UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Financial Mathematics - 1

2122-2-E1802M118-E1802M021M-T1

Learning objectives

Financial Mathematics course will provide students an introduction to the basic principles and concepts of classical Financial Mathematics and their applications to financial calculation and choice problems based on cash flows.

Contents

Financial operations. Capitalization laws. Interest and discount rates. Simple interest. Compound interest. Anticipated interest. Equivalent rates. Interest intensity. Scindibility. Discounting. Rents. Present value. Principal and interest of a rent. Properties of rents. Time indices. Capital installment. Amortization. Payback time criterion. DCF and IRR. Bonds

Detailed program

Financial operations

Capitalization laws

Interest and discount rates

Simple interest

Compound interest

Anticipated interest

Equivalent rates

Interest intensity

Scindibility

Discounting

Simple discounting

Commercial discounting

Rents

Present value

Principal and interest of a rent

Value of a rent at time t

Properties of rents

Time indices

Capital installment

Amortization

Anticipated resolution

Financial operations

Payback time criterion

DCF and IRR

Bonds

Term structure of interest rates

Prerequisites

Basic Calculus

Teaching methods

Frontal lesson, streaming and tutoring for exercises and problems.

Assessment methods

A **written test** in the form:

1. Five multiple choice questions, each of which is assigned a maximum score of 3;
2. Three open exercises or problems, each of which is assigned a maximum score of 5;
3. One final question for honors that will be corrected only in case parts 1 and 2 are completely correct.

An **optional oral exam** in the following three cases:

1. student summoned by the teacher;
2. student who asks to take the oral exam;
3. student who has taken 30 in the written test and desires honors.

Textbooks and Reading Materials

S. Stefani, A. Torriero, G.M. Zambruno

Elementi di Matematica finanziaria e cenni di programmazione lineare

Giappichelli, Torino, 2017

(Quinta Edizione)

Semester

First semester (October 5th, 2021 - January 15th, 2022)

Teaching language

Italian