

**COURSE DATA****Data Subject**

Code	36512
Name	Productive Business Investment Analytics
Cycle	Grade
ECTS Credits	6.0
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
1332 - Degree in Business Intelligence and Analytics	Faculty of Economics	2	Second term

Subject-matter

Degree	Subject-matter	Character
1332 - Degree in Business Intelligence and Analytics	12 - Finanzas	Obligatory

Coordination

Name	Department
GRAU GRAU, ALFREDO JUAN	172 - Business Finance

SUMMARY

The subject *Productive Investment Analysis of a Company* is taught in the second course, second semester, of the *Degree in Business Intelligence and Analytics (BIA)*. It is part of the Finance Module and covers the essential financial knowledge that any manager/analyst needs to work as a professional in the context of a company or organization.

The aim is to support the training of professionals who are involved in data analysis technologies and their application to company management when facing the challenges posed by the new Digital Economy.

This subject is based on the valuation of productive projects that enable the company to generate wealth and, therefore, maximize its market value. This requires innovation within the business, taking into account a limited availability of both economic and financial resources. Therefore, identifying the different techniques that help to correctly identify and value new investment opportunities is crucial, always within the framework of a Digital Environment (Big Data, Artificial Intelligence, etc.). Special attention is paid to the development of competencies, knowledge and skills related to business



management.

“We can define the company from the point of view of economic phenomenology as a succession in time of investment and financing projects ”(Suárez, 2005; p. 28). In both types of financial decisions, the objective to be achieved, as indicated above, is to maximize the market value of the company.

The course *Productive Investment Analysis of a Company* deals with the analysis and evaluation of investment projects in capital goods. For this, the basic instruments of investment valuation are studied in the contexts of certainty and uncertainty. In addition, and considering the economic, financial and technical restrictions that may arise within companies, the feasibility of undertaking different projects at the same time is analysed, with attention to these restrictions through mathematical linear programming.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

The required prior knowledge is general in nature and linked to the areas of Mathematics, Statistics, Financial Accounting, etc.

OUTCOMES

1332 - Degree in Business Intelligence and Analytics

- Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.
- Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.
- Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.
- Students must have developed the learning skills needed to undertake further study with a high degree of autonomy.
- Acquire basic training that can be used to learn new methods and technologies and to adapt to new situations in academic and professional areas.
- Be able to solve problems and to communicate and spread knowledge, skills and abilities, taking account of the ethical, egalitarian and professional responsibility of the activity of business intelligence and analytics.



- Be able to produce models, calculations and reports, and to plan tasks in the specific field of business intelligence and analytics.
- Know and know how to properly use the appropriate quantitative and qualitative methods to reason analytically, evaluate results and predict economic and financial magnitudes.
- Be able to apply analytical and mathematical methods for the analysis of economic and business problems.
- Demonstrate skills for analysis and synthesis.
- Be able to analyse and search for information from diverse sources.
- Be able to learn autonomously.
- Be able to use ICT, both in academia and in professional practice.
- Be able to work in a team demonstrating commitment to quality, ethics, equality and social responsibility.
- Make decisions under certainty and uncertainty.
- Extract internal and external information and use it to estimate the parameters that define productive investments.

LEARNING OUTCOMES

- Differentiate between the different types of investment that a company can make and understand the interrelationships between investment and financing decisions.
- Ability to analyse the financial viability of productive business investment projects.
- Development of a critical attitude when implementing the different financial instruments for investment valuation and their interpretation, using the SOLVER spreadsheet and programming for determining a range of variation in the expected profitability of the project.
- Be capable of establishing and developing viable investment policies appropriate to business strategies.

DESCRIPTION OF CONTENTS

1. FINANCIAL MATHEMATICS APPLIED TO FINANCE

1. Financial capital.
2. Capitalization and discount: economic significance.
3. Effect of inflation on valuation: nominal interest rate and real interest rate.
4. Financial income and its valuation.



2. FINANCIAL MANAGEMENT OF THE COMPANY

1. The financial function in the company: nature and scope.
 - 1.1. The company as a system
 - 1.2. The financial function of the company
2. Economic and financial structure of the company: financial balance.
 - 2.1. Economic and financial structure.
 - 2.2. Internal cycles of the company.
 - 2.3. Financial balance of the company
 - 2.4. Working capital.
3. Objective of the Financial Management of the company.

3. THE DECISION TO INVEST

1. Productive investment concept.
2. Financial characteristics that define an investment. Investment classification.
 - 2.1. Fundamental elements.
 - 2.2. Time scheme of investment projects.
 - 2.3. Investment classification.
3. Estimate of Net Cash Flows (NCF)
 - 3.1. Definition of the NCF vs. Benefits.
 - 3.2. Corporation Tax: Free Cash Flow Concept.
 - 3.3. NCF estimation methods.
4. Elements that influence the incremental NCF.

