UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Financial Mathematics - 1

2425-2-E1802M118-E1802M021M-T1

Learning objectives

The aim of this course is to provide the basic tools and concepts of Mathematical Finance and their applications to financial
calculus and to investment appraisal based on the cash flows.

Contents

Financial transactions. Capitalization. Annuities. Capital accumulation. Amortizations. Investment appraisal. Bonds' market.

Detailed program

1. **Capitalization.** Financial transactions. Accumulated value, interest, discounted value. Capitalization and discounting. Interest rates and discount
   rates. Equivalent rates. Instantaneous intensity of interest. Decomposability property.
2. **Annuities.** Classification of annuities. Value of an annuity at time t. Present value and final value. Time indexes.
3. **Capital accumulation and amortizations.**
4. **Investment appraisal.**
5. **Bonds' market.** Bond pricing. Yields. Duration. Term structure of interest rates and forward rates.

Prerequisites

The course "Metodi Quantitativi per l'Amministrazione delle Imprese" is a prerequisite for the Matematica Finanziaria course.

Teaching methods

The teaching method is based on lectures, exercises and tutoring in preparation for the exam.
Lectures will take place mainly in presence.

Assessment methods

The final assessment will be carried out with a compulsory written exam, either divided into two parts or in one unique exam.
The written exam is formed by exercises and theory questions.

There may be an oral examination in the following three cases:

1. exam requested by the professor
2. exam requested by the student
3. exam in order to have 30 cum laude

The exam evaluates the formal correctness of the passages, the adequacy of the mathematical language adopted, the skills
and knowledge acquired during the course.

Textbooks and Reading Materials

*S. Stefani, A. Torriero, G.M. Zambruno
Elementi di Matematica finanziaria e cenni di programmazione lineare
Giappichelli, Torino, 2017

*G. Bolamperti, G. Ceccarossi
Elementi di Matematica finanziaria e cenni di programmazione lineare - Esercizi

Semester

First semester.

Teaching language

Italian.

Sustainable Development Goals

QUALITY EDUCATION