



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Insurance Economics M

2425-1-F8204B026

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#### Learning objectives

The course provides the skills to understand, analyze and measure risks in the insurance sector, through the use of probabilistic, statistical and financial methodologies.

#### Contents

The course aims to familiarize students with the measurement of risks in the main insurance contracts (life and non-life policies) and to provide introductory skills on the techniques for calculating the premium and technical reserves both from a statutory financial statement perspective and from a solvency.

#### Detailed program

##### Part I.

- The importance of insuring
- Introduction to insurance, the branches, subjects and general principles
- Aversion and risk premium
- Insurance and moral hazard
- Descriptive notes of the main non-life classes
- Non-life insurance: calculation of the premium and technical reserves
- Notes on budget analyzes

##### Part II

- Life insurance: technical bases, pure premiums, natural premiums, mathematical reserves, risk and savings premiums.
- Class I contracts, revaluable policies and class III contracts
- The main forms of insurance: calculation of the premium and mathematical reserves
- Demographic risk and financial risk
- Analysis and breakdown of the technical profit for the year
- Industrial profits, distributable profits and cost of capital
- Economic value of an insurance company
- Technical reserves with a view to solvency
- Solvency capital, internal model and standard formula

## Prerequisites

Having even basic knowledge of probability calculations and financial mathematics facilitates learning the subject. Mastery of simple accounting notions is also useful. It is advisable to have taken Applied Probability and follow Microeconomics; this requirement is however not essential.

## Teaching methods

The entire training activity will be carried out mainly with in-person lessons in delivery mode aimed at the real application of insurance techniques and practical exercises. In-depth exercises and exam preparation will be carried out in class.

## Assessment methods

The exam is written with optional oral.

The written exam aims to verify the understanding of the insurance technique in terms of risk measurement, calculation of the insurance premium and of the technical reserves.

The written exam consists of two parts.

A first part consists of a spreadsheet paper that the student must complete within the week preceding the written exam. The thesis focuses on the topics addressed in the lessons and which were the subject of exercises. To prepare for the test, the student will have all the teaching material used at his disposal.

The second part consists of the actual written test in the classroom on the day of the exam which will consist of questions with true/false answers, correspondence, multiple choice and simple exercises that require numerical calculations to be carried out with the aid of a calculator. Also in this case the numerical exercises will focus exclusively on topics already covered in the lessons and will be such that they can be carried out easily in the time allowed for the test.

The student, who will not be satisfied with the outcome and the evaluation obtained, can request an oral exam after the publication of the grade of the written exam. Both the oral and the written exam concern the whole programme.

## Textbooks and Reading Materials

Pitacco, E. , Lezioni di Tecnica Attuariale delle Assicurazioni Libere sulla Vita” , Lint Editoriale.

- Teacher's notes.

## **Semester**

Second semester. Fourth cycle.

## **Teaching language**

Italian.

## **Sustainable Development Goals**

QUALITY EDUCATION | GENDER EQUALITY

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