



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Basics of Actuarial Mathematics

1920-3-E3301M216

Course title

Fondamenti di Matematica Attuariale

Topics and course structure

Expected utility theory and premium: the foundations of expected utility theory. Certainty equivalents. Indifference premium, Axiomatic approach to premium principles.

Recall on probability distributions and related properties. Modeling the duration of human life. Survival models.

Actuarial notations. Mortality force. Mortality tables. Complete and curtate expected future lifetimes.

Actuarial present values and recursive formulas. Elementary insurance benefits: pure endowment, term insurance, wholelife insurance, wholelife annuity, term annuity. Recursive formulas and premium calculations.

Mathematical reserving

Policy values. Definition of mathematical reserve.

Recursive formulas for mathematical reserving.

Objectives

Students will be able to use the knowledge and skills acquired in this course to analyze and evaluate critically the problems related to Insurance through data analysis, following the methods of Actuarial Mathematics.

Methodologies

Excel and VBA will be used to evaluate insurance policies.

Online and offline teaching materials

Programme and references for attending students

- Lecture notes and slides
- C. Pacati, Appunti di Matematica Attuariale

Programme and references for non-attending students

Assessment methods

The written exam consists of questions about theory and exercises. The former test students' knowledge and understanding of the main concepts of the subject. The latter measure students' ability in the application of such concepts to solve simple practical problems.

Office hours

Programme validity

Course tutors and assistants
