

Approval date: 25/06/2024

COURSE GUIDE

Introduction to Financial Operations (2351114)

Grado (Bachelor's Degree)	Grado en Administración y Dirección de Empresas	Branch	Social and Legal Sciences
Module	Formación Básica	Subject	Empresa
Year of study	1º	Semester	1º
ECTS Credits	6	Course type	Core course

PREREQUISITES AND RECOMMENDATIONS

Not required

BRIEF DESCRIPTION OF COURSE CONTENT (According to the programme's verification report)

- Basic concepts: financial capital and operation.
- Classic financial theorems.
- Short-term operations.
- Annuity Theory.
- Constitution and amortization: dynamics and effective interest rate.

SKILLS

GENERAL SKILLS

- CG01 - Ability to learn and work autonomously.
- CG02 - Ability to analyse and search for information from a variety of sources applicable to the field of study.
- CG04 - Ability to work in a team.
- CG06 - Ability to analyse and summarise.
- CG07 - Ability to make decisions.
- CG08 - Problem-solving skills in economic and business contexts.
- CG09 - Ability to organise and plan.
- CG10 - Ability to adapt to new or changing environments.
- CG11 - Creativity and intuition to choose appropriate measures for different contexts
- CG12 - Management and leadership capacity
- CG14 - Ability to convey information, ideas and solutions to problems raised.
- CG15 - Ability to assume an ethical commitment at work.
- CG16 - Sensitivity towards environmental and social issues



- CG19 - Oral and written communication skills in Spanish.
- CG20 - Computer skills related to the field of study.
- CG21 - Ability to gather and interpret relevant data to make judgements.
- CG24 - Ability to apply knowledge to practice.

SUBJECT-SPECIFIC SKILLS

- CE01 - Know and understand the economic reality, identify the role that companies play in the economy, know the different forms that companies can take
- CE02 - Understand the most relevant perspectives in the study of organizations
- CE09 - Know and apply theoretical concepts and instrumental techniques and tools for solving economic problems in real-life scenarios.
- CE11 - Use basic tools of a quantitative nature, calculation and for diagnosis and analysis
- CE15 - Know and apply the basic concepts of Finance
- CE16 - Know and apply the basic concepts of Accounting
- CE17 - Know and apply the basic concepts of Business Management
- CE18 - Know and apply the basic concepts of Marketing
- CE19 - . Ability to understand the phenomena that affect financial decisions and apply the appropriate methods and concepts in decision-making in the business field
- CE20 - Know and perform the functions that make up the administration process: planning, direction, organization and control
- CE21 - Understand the role and operation of the accounting information system in the company, the operating, investment and financing operations carried out by the company; identify the relevant accounting information sources and their content; relate accounting to other subjects through the role of financial statements and their usefulness for decision making
- CE22 - Make a diagnosis of a real situation in the business world, identifying and modeling problems as well as proposing solutions in a reasoned manner.
- CE23 - Manage and administer a company, as well as other public and private organizations and be able to design the organizational structure
- CE24 - Understand and apply the main lines of current strategic thinking, the role of competition and the search for competitive advantage; understand the roots of business success and failure, knowing in depth the concepts and tools for formulating and developing a strategy
- CE25 - Manage the commercial variables that allow the desired objectives to be achieved, dominate commercial research techniques, understand consumer behavior, and know sectoral marketing
- CE26 - Know information systems as support for management and their functions: planning, analysis, design and implementation of information systems; and interpret the information derived from them
- CE27 - Know and evaluate the market and the integrated environment within the marketing information system.

TRANSFERABLE SKILLS

- CT01 - Manage and administer a company or organisation by understanding its competitive and institutional positioning and identifying its strengths and weaknesses. Be part of any division of a medium or large company or organisation and be able to perform with ease the assigned management tasks.
- CT02 - Assess, on the basis of the relevant information records, the situation and foreseeable evolution of a company, issue reports on specific company and market situations, and make decisions on the basis of the resulting information.



