Zał. nr 4 do ZW 64/2012

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 MAP2042

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

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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

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

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

PRIMARY LITERATURE:

[1] N. L. Bowers i inni „Actuarial Mathematics”, The Society of Actuaries, Itasca, Illinois 1997
[2] H. U. Gerber „Life insurance mathematics”, Springer-Verlag, Berlin 1997

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT

LIFE INSURANCE MODELS MAP1992

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	Cl 1	2,3,4
PEK_K01 (competences)	K2MIC_K06	C1	Lec 1- Lec 15, Cl 1	1,2,3,4

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

*** - from table above