

Course Unit: 9152314; 9994314 – Financial Calculus

Year 2 Semester 3 ISCED Code: 343 ECTS: 6

Type of Course Unit: Compulsory Delivery Mode: Face-to-face Language of Instruction: Portuguese

COURSE COORDINATOR: Maria do Sacramento Basílio

HOURS OF WORK

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
150		60							90

Prerequisites (if applicable): Not applicable

LEARNING OUTCOMES (knowledge, skills and competence)

The mathematical understanding of financial operations is fundamental both to analyze different investment alternatives and to study different options in the use of credit, aspects that are of greater importance in a constantly changing environment and with the proliferation and diversity of financial products and services.

Thus, the objectives of this curricular unit are:

- To provide students with the necessary tools (concepts, processes and work methodologies) in order to understand and provide skills to decide on the alternative applications offered by the capital market
- To establish the students / market dialogue and encourage the research on the topics of the syllabus, through the resolution of practical cases
- To provide the basis for understanding the techniques used in the development of financial products.

CONTENTS

INTRODUCTION:

- General framework. The time value of money.
- Capital, time and interest.
- Capitalization schemes - Brief characterization.
- Interest rates - Different concepts.

CAPITALIZATION SCHEMES:

- Simple interest;
- Compound interest;
- Discount operations: The Discount of commercial letters.

CAPITAL EQUIVALENCE

INTEREST RATES:

- Equivalence and proportionality;
- Nominal rates, net, real, TAEG, TAER.

ANNUITIES

- Notion and classification;
- Annuities with constant terms

AMORTIZATION OF LOANS

Classic Loan Repayment Methods

FINANCIAL CALCULATION APPLICATIONS - ANALYSIS OF REAL CASES.

DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

The goals defined for this curricular unit are transversal to the syllabus presented. Thus, the syllabus allows the student to achieve the objectives established in the curricular unit, allowing the acquisition of competences considered relevant, namely:

- To analyze and criticize the financial information;
- To identify and characterize the essential points of a financing and investment policy (costs / income, deadlines, fiscal aspects);
- To develop decision-making and problem-solving capacity in a diversified and constantly changing reality;
- To properly use terminology and financial language.

TEACHING METHODOLOGIES

The presentation of the topics will be essentially theoretical-practical, with the explanation of basic concepts necessary to understand the themes.

Critical thinking will be encouraged through the resolution of exercises and case studies illustrating real situations, for example through the analysis of simulations related to financial products obtained from financial institution websites.

Use of the Moodle e-learning platform.

DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES

An active and critical posture in the teaching-learning process should be adopted by students. It is considered that the methodologies presented achieve these objectives.

The presentation of the topics is accompanied by the resolution of practical cases, exercises and analysis of simulations based on real financial products, allowing the students to apply the acquired knowledge and realize the importance of the time value of money in the analysis of different investment / financing opportunities.

EVALUATION METHODS

The evaluation in the continuous regime consists in two written tests, each with the weight of 50%, in the final note. Failure to do any of the evaluation elements on the specified dates implies that the student opts for the alternative assessment scheme, performing a 100% final exam.

MAIN BIBLIOGRAPHY

Matias, Rogério (2018). *Cálculo Financeiro – Teoria e Prática*. 6ª Ed.. Lisboa: Escolar Editora.

Matias, Rogério (2018). *Cálculo Financeiro - Exercícios resolvidos e explicados II*. Escolar Ed.

Rodrigues, A. e Nicolau, I (2010). *Elementos de Cálculo Financeiro*. Lisboa: Áreas Editora.

Complementar:

Barroso, Maria; Crespo, Nuno e Couto, Eduardo (2009), *Cálculo e Instrumentos Financeiros*. Lisboa: Escolar Editora

Cleaves, Cheryl; Hobbs, Marge and Noble, Jeffrey (2017). *Business Math* (11th edition). Pearson publishing.

Mateus, J. A. (1995), *Exercícios Práticos de Cálculo Financeiro*. Lisboa: Edições Sílabo.

Matias, Rogério (2008), *Cálculo Financeiro – Casos Reais Resolvidos e Explicados*. Lisboa: Escolar Editora.

Santos, Luís Lopes e Laureano, R. (2011), *Fundamentos do Cálculo Financeiro*. Lisboa: Edições Sílabo.

Santos, Luís Lopes e Laureano, R. Editores (2005). *Temas em Métodos Quantitativos – Perspetivas do Cálculo Financeiro*. Lisboa: Edições Sílabo.

(References updated in October.2018)

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