LIFE INSURANCE - GENERAL INSURANCE (m63109p)

Instructors: A.ZYMPIDIS – N.TSAGAKIS

Core Course, 3rd semester, 5 ECTS units
Course level: Graduate (MSc)
Language: Greek

Course Description

A. Life Insurance
Survival function, Simple mortality table and related functions, force of mortality, laws Classics mortality, actuarial tables and commutation functions, Stochastic approach to Life Insurance. Life annuities with one or more payments annually, Relationship between annuities, life insurance of various kinds, Relationship annuities and insurance, interest rate movements and mortality. Net premiums and gross premiums, concept and process of calculating reserves, Relationship between successive stock price. Tables and Actuarial functions for two or more persons, Contingent actuarial functions. Pricing and profit-testing.

B. General Insurance
Uncertainty, Risk, Insurance, Insurance Companies, Actuaries, Insurance Concepts, Products, Actuarial base. Frequency, severity and pricing methodology premium adjustments, Projections and trends for the final payments by using linear and other models. Reserving methods, Analysis of Insurance Data, Triangular methods and olistic methods of reserving, Discounting reserves, and Confidence Intervals. Reinsurance schemes, «Bonus-Malus» and Markov Chains.

Prerequisites

Students should have basic knowledge of mathematical calculus, linear algebra, probability and statistics.

Target Learning Outcomes

- The student will receive all the necessary technical knowledge for Life and General Insurance: Pricing, Reserving and Reinsurance.
- The student will be able to understand the structure of the basic & complex products of Life Insurance and to design similar products. He (she) will also be able to design and investigate various reinsurance coverage structures.
- The student will be able to perform all the basic technical calculations in relation to the Pricing (Net and Commercial Premiums), Reserving and Reinsurance procedures.

Recommended Bibliography

A. Life Insurance
- Zimbidis A.(2009), «Actuarial Mathematics of Life Insurance»
- Neil A. (1986), «Life Contingencies» Heinemann Professional Publishing
- Etienne De Vylder (1997), "Life insurance : Actuarial Perspectives" Kluwer Academic Print

B. General Insurance

- Zimbidis A. (2008) «Actuarial Mathematics of General Insurance»
- Brown R.L , Gottlieb L.R. (2005) -3rd edition "Introduction to Ratemaking and Loss Reserving for Property and Casualty Insurance", Actex Publications,
- Mikosch T. (2006) "Non-Life Insurance Mathematics: An Introduction with Stochastic Processes", Springer

Teaching and Learning Activities

One three-hour lecture per week, study exercises αs as homework (some to be submitted).

Assessment and Grading Methods

The final grade is the average of the final examination grade (α%) and the grade of the study and programming exercises to be submitted (100% - α %), provided that the final examination grade is at least 5/10. Otherwise, the final grade equals the final examination grade. The percentage a% varies within the range 20%-40% depending on the difficulty of the exercises each academic year.