



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Risk Management

2223-2-F8204B036-F8204B036M

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#### Learning objectives

The purpose of the course is introducing students to the modern theory of financial risk and to the main risk measures, with special emphasis on numerical applications.

#### Contents

Introduction to risk and uncertainty; the efficient frontier; risk measures; backtests.

#### Detailed program

1. Risk and return;
2. The mean-variance model;
3. Efficient frontier and the CAPM;
4. Efficient frontier with portfolio constraints;
5. Definitions of risk measures;
6. Main risk measures: Value-at-Risk and Expected Shortfall;
7. Numerical implementation;
8. Backtests;
9. Copulas.

#### Prerequisites

Courses on R programming, Financial theory and Statistics.

## **Teaching methods**

Traditional lectures, computer aided lessons and classes.

## **Assessment methods**

Numerical exercises with PC. The student is presented a list of 5/6 problems covering all topics of the course and which require to answer with numerical elaborations at the PC. The student may be required to write an ad hoc new function in R in order to solve some of the problems.

## **Textbooks and Reading Materials**

Teaching notes

## **Semester**

First semester

## **Teaching language**

Italian

## **Sustainable Development Goals**

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