



UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Financial Calculus

Academic Year 2026/2027

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Business Management

3. Cycle

1st

4. Course Unit

Financial Calculus (24109)

5. Scientific Area

6. Curricular Year

1st

7. Type of Curricular Unit / Semester

2nd Semester



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8. Class type and workload (work time)

Theoretical classes:	
Practical classes:	
Theoretical-Practical Classes	30,00
Tutorial Guidance:	20,00

9. ECTS Credits

6,00

10. Scientific Area Coordinator

11. Regent

Prof. Doutor MIGUEL ALEXANDRE TEIXEIRA COELHO

12. Assistants

Dr. LUIS FILIPE COSTA TORRES CAPAZ COELHO

13. Teaching Language

Portuguese

14. General Objectives

The curricular unit was conceived with the aim of providing the student with training in the following areas:

1. Interest rate regimes
2. Capital equivalence
3. Annuities
4. Loan Repayments

15. Specific Objectives

1. Familiarize students with simple interest and compound interest.
2. Ensure students have an adequate understanding of the main concepts associated with financial calculation.
3. Identify the student with the main types of annuities.
4. Provide the student with analytical instruments for calculating interest and amortization of capital in different types of loans.
5. Familiarize students with the main financial products provided by Credit Institutions.

16. Skills to be acquired



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Students should be able to:

- # apply simple and compound interest regimes to calculate present and accumulated values;
- # convert and compare interest rates and solve capital equivalence problems;
- # calculate the present and accumulated values of different types of annuities;
- # prepare and interpret loan repayment schedules under the main repayment methods;
- # analyse and compare financial products and instruments based on their cash flows, rates and conditions.

17. Teaching Methodology

The method combines theoretical exposition (know-how) with the resolution of practical cases and simulation exercises (know-how), covering the framework, concepts and models inherent to each of the subjects to be taught. It also seeks to discuss the conciliation between theoretical knowledge and practical knowledge in real contexts, thus ensuring a phronetic perspective (wisdom) of the subject.

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I. Capitalization regimes

- I.1 Introduction.
- I.2 Capitalized value and present value.
- I.3 Interest regime.
 - I.3.1 Simple interest system.
 - I.3.2 Capitalization process.
 - I.3.3 Discount process.
- I.4 Compound interest system.
 - I.4.1 Capitalization using compound interest.
 - I.4.2 Update of capitals.
- I.5 Relations between interest rates.
- I.6 Proportional interest rates.
- I.7 Equivalent interest rate.
- I.8 Effective and Nominal interest rates.
- I.9 Instantaneous capitalization rate.

II. Capital equivalence

- II.1 Introduction.
- II.2 Equivalent capital and equation of value.
 - II.2.1 Simple interest rate regime.
 - II.2.2 Compound interest rate regime.
- II.3 Common capital.
 - II.3.1 Simple interest rate regime.
 - II.3.2 Compound interest rate regime.
- II.4 Common duration.
- II.5 Average duration.
- II.6 Internal rate of return.
- II.7 Average interest rate.
 - II.7.1 Average interest rates with a single capital.
 - II.7.2 Average interest rates with different capitals.

III. Annuities

- III.1 Introduction.
- III.2 Immediate annuities with normal terms.
 - III.2.1 Present value.
 - III.2.2 Accumulated value.
- III.3 Immediate annuities with anticipated terms.
- III.4 Deferred annuities.
- III.5 Perpetual annuities.



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III.6 Annuities with variable terms.

III.6.1 Variable terms in general.

III.6.2 Variable terms in arithmetic progression

III.6.3 Variable terms in geometric progression.

III.7 Fractional Annuities

III.7.1 Conversion of a Fractional Annuity into an Integer-Period Annuity

III.7.2 Calculation of a Fractional Annuity

IV. Repayment of loans

IV.1 Introduction.

IV.2 Type 1: Principal amortization and interest paid in one lump sum at the maturity.

IV.3 Type 2: Principal amortization and interest paid at the beginning of the loan term.

IV.4 Type 3: Interest paid over the life of the loan and principal amortization at maturity.

IV.5 Type 4: Interest paid at the beginning and principal amortization over the term of the loan.

IV.6 Type 5: Interest paid at maturity and principal amortization over the term of the loan.

IV.7 Type 6: Interest payment and principal amortization over the term of the loan.

IV.7.1 Constant principal amortization.

IV.7.2 Constant installment.

V. Financial Products and Instruments

V.1 Introduction.

V.2 Main Deposit-Taking and Lending Operations in the Banking System.

19. Assessment Methods

The Regulations for the Assessment of Knowledge and Skills currently in force will apply. Continuous assessment must include oral contributions distributed throughout the teaching period and a final written test, and may also include an intermediate written test, as defined in the corresponding Continuous Assessment Plan.

20. Didactic Resources

Adopted books
power point
Videos
Internet

21. Sustainability Objectives

SDG 4 ? Quality Education: development of quantitative and financial literacy skills essential for the rigorous analysis of financial operations.

SDG 8 ? Decent Work and Economic Growth: preparation of students to evaluate and compare saving, financing and investment decisions, contributing to more efficient and responsible financial management.



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22. Keywords

1. Capitalization regimes
2. Capital equivalence
3. Annuities
4. Repayments of Loans



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23. Main Bibliography

Author(s): Coelho, M e Coelho, L
Title: Calculo Financeiro: Manual Para Entender os Princípios do Calculo Financeiro - Volume I
Edition: 1ª Edição Year: 2016
Local: Lisboa
Publisher: Quid Juris
ISBN Code: 978-972-724-741

Author(s): Coelho, M e Coelho, L
Title: Calculo Financeiro: Manual Para Entender os Princípios do Calculo Financeiro - Volume II
Edition: 1ª Edição Year: 2017
Local: Lisboa
Publisher: Quid Juris
ISBN Code: 978-972-724-765

Author(s): Barroso, M. N., Couto, E., & Crespo, N.
Title: Cálculo e instrumentos financeiros: Da prática para a teoria
Edition: 2.ª ed. Year: 2009
Local: Lisboa
Publisher: Escolar Editora
ISBN Code: 978-972-592-248

24. Complementary Bibliography

Author(s): Coelho, M. e Sainhas Oliveira, R.
Title: Mercados: São Mesmo os Grandes Culpados das Crises?
Edition: 1ª Year: 2015
Local: Lisboa
Publisher: Bnomics
ISBN Code: 978-989-713-148

Author(s): Matias, Rogério
Title: Cálculo Financeiro ? Teoria e Prática
Edition: 7.ª edição Year: 2024
Local: Lisboa
Publisher: Escolar Editora



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