

Non-Life Insurance Mathematics

Topics for the tests (09.12.09 and 17.12.09)

Claim number process $N(t)$

- Poisson process: definition, properties
- Renewal process: definition, properties

The Cramér Lundberg model

properties of the total claim amount process
(expectation and variance)

The Renewal model

Premium calculation principles

what is different between the classical and modern principles?

Compound Poisson variable

Reinsurance treaties

what are they for?

Ruin probability $\psi(u)$

premium income $p(t) = ct$,

risk process $U(t) = u + p(t) - S(t)$

with total claim amount process $S(t) = \sum_{i=1}^{N(t)} X_i$,

and initial capital u ,

ruin = $\{\omega : U(t, \omega) < 0 \text{ for some } t > 0\}$, ruin time $T = \inf\{t > 0 : U(t, \omega) < 0\}$,

ruin probability $\psi(u) = \mathbb{P}(\text{ruin}) = \mathbb{P}(T < \infty)$.