1. BASIC INFORMATION

Course/Module	Business Mathematics
Degree Program	Bachelor's Degree in Business Administration and Management
College/School	Facultad de Ciencias Sociales
Year	1
Credits (ECTS)	6 ECTS
Credit type	Basic
Language(s)	English and Spanish
Delivery mode	On-campus
Semester	S1
Academic year	2025-2026
Coordinating professor	María José Terrón López

2. PRESENTATION OF THE COURSE

Business Mathematics is a Core course in the Bachelor's Degree in Business Administration and Management Board, as it provides the necessary quantitative tools to analyse and make decisions with rigour in an increasingly complex and data-oriented economic environment.
Through functions, models, algebra or Core statistics, the student learns to interpret the business reality and to solve practical problems based on concrete data.

In today's context, where data-driven decision-making, automation and predictive analytics are part of everyday business, business mathematics becomes a key cross-curricular competence. It not only helps to understand reports, balance sheets or projections, but also prepares the student to collaborate with technical profiles, to lead with judgement and to argue sound decisions.

3. LEARNING OUTCOMES

Knowledge:

CON03. Develop the framework, methodology, tools and theoretical concepts related to the field of the economic and business system.

CON05. Identify different methods and tools for operational and strategic analysis.

- Describe introductory concepts of mathematical applications.
- Present basic aspects related to linear algebra.
- Present basic aspects of differential calculus and its usefulness in the business environment.
- Describe what operations research is and its usefulness in business.

Skills:

HAB04. Use practical instruments for business economic calculations and decision-making.

- Reproduce mathematical models applicable to business and decision-making.
- Solve useful mathematical problems for the company.

Competences:

COMP03. Use mathematical, statistical and econometric tools for the analysis and assessment of economic and business variables.

COMP04. Analyse relevant information and data for the preparation and interpretation of economic and business models and operational and production efficiency models.

COMP06. Make strategic and operational decisions based on economic, mathematical and statistical data and information.

4. CONTENTS

The contents of the course are listed below:

- Introduction to business mathematics.
- Linear Algebra: Solving systems of equations and matrix analysis.
- Function analysis.
- Differential calculus.
- Operational research.
- Mathematical modelling in business.

5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- Lecture
- Case studies
- Collaborative learning
- Problem-based learning
- Simulated environments

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Campus-based mode:

Learning activity	Number of hours
Lectures	12
Practical seminars	18

Case studies	16
Problem-solving	18
Written reports and essays	8
Independent working	56
Debates and discussions	8
Tutorials	12
In-person assessment tests	2
TOTAL	**150**

7. CONTINOUS ASSESSMENT

Each assessable learning activity represents an opportunity for the student to make progress, receive feedback, and consolidate knowledge, skills, and competences. The Learning Outcomes outlined in this guide provide direction for this process and serve as benchmarks for their achievement.

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Campus-based mode:

Assessment system	Weight (%)
Assessment tests	50%
Reports and written work	15%
Case study / problem scenario	25%
Performance assessment	10%

In the Virtual Campus, when you access the corresponding course/module you will find information regarding the evaluation systems, including the due dates and the procedures applicable to each of them.

7.1. First exam period

In order to pass the course/module in the ordinary call, the student must obtain a grade greater than or equal to 5.0 (out of 10), in all the evaluation systems proposed in this guide. The final grade will be calculated from the weighted average of all the evaluation systems described.

If in any of the evaluation systems proposed in this guide, a grade lower than 5.0 (out of 10) is obtained, the final grade of the course/module will be “fail” even if, in the result of the weighted average, a value higher than 5.0 (out of 10) is obtained. In the latter case, the course/module would still be “failed” obtaining a final grade of 4.0 (out of 10).

Delivery of activities

Compliance with deadlines is essential to ensure the fairness and planning of the training process.

In case of not submitting an evaluable formative activity in due time and form, and without prior justification, it will not be evaluated and, therefore, will be recorded as "not submitted".

