

## **INSURANCE SEMI-MARKOV MODELS**

This short course has the purpose to show how it is possible to construct insurance models by means of semi-Markov processes (SMP) and some of their possible generalizations.

Theoretical aspects will not be presented. The interested persons could refer to the given bibliography.

The course is subdivided in the following sections:

- Renewal processes and Markov chains
- Semi-Markov processes
- Semi-Markov process algorithms
- Homogeneous and non-homogeneous interest rate structure
- A disability insurance application
- Semi-Markov reward processes
- Discrete time Markov reward processes and stochastic annuities
- Discrete time semi-Markov reward processes and generalized stochastic annuities
- Some examples of generalized stochastic annuities
- Generalized semi-Markov process models