LEARNING OUTCOMES

The objective of this program is to provide the student with an overview of the basic concepts of Financial Mathematics.

More specifically, the student:

- will understand the simple financial theorem and will apply it to short-term operations.
- will understand the compound and continuous financial theorems.
- will know how to identify and value an annuity.
- will understand the concepts of loan and obligation and calculate the magnitudes related to them.

PLANNED LEARNING ACTIVITIES

THEORY SYLLABUS

Topic 1. Basic concepts.

1. Financial Capital.
2. Financial Theorem. Properties.
3. Financial Operation.
4. Mathematical reserve or financial balance.
5. Commercial characteristics, effective interest rate and APR.
6. How interest rates are formed. The EURIBOR.

Topic 2. Simple interest.

1. Simple capitalization with due interest rate.
2. Simple discount with due interest rate or Rational Discount.
3. Simple discount with prepaid interest rate or Commercial Discount.
4. Change in units of measure: equivalent rates.
5. Substitution of capital: common maturity and average maturity.
6. Annex I: Simple capitalization with prepaid interest rate.
7. Annex II: Comparison of the different theorems.

Topic 3. Short-term operations.

1. Discount of bills of exchange.
2. Settlement of current savings accounts.
3. Settlement of current credit accounts.
4. Market operations:
 1. Spot purchase-sale.
 2. Forward purchase-sale.
 3. Operations with repurchase agreement (REPO).

Topic 4. Compound and continuous theorems.

1. Compound capitalization with due interest rate.
2. Compound discount with due interest rate.
3. Change in units of measure: equivalent rates.
4. Effective and nominal interest rate.
5. Continuous capitalization and discount.



6. Application of compound and continuous theorems.
7. Annex I: Compound capitalization and discount with prepaid interest rate.
8. Annex II: Comparison between the different theorems.

Topic 5. Valuation of annuities.

1. What is an annuity? Types of annuities.
2. Value of an annuity: present and future values.
3. Constant progressions: ordinary and perpetuity.
4. Geometric progressions: ordinary and perpetuity.
5. Arithmetic progressions: ordinary and perpetuity.
6. Fractional progressions.
7. Examples. Constitution of a capital through an annuity.

Topic 6. Loans.

1. What is a loan?
2. Evolution of a loan.
3. Amortization systems.
 1. Periodic payment of interest.
 2. French system.
 3. Constant repayment amortization.
4. Floating interest rate loans.
5. Grace period and cancellation in a loan.
6. Commercial characteristics: Effective interest rate and TAE.
7. Amortized Cost.
8. Annex I: Amortization with Geometric or Arithmetic payments.
9. Annex II: Sinking Fund and German System.

PRACTICAL SYLLABUS

The theory program is complemented by the practical program.

RECOMMENDED READING

ESSENTIAL READING

Frías-Aceituno, J.V. (2024). *Introducción Operaciones Financieras*. Editorial: Técnica Avicam.

CAPINSKI, M., & ZASTAWNIAK, T. (2003). *Mathematics for finance: an introduction to financial engineering* (1st ed. 2003). Springer London. <https://doi.org/10.1007/b97511>

LOVELOCK, D., MENDEL, M. & WRIGHT, A.L. (2007). *An Introduction of he Mathematics of Money. Saving and Investing* (1st ed. 2000). Springer New York. ISBN: 978-0387-34432-4.

PETTERS, A. O., & DONG, X. (2016). *An Introduction to Mathematical Finance with Applications: Understanding and Building Financial Intuition* (1st ed. 2016). Springer New York. <https://doi.org/10.1007/978-1-4939-3783-7>

POLLARD, A. H. (1977). *An introduction to the mathematics of finance* (Second edition). Pergamon Press.

COMPLEMENTARY READING



ALEGRE ESCOLANO, P. y otros. (1989): Ejercicios resueltos de matemática de las operaciones financieras. Ediciones AC.

ALEGRE ESCOLANO, P. y otros. (1997): Curso interactivo de matemática financiera. Editorial McGrawHill.

