: prove theorems and refute hypotheses through construction and selection of counterexamples	The student is able to prove selected theorems in the theory of property insurance.	[SU4] test/exam - oral or written
	[MATMU2_K02] is ready to precisely formulate questions to deepen his/her understanding of a given topic or find missing elements of reasoning	The student is ready to formulate questions to deepen understanding of a given topic.	[SK8] observation of student's independent or team work
	[MATMU2_W01] knows and understands in-depth the theory of selected areas of mathematics	The student knows and understands the field of property insurance and the role that probabilistic methods play in it.	[SW4] test/exam - oral or written
	[MATMU2_K04] is ready to understand and appreciate the importance of intellectual honesty in one's own and other people's actions; ethical conduct	The student understands and appreciates the importance of intellectual honesty and ethical conduct.	[SK8] observation of student's independent or team work
	[MATMU2_W02] knows and understands well the role and importance of the construction of mathematical reasoning	The student is able to formulate opinions on basic issues relating to property insurance.	[SW4] test/exam - oral or written
	[MATMU2_K06] is ready to formulate opinions on basic mathematical issues	The student is able to formulate opinions on basic issues relating to property insurance.	[SK1] oral statement/conversation/discussion
	[MATMU2_U06] is able to apply methods and examples from a selected field of mathematics in related fields	The student is able to construct models of issues in the field of property insurance.	[SU4] test/exam - oral or written
	[MATMU2_K01] is willing to acknowledge the limitations of his or her own knowledge and is willing to pursue further education	The student understands the limitations of his or her own knowledge and the need for lifelong learning.	[SK8] observation of student's independent or team work
	[MATMU2_U04] is able, at an advanced level and including modern mathematics, to apply and present, orally and in writing, methods of at least one selected branch of mathematics	The student is able to solve property insurance problems using various probabilistic methods.	[SU4] test/exam - oral or written
	[MATMU2_K05] is ready to independently search for information in literature, also in foreign languages	The student is ready to search for information in scientific studies.	[SK8] observation of student's independent or team work
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
	observation of the student's attitude	51.0%	0.0%
	test	51.0%	50.0%
	exam	51.0%	50.0%
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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