Linnæus University

Dnr: 2014/2417 -3.1.2

Course syllabus

Faculty of Technology

Department of Mathematics

4MA202 Försäkringsmatematik, 7,5 högskolepoäng
4MA202 Insurance Mathematics, 7.5 credits

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
Second Level

Progression
A1F

Date of Ratification
Approved 2009-12-01
Revised 2014-09-03 by Faculty of Technology. Prerequisites, objectives, content, examinations and type of instructions are revised.
The course syllabus is valid from autumn semester 2015

Prerequisites
4MA201 Foundations of probability, 7.5 credits, or equivalent.

Objectives

The student should be able to:

- understand and explain the basic concepts in life and non life insurance mathematics as well as risk theory
- apply and evaluate the various methods of computing in life and non life insurance, analyze and interpret the results
- justify the choice of tools made in a coherent and concise manner
- relate the basic notions introduced in the course and apply the relation to more complex problems
- interpret, communicate on and lead an argument in topics of insurance mathematics.
- differentiate alternative risk models and premium principles and evaluate the influence of reinsurance
- assess the mathematical possibilities and limitations of risk modelling and its impact on society, e.g. solvency and climatic changes.

Content
The course contains:

- premium principles
- introduction to utility theory
- individual and collective risk models for insurance portfolios
- risk models including reinsurance
- insurance risk theory, e.g. risk processes and ruin probabilities
- introduction to life insurance mathematics (equivalence principles, Hattendorff's theorem).

Type of Instruction
Lectures and seminars. Compulsory assignments may be given during the course.

Examination
The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

Assessment of how well the student fulfills the objectives is achieved through

- written assignments
- written examination?
- oral examination

On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

Course Evaluation
After the course a written evaluation of the course will take place according to the University guidelines.

Other
On request, a Swedish University course certificate will be awarded upon successful completion of the course.

Required Reading and Additional Study Material
Required reading

Kaas, R., Goovaerts, M., Dhaene, J.,Denuit, M.; Modern Actuarial Risk Theory, 1st edition, Springer, Berlin. 306 pages

DFM, *Compendium*. Linnaeus University, present year.