BONILLA, M.; IVARS, A.; MOYA, I. (2006): Matemática de las Operaciones Financieras: teoría y práctica. Editorial Thomson.

DE PABLO, A. (1994): Unidades didácticas de matemáticas de las operaciones financieras. UNED.

GARCÍA BOZA, J. (2002): Problemas resueltos de matemática de las operaciones financieras, Ed. Pirámide, Madrid.

GARCÍA BOZA, JUAN (2011). Matemáticas Financieras. Editorial: Pirámide.

GIL PELAEZ, L. (1987): Matemática de las operaciones financieras. Editorial AC.

GIL PELAEZ, L. (1987): Matemática de las operaciones financieras: problemas resueltos. Editorial AC.

GONZÁLEZ CATALÁ, V. (1992): Análisis de las Operaciones Financieras, Bancarias y Bursátiles. Ciencias Sociales, Madrid.

GONZÁLEZ CATALÁ, V. (1999): Operaciones Financieras, Bancarias y Bursátiles. Curso práctico. Ciencias Sociales, Madrid.

MENEU, V.M.; JORDÁ, M.P.; BARREIRA, M.T. (1994): Operaciones Financieras en el Mercado Español. Editorial Ariel Economía.

RODRIGUEZ RODRÍGUEZ, A. (1984): Matemática de la financiación. Romagraf. S.A.

TOVAR JIMENÉZ, JOSÉ (2ª edición): Operaciones Financieras (Teoría y Problemas Resueltos). Editorial CEF.

RECOMMENDED LEARNING RESOURCES/TOOLS

- [European Central Bank](#)
- [Tesoro público](#)
- [Banco de España](#)
- [Financial Times](#)
- [Invertia. El Español](#)

TEACHING METHODS

- MD01 - Docencia presencial en el aula
- MD02 - Estudio individualizado del alumno, búsqueda, consulta y tratamiento de información, resolución de problemas y casos prácticos, y realización de trabajos y exposiciones.
- MD03 - Tutorías individuales y/o colectivas y evaluación

ASSESSMENT METHODS (Instruments, criteria and percentages)

ORDINARY EXAMINATION DIET

The preferred system will be the continuous assessment system. However, a single final assessment could be applied when students cannot comply with the continuous evaluation method for working reasons, health status, disability, mobility programs or any other justified cause. The student may request the single final assessment in accordance with the Student Assessment and Grading Regulations (art. 8).



The continuous assessment system is based on:

- A **partial exam, corresponding to the first four topics**, that will suppose a 40% of the final grade for the subject. This exam will consist of two parts: theory and practice. Each of them will have a maximum score of 10 points. Theory will be weighted at 30% (**1.2 points**), and theoretical-practical, at 70% (**2.8 points**). It is necessary to obtain at least a minimum of 3.5 points out of 10 points in each of these parts (theory -**0.42 points**- and theoretical-practical -**0.98 points**-). Otherwise, the grade will be "**Not Passed**", and the student will have to take an exam of this part of the subject in the ordinary call (on the date set by the Center). Additionally, the student may choose to retake the partial exam, corresponding to the first four topics, waiving the grade obtained in the previous partial exam, on the day set in the examination calendar of the Center for the regular call of this subject. In this case, the grade obtained in this new exam will replace the one obtained previously.

The theoretical part will consist of a series of multiple-choice questions with a single correct answer. Wrong answers score negatively (the penalty will be notified to the student), unanswered questions do not add or subtract. The practice will consist of solving exercises.

- A **final exam, corresponding to the topics 5 and 6**, to be taken on the official date set by the Center (ordinary call), which will suppose a 60% of the final grade for the subject. It will consist of two parts: theory and practice. Each of them will have a maximum score of 10 points. Theory will be weighted at 30% (**1.8 points**), and theoretical-practical, at 70% (**4.2 points**). It is necessary to obtain at least a minimum of 3.5 points out of 10 points in each of the exam parts (theory -**0.63 points**- and theoretical-practical -**1.47 points**-) to be able to add the grades obtained in the final exam to those previously obtained in the partial exam considered as passed (with a minimum grade of 3.5 points out of 10 points in each of the parts that compose it).

