

FACULTY OF PURE AND APPLIED MATHEMATICS					
SUBJECT CARD					
Name in Polish: MODELE UBEZPIECZEŃ ŻYCIOWYCH					
Name in English: Life insurance models					
Main field of study (if applicable): Applied Mathematics					
Specialization (if applicable): Mathematics for Industry and Commerce					
Level and form of studies: 1st/ 2nd* level, full-time / part-time*					
Kind of subject: obligatory / optional / university-wide*					
Subject code MAT1365					
Group of courses YES / NO*					
	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)	30	30			
Number of hours of total student workload (CNPS)	90	60			
Form of crediting	Examination / crediting with grade *	Examination / crediting with grade *	Examination / crediting with grade *	Examination / crediting with grade *	Examination / crediting with grade *
For group of courses mark (X) final course	X				
Number of ECTS points	3	2			
including number of ECTS points for practical (P) classes	1	2			
including number of ECTS points for direct teacher-student contact (BK) classes	1.5	1.5			

*delete as applicable

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Student knows and can apply basic concepts of the probability theory

SUBJECT OBJECTIVES

C1 Study of the classical concepts and acquisition of the knowledge of life insurance mathematics

SUBJECT EDUCATIONAL EFFECTS

relating to knowledge:

PEK_W01 knows the most important concepts of life insurance mathematics

PEK_W02 knows principles of stochastic modeling in life insurance mathematics

relating to skills:

PEK_U01 can construct mathematical models used in life insurance mathematics

relating to social competences:

PEK_K01 can, without assistance, search for necessary information in the literature, also in foreign languages

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PROGRAMME CONTENT

Form of classes - lecture		Number of hours
Lec 1	Individual risk models for a short term	2
Lec 2	Approximations for total loss in individual risk model	2
Lec 3	Distribution of the future lifetime	2
Lec 4	Life tables	2
Lec 5	Assumptions for fractional ages	2
Lec 6	Analytical laws of mortality	2
Lec 7	Life insurance payable at the moment death	2
Lec 8	Life insurance payable at the end of the year of death	2
Lec 9	Fully continuous net premiums	2
Lec 10	Fully discrete net premiums	2
Lec 11	Commutation functions	2
Lec 12	Discrete life annuities	2
Lec 13	Continuous life annuities	2
Lec 14	Fully discrete net premium reserves	2
Lec 15	Fully continuous net premium reserves	2
	Total hours	30

Form of classes - class		Number of hours
Cl 1	Solving of problems illustrating theory given in the lectures, solving of problems from actuarial exams	30
	Total hours	30

TEACHING TOOLS USED

N1. Lecture – traditional method.
 N2. Problem-solving classes.
 N3. Consultations.
 N4. Student’s self-work – preparation for the classes.

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation (F – forming (during semester), P – concluding (at semester end))	Educational effect number	Way of evaluating educational effect achievement
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F1	PEK_W01 PEK_W02 PEK_K01	tests
F2	PEK_U01 PEK_K01	oral presentations, tests
P=0.5*F1+0.5*F2		
PRIMARY AND SECONDARY LITERATURE		
<u>PRIMARY LITERATURE:</u>		
<p>[1] N. L. Bowers i inni „Actuarial Mathematics”, The Society of Actuaries, Itasca, Illinois 1997</p> <p>[2] H. U. Gerber „Life insurance mathematics”, Springer-Verlag, Berlin 1997</p>		
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)		
<p>Dr Krzysztof Burnecki (Krzysztof.Burnecki@pwr.wroc.pl)</p> <p>Dr Agnieszka Wyłomańska (Agnieszka.Wylomanska@pwr.wroc.pl)</p>		

**MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR
 SUBJECT
 LIFE INSURANCE MODELS MAT1365
 AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY
 MATHEMATICS
 AND SPECIALIZATION MATHEMATICS FOR INDUSTRY AND
 COMMERCE**

Subject educational effect	Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)**	Subject objectives***	Programme content***	Teaching tool number***
PEK_W01 (knowledge)	K2MIC_W03	C1	Lec 1- Lec 15	1,3
PEK_W02	K2MIC_W09	C1	Lec 1- Lec 15	1,3
PEK_U01 (skills)	K2MIC_U15	C1	C1 1	2,3,4
PEK_K01 (competences)	K2MIC_K06	C1	Lec 1- Lec 15, C1 1	1,2,3,4

** - enter symbols for main-field-of-study/specialization educational effects

*** - from table above