

# Financial Economics (21133)

**Degree/study:** IBE

**Course:** Second

**Term:** Third

**Number of ECTS credits:** 5

**Hours of student's dedication:** 125

**Language or languages of instruction:** English

**Professor:** Ander Pérez Orive

## 1. Presentation of the subject

The aim of this course is to give the student an introduction into Asset Pricing, the theory that tries to understand the prices or values of financial assets. Financial assets, such as stocks, bonds or options, are claims to uncertain future payments. A low price implies a high rate of return, so one can also think of the theory as explaining why some assets pay higher average returns than others.

To value an asset, we have to account for the timing and for the risk of its payments. Out of the two, corrections for risk are much more important determinants of many assets' values and make asset pricing interesting and challenging.

The two main asset pricing principles considered in this course are: i) *relative pricing* or asset pricing by absence of arbitrage opportunities, and ii) *absolute pricing* or market equilibrium asset pricing. The first principle is based on the idea that two assets that provide the same payoffs should have the same price. In order to price the whole universe of financial assets, however, we need to investigate how investors make their investment decisions (individual optimality) and how the coordination of these investors on the financial markets leads to the formation of prices (equilibrium analysis).

## 2. Skills to be obtained

- Familiarity with the financial system and its key role in economics
- Knowledge of the characteristics and uses of the main financial instruments, such as bonds, options and shares
- Ability to implement lack of arbitrage opportunities techniques in order to price financial assets
- Ability to implement market equilibrium techniques in order to price financial assets
- Ability to understand Expected Utility theory methods in order to build optimal portfolios (optimal asset allocation)
- Familiarity with the mean–variance framework analysis, and its applications for financial risk measurement, risk diversification and the construction of efficient portfolios

### **3. Contents**

#### **SECTION I: INTRODUCTION**

##### **Chapter 1: Financial Economics: Instruments and Markets**

- 1.1. Introduction and Basic Concepts
- 1.2. Financial Securities
  - 1.2.1 Bonds
  - 1.2.2 Stocks
  - 1.2.3 Derivatives
  - 1.2.4 New Trends in Financial Markets
- 1.3. Organization of Financial Markets
- 1.4. The Statistics of Financial Securities

##### **References:**

BMA: Chapter 2 (section 2.1), Chapter 4 (section 4.1), Chapter 7 (section 7.1)

MR: Chapters 1,14 and 15.

#### **SECTION II: PRINCIPLES OF FINANCIAL ECONOMICS**

##### **II.A: ABSENCE OF ARBITRAGE AND PRICING**

##### **Chapter 2: Arbitrage and Fixed Income Assets**

- 2.1 Absence of Arbitrage: Basic Concepts and Examples
- 2.2 The Pricing of Fixed Income Assets Under Absence of Arbitrage
- 2.3 Sequential Arbitrage

##### **References:**

BMA: Chapter 3 (p.74-75)

MR: Chapter 2

##### **Chapter 3: The Term Structure of Interest Rates**

- 3.1 An Introduction to the Term Structure of Interest Rates

3.2 Interest Rates and the Prices of Bonds

3.3 The Forward Interest Rates

3.4 Theories on the Term Structure of Interest Rates

References:

BMA: Chapter 3 (sections 3.2, 3.3, and 3.4)

MR: Chapter 3

**Chapter 4: The Fundamental Asset Pricing Equation Under Uncertainty**

4.1 Pricing Assets with Uncertain Payoffs: The Fundamental Ideas

4.2 Arrow-Debreu Securities and the Fundamental Asset Pricing Equation

4.3 Risk Neutral Probabilities

References:

MR: Chapter 4.

**Chapter 5: Derivatives Pricing**

5.1 Options and Futures: Basic Aspects

5.2 The Pricing of Options

5.3 The Pricing of Futures

References:

BMA: Chapter 20, Chapter 21, Chapter 26 (Sections 26.3, 26.4)

MR: Chapter 4.

