UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Principles of Actuarial Techniques

2526-2-F1601M090-F1601M085M

Learning objectives

1. Knowledge and Understanding
The module provides students with a solid foundation in understanding the insurance market, the main characteristics of life and non-life business, and the quantitative methodologies for evaluating technical reserves under different accounting principles and risks concerning Solvency II.

2. Ability to Apply Knowledge and Understanding
Students will acquire the ability to apply statistical and actuarial tools to measure and manage various life and non-life tariffs in terms of pricing and evaluation of technical reserves and the main associated risk factors (standard formula Solvency II). Emphasis is placed on using Excel to understand the main pricing and reserving techniques in the context of local GAAP and Solvency II.

3. Judgment Autonomy
The course develops the ability to evaluate the different guarantees offered by the market, the related risks, and the main methods of constructing pricing and evaluation. These evaluations are placed within the context of the main economic variables observed by insurance companies and the effects that different risks generate on the company's capital requirements and market competitiveness. Students are encouraged to reflect on the decision-making implications in the actuarial and financial fields.

4. Communication Skills
The ability to clearly and comprehensively present the results of analyses and the impacts of each decision, both qualitatively and quantitatively, is enhanced. Students become familiar with the specific technical language of the insurance sector and are encouraged to learn about the profession of the Actuary in insurance companies and financial companies that manage particular risks. A particular focus is dedicated to aspects of Risk Management.

5. Learning Ability
The module promotes the development of a method that allows connecting different aspects (insurance company economics, actuarial and risk technical analysis, Risk Management, Financial risk management, etc.) and deepening the various implications for the Actuarial profession. The integration of theory and practice allows for

active and lasting learning, instrumental also for entering the job market.

Contents

1. Some data of the Italian market and a view on sector regulations
2. Types of insurance coverages (life and non-life)
3. Pricing methods (life and non-life)
4. Reserving methods (life and non-life, different metrics: local, Solvency II, IFRS17)
5. Solvency II (overview)

Detailed program

The lessons, connected to the topics mentioned above, are supported by slides and documentation derived from the analysis of public documents and/or sites of particular interest (e.g. the Italian Regulator's website, IVASS, for all regulatory aspects). To deepen the quantitative topics, supporting Excel files are provided and explained during the lessons, allowing students to evaluate '*what-if*' and '*sensitivity*' analyses when modifying certain evaluation parameters (e.g. first and second order technical bases). During the lessons, practical examples are illustrated to quantify the importance of different phenomena.

Prerequisites

Basic knowledge of statistics, economy, mathematic of financial applications and use of basic IT tools (e.g. excel)

Teaching methods

Lecture (possibility of streaming and video recordings if necessary to allow course attendance). Numerical exercises with Excel.

Assessment methods

Oral evaluation.

Textbooks and Reading Materials

Slides and materials uploaded on e-learning

Semester

Second semester

Teaching language

Italian

Sustainable Development Goals

QUALITY EDUCATION | GENDER EQUALITY | INDUSTRY, INNOVATION AND INFRASTRUCTURE