The student is encouraged to communicate with sufficient time in advance to the teacher of the course/module, any difficulty that may affect their participation in any activity.

Attendance

Active participation in the training sessions is a key component of learning. In order to pass the course/module, at least 50% attendance is required. If this minimum percentage is not reached, the teacher may consider the course/module as "failed", according to the evaluation regulations of the Universidad Europea de Andalucía.

7.2. Second exam period

The extraordinary exam offers a new opportunity for students to demonstrate their learning. To pass it, it will be necessary to obtain a final grade (weighted average) equal to or higher than 5.0 (out of 10.0).

Delivery of activities

The student must submit and pass those mandatory training activities not delivered or not passed in the ordinary call, respecting the new deadlines established. In case of failure to comply with these new deadlines, the activity will not be evaluated and, therefore, will be recorded as "not presented".

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Evaluable training activities	Date
Diagnostic Test	Week 0-2
Solving individual and/or collaborative application exercises	Week 1-3
Solving individual and/or collaborative application exercises	Week 4-7
Midterm Written Exam	Week 9-10
Solving individual and/or collaborative application exercises	Week 10-13
Team Project Oral Presentation	Week 14-18
Solving individual and/or collaborative application exercises	Week 14-16
Midterm Written Exam	Week 16-17
Final Exam	Week 17-18

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. REFERENCES

The reference work for the follow-up of the course is:

- Alamillos, am, et.al.: Matemáticas para la Economía, Administración y Management Board de Empresas. ED Universitas.
- Balbás, a, et. al. (1998) Análisis matemático para la economía (tomos I y II), Editorial AC. Madrid.
- García Pineda et al. Iniciación a la Matemática Universitaria. Year 0. Thomson.
- Larson, et. al. (1999) Calculus (volumes 1 and 2). Editorial McGraw-Hill. Madrid.
- Burgos, J. (1993) Álgebra lineal. Editorial McGraw-Hill. Madrid.
- Balbás, A, et. al.(1990) Programación matemática. Editorial AC. Madrid.
- Tan. S. T. (1998) Mathematics for Management and Economics. International Thomson Editores. Mexico.
- Borbolla, R. (2000) Optimization, issues, exercises and applications to economics. Prentice Hall.

10. AREA OF GUIDANCE, DIVERSITY AND INCLUSION

The Area of Guidance, Diversity and Inclusion (ODI) offers support to students throughout their university career, with the aim of facilitating their academic and personal development and supporting them in achieving their goals. This Area focuses its work on three Core pillars: the inclusion of students with specific educational support needs, the promotion of universal accessibility in the educational community and the guarantee of equal opportunities for all.

Among the services offered are:

- **Academic accompaniment and monitoring**, through counselling and the development of personalised plans aimed at those who need to improve their academic performance.
- **Attention to diversity**, through the implementation of non-significant curricular adjustments - in methodological and Assessment aspects - for students with specific educational support needs, in order to guarantee equal opportunities.
- **Extracurricular training resources**, aimed at developing personal and professional Competencies that contribute to the integral growth of students.
- **Vocational guidance**, through the provision of tools and advice to those who have concerns about their choice of Degree or are considering a change in their educational path.

Students in need of educational support can contact the Area via the following email address: orientacionuea@universidadeuropea.es

11. ONLINE SURVEYS

Participating in the Satisfaction Surveys is an enriching opportunity to contribute to the continuous improvement of the Degree as well as the institution. Thanks to them, it is possible to identify which aspects of academics, teaching staff and the teaching-learning process are working well and which can be further improved.

With the aim of encouraging active participation in the completion of surveys among students, various channels of dissemination have been set up. The surveys are available in the space provided on the Virtual Campus and are also sent by email to facilitate access.

The responses collected allow decisions to be made that have a direct impact on the quality of the learning experience and on the day-to-day life of the university community.