**II.B: PREFERENCES AND EQUILIBRIUM**

**Chapter 6: Portfolio Selection and Pricing Under Uncertainty**

6.1 Expected Utility Theory and Risk Aversion

6.2 Portfolio Selection with Two Assets (I): a risky asset and a risk-free bond

6.3 Portfolio Selection with Two Assets (II): the CARA-Normal case

References:

MR: Chapter 18 and 19 (pp. 795-804).

## SECTION III: THE MEAN-VARIANCE FRAMEWORK

### **Chapter 7: Portfolio Selection in a Mean-Variance Framework**

7.1 Introduction

7.2 A Formal Justification of the Mean-Variance Framework

7.3 Risk and Return in Financial Markets

7.4 Volatility in Financial Markets

7.5 The Construction of Efficient Portfolios

#### References:

BMA: Chapter 7, Chapter 8 (Section 8.1)

MR: Chapter 5 and 6.

### **Chapter 8: The Capital Asset Pricing Model (CAPM)**

8.1 Basic Assumptions

8.2 The Market Portfolio and Beta Risk

8.3 Graphical and Analytical Derivation of the Capital Market Line (CML) and the Security Market Line (SML)

8.4 What is Beta?

8.5 Impact and Uses of the CAPM in Practice

#### References:

BMA: Chapter 8 (Sections 8.2 and 8.3)

MR: Chapter 7.

## **4. Grading**

1. The grade of the course will be based on the performance in the final exam.
2. The final exam will contain only multiple choice questions.
3. Active participation in the seminars will be valued, with a maximum of one point to be added to the final grade.
4. Students that fail the course can retake the final exam in the period established by the university for such purposes. Only the students that have failed the final exam can sit in the retake exam, but not the ones that did not register for the final exam.

5. Students taking part in exchange programs approved by the university will be evaluated by a final exam to take place in the period established by the university for such purposes.

## 5. Bibliography and teaching resources

- Class lectures and notes are self-contained, so no textbook is necessary.
- There are two references which are given to provide additional material for those wanting to complement the class material, but they are not required. There are copies of both in the library:
  - (BMA) “*Principles of Corporate Finance - Global Edition*” Richard A. Brealey, Stewart C. Myers and Franklin Allen, Publisher: McGraw-Hill Higher Education; 10th edition (Nov 2010)
    - very clear and well-written book, and a standard in many corporate finance and asset pricing courses.
  - (MR) “*Economía Financiera*”, José Marín y Gonzalo Rubio, Editor: Antoni Bosch, Barcelona 2001
    - follows the lecture material very closely, but unfortunately is only in Spanish.

## 6. Methodology

Theory Lectures: where the theoretical concepts are presented

Seminars: where the theory will be put into practice, with an active participation of students

## 7. Activities Planning

WEEK	SESSION Date	THEORY	SEMINAR
1	1	Chapter 1: Financial Economics: Instruments and Markets	
	2	Chapter 2: Arbitrage and Fixed Income Assets	
2	3	Chapter 2: Arbitrage and Fixed Income Assets	
	4		
3	5	Chapter 3: The Term Structure of Interest Rates	
	6		
4	7	Chapter 4: The Fundamental Asset Pricing Equation Under Uncertainty	
	8		
5	9	Chapter 5: Derivatives Pricing	1- SEMINAR BLOCK 1 (Past exam exercises for chapters 1-3)
6	10	Chapter 5: Derivatives Pricing	2- SEMINAR BLOCK 1 (Past exam exercises for chapters 1-3)
	11		
7	12	Chapter 6: Portfolio Selection and Pricing Under Uncertainty	3- SEMINAR BLOCK 2 (Past exam exercises for chapters 4-5)
8	13	Chapter 6: Portfolio Selection and Pricing Under Uncertainty	4- SEMINAR BLOCK 2 (Past exam exercises for chapters 4-5)
	14	Chapter 7: Portfolio Selection in a Mean-Variance Framework	
9	15	Chapter 7: Portfolio Selection in a Mean-Variance Framework	5- SEMINAR BLOCK 3 (Past exam exercises for chapters 6-8)
10	16	Chapter 8: The Capital Asset Pricing Model (CAPM)	6- SEMINAR BLOCK 3 (Past exam exercises for chapters 6-8)