On the day established by the Center for the ordinary exam, first of all, all students taking the exam will be examined on the contents corresponding to topics 5 and 6.

Subsequently, those students who have not passed the partial exam or choose to retake the partial exam, waiving the grade obtained in the previous partial exam, will be examined on the contents corresponding to the first four topics.

In those cases in which the student does not obtain a minimum grade of 3.5 points out of 10 points in each of the parts (theory and theoretical-practical), both in the exam corresponding to the first four topics and in the exam corresponding to topics 5 and 6, the overall grade of the knowledge acquired in the subject and, therefore, the grade that will appear in the corresponding report will be the sum of the scores obtained in the partial and final exam, with a maximum of 3 points. The student who does not appear for this final exam will have the qualification of "**Not presented**". The theoretical part will consist of a series of multiple-choice questions with a single correct answer. Wrong answers score negatively (the penalty will be notified to the student), unanswered questions do not add or subtract. The theoretical-practical will consist of solving exercises.

If student would take the partial exam again on the ordinary call, he/she will renounce to the grade obtained in the previous partial exam. In such a case, the grade obtained in this new exam will replace the previous one, if any.

EXTRAORDINARY EXAMINATION DIET

In the extraordinary call, the assessment will be carried out entirely through an extraordinary exam, **corresponding to the six topics**, out of a total score of 10 points, even if during the development of the subject the continuous assessment system had been chosen.

As in the ordinary call, this exam will consist of two parts: theory and practice, which will be



weighted at 30% and 70% respectively (theory **3 points** and practice **7 points**). To pass the subject, the student must obtain a minimum of 3.5 points out of 10 points in each of these parts (theory **-1.05 points**-and practice **-2.45 points**-). When this last requirement is not met, the overall exam grade and, therefore, the final grade of the subject will be the sum of the marks obtained with a maximum of 3 points. Likewise, the total score must be 5 points out of 10 to pass the subject. The student who does not take this final exam will have the grade of "**Not presented**".

The theoretical part will consist of a series of multiple-choice questions with a single correct answer. Wrong answers score negatively (the penalty will be notified to the student), unanswered questions do not add or subtract. The practice will consist of solving exercises. **Being an extraordinary call, the previous qualifications obtained in the continuous assessment system or final single assessment will not be considered.**

SINGLE FINAL ASSESSMENT (evaluación única final)

In the single final assessment, the evaluation will be carried out entirely through an extraordinary exam, **corresponding to the six topics**, out of a total score of 10 points. As in the ordinary call, this exam will consist of two parts: theory and practice, which will be weighted at 30% and 70% respectively (theory **3 points** and practice **7 points**). To pass the subject, the student must obtain a minimum of 3.5 points out of 10 points in each of these parts (theory **-1.05 points**-and practice **-2.45 points**-). When this last requirement is not met, the overall exam grade and, therefore, the final grade of the subject will be the sum of the marks obtained with a maximum of 3 points. Likewise, the total score must be 5 points out of 10 to pass the subject. The student who does not take this final exam will have the grade of "**Not presented**".

The theoretical part will consist of a series of multiple-choice questions with a single correct answer. Wrong answers score negatively (the penalty will be notified to the student), unanswered questions do not add or subtract. The practice will consist of solving exercises.

ADDITIONAL INFORMATION

Students must necessarily be provided with the respective D.N.I., driver's license or official passport to take any of the programmed exams.

Información de interés para estudiantado con discapacidad y/o Necesidades Específicas de Apoyo Educativo (NEAE): [Gestión de servicios y apoyos \(https://ve.ugr.es/servicios/atencion-social/estudiantes-con-discapacidad\)](https://ve.ugr.es/servicios/atencion-social/estudiantes-con-discapacidad).

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No

