



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Financial Markets Analytics

2122-1-F9101Q053

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#### Learning objectives

The objective of the course is to deepen and analyze some theoretical and empirical developments in portfolio management, focusing in particular on tactical asset allocation and the main quantitative models of stock selection.

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#### Contents

The course focuses on two macro areas of topics. A first part focused on more advanced portfolio theory models, i.e. Strategic/Tactical Asset Allocation models. The focus in this first part will be more on the empirical applications of the models and the more technical data issues involved in the development of the models. In the second part the course focuses on Equity Portfolio Management issues, introducing Economic, Fundamental and Screening factor models, clarifying the relationship with the market efficiency hypothesis and the relevance of data and its quality for building investment strategies.

#### Detailed program

**Topic****References/Readings****Strategic Asset Allocation**

The framework for Asset Management, Strategic Asset Allocation

QEPM and Slides (Markowitz, CAPM, APT)

Improving Strategic Asset Allocation (1)

Scherer (2002)

Introduction to Quantitative Equity Portfolio Management

QEPM Slides

Improving SAA (R application), Resampling

**Quantitative Equity Portfolio Management**

Introduction to Quantitative Equity Portfolio Management (QEPM)

QEPM Slides

Fundamental Models

QEPM Slides

Economic Models

QEPM / Miller (2005b) Liodakis (2005)

Screening and fundamental models

Slides

Economic Models Estimation

Slides

Stock Screening Models

QEPM / Harvey et al. (1999) Miller (2005a)

**One-off topics in Portfolio Management**

Dynamic portfolio strategies (focus on CPPI)

Pain and Rand (2008)

Constant proportion portfolio insurance (CPPI) with R

Arbitrage based strategies (Pairs Trading)

Pairs Trading with R

Coding

Momentum investing, Cross sectional vs Time series

Momentum investing with R

Coding

## Prerequisites

There are no formal prerequisites for the course, but basic knowledge of financial theory will be useful.

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## Teaching methods

The course is taught in a traditional way, therefore based on frontal teaching. It provides for the development of applications and models in the computer lab with the help of the R programming language. The development of models, of which some examples are the Black and Littermann model, the efficient frontier resampling, the CPPI etc... is prodromic to the Assignment that is delivered during the course and represents a concrete opportunity for students to exploit and consolidate the knowledge developed during the laboratory.

## Assessment methods

The learning will be tested through:

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## Textbooks and Reading Materials

The course content is based in part on the book:

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**Semester**

Second semester

**Teaching language**

Italian