4. THE NET PRESENT VALUE (NPV)

1. Financial markets and adjustment to patterns of investment and consumption guidelines.
 - 2.1. Financial markets: introduction and hypothesis.
 - 2.2. Valuation in the absence of financial markets.
 - 2.3. Valuation in the presence of financial markets.
2. Existence of productive investment opportunities and increased investor wealth: Fisher's theorem.
3. The Net Present Value (NPV).
 - 3.1. NPV: Definition
 - 3.2. NPV: Decision rule.
 - 3.3. Reinvestment of intermediate NCFs.
4. The opportunity cost: initial considerations.

5. OTHER VALUATION CRITERIA

1. Internal rate of return (IRR).
 - 1.1. IRR: Definition.
 - 1.2. IRR: Decision rule.
 - 1.3. IRR: Disadvantages and inconsistencies.
2. Other valuation criteria.



- 2.1. The Recovery Period (Pay-Back).
- 2.2. The Profitability Index.
3. Management of simple investment projects.
 - 3.1. Simple projects: Valuation
 - 3.2. Simple projects: hierarchal ordering.
 - 3.3. Discrepancies in hierarchical ordering: Fisher's rate.

6. PRODUCTIVE INVESTMENTS WITH LIMITED RESOURCES

1. The problem of limitation of financial resources.
2. Mathematical programming.
 - 2.1. The Lorie-Savage-Weingatner model.
 - 2.2. Other possible restrictions on investment programming.
3. The dual program of the Lorie-Savage-Weingatner model.

7. SELECTION OF PRODUCTIVE INVESTMENTS IN AN ENVIRONMENT OF UNCERTAINTY

- Risk-adjusted discount rate.
- 1.1. Introduction of risk.
 - 1.2. Estimation of the risk-adjusted discount rate.
 2. Sensitivity analysis. Break-even ananlysis
 3. Monte Carlo simulation.
 4. Sequential decisions.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Computer classroom practice	30,00	100
Study and independent work	87,00	0
Resolution of online questionnaires	3,00	0
TOTAL	150,00	

TEACHING METHODOLOGY

- The theory classes consist of the presentation of the topics of the curriculum. The participation of the student will be valued in terms of their critical contribution and their ability to debate.
- The practical classes consist of solving exercises and analysing business reality. A collection of case studies will be used, some of which will form part of the student's personal work.



EVALUATION

- Continuous assessment: is based on the participation and degree of involvement of the student in the teaching-learning process, taking into account regular attendance at planned face-to-face activities (resolution of practical cases, handing in of exercises, and other evaluable tests, etc.).
- The purpose and nature of these continuous assessment tests is to promote and evaluate the work and progressive and continuous learning of the student throughout the course, as specified in article 6 point 3 of the Evaluation and Qualification Regulations of the *Universitat de València* for undergraduate and master degrees, which states: “Continuous evaluation is one of the basic criteria of course programming, and must be understood as a tool of the teaching-learning process that informs the student of their progress and evaluates it” . Given the final nature of these continuous assessment tests, they will not be recoverable in resit exams.
- This part will make up 20% of the final grade (not recoverable in second call).
- Final exam: consists of a set of test-type questions and/or several open-ended questions, in which theory and practical assessment will be combined.
- This part will make up 80% of the final grade.
- The FINAL GRADE will be the sum of the two previous parts, as long as at least 5 points out of 10 has been achieved in the final exam.

The rating system will be expressed by a numerical rating in accordance with the provisions of article 5 of the R.D. 1125/2003, of September 5, which establishes the European credit system and the qualification system for official university degrees valid in the national territory.

REFERENCES

Basic

- Berk, J.; DeMarzo, P. (2008). Finanzas corporativas. Ed. Pearson.
- Blanco, F.; Ferrando, M.; Martínez, F. (2015). Teoría de la Inversión. Ed. Pirámide.
- Brealey, R.; Myers, S.; Allen, F. (2010). Principios de finanzas corporativas. Ed. McGraw Hill.
- Farinós, J.E.; Ibáñez, A.; Meda, A.; Rodrigo, A.; Soler, A. (2001). Valoració de les inversions productives en l'empresa: un enfocament teoricopràctic. Ed. Universitat de València.
- Navarro, E. (2019). Matemáticas de las Operaciones Financieras. Ed. Pirámide

Additional

- Berk, J.; DeMarzo, P.; Hartford, J. (2009). Fundamentos de Finanzas Corporativas. Ed. Pearson-Prentice Hall.



- Emery, D.R.; Finnerty, J.D. (2000). Administración Financiera Corporativa. Ed. Prentice Hall.
- Farinós, J.E. (2016). Gestión Financiera de la Empresa Turística. Ed. Síntesis.
- Gil, L. (1990). Matemática de las Operaciones Financieras. Ed. A.C. Madrid.
- Grinblatt, M.; Titman, S. (2003). Mercados Financieros y Estrategia Empresarial. Ed. McGrawHill.
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- Lassala, C.; Medal, A.; Navarro, V.; Sanchis, V.; Soler, A. (2006). Dirección Financiera II: Medios de financiación empresarial. Ed. Pirámide.
- Ross, S.; Westerfield, R.; Jaffe, J. (2008). Finanzas Corporativas. Ed. McGraw-Hill, New York, NY, 8ª edición.
- Weston, J.F.; Brigham, E.F. (1993). Fundamentos de Administración Financiera. Ed. McGrawHill.