

Bachelor Degree in Business Administration and Management and Business Transformation

Course: Mathematics applied to management

Subject: Mathematics

Credits: 6 ECTS

Program: Bachelor

Modality: On-sita

Year: First

Semester: First

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2. Presentation

02.1 Description

The subject of Mathematics II, which is taught in the second semester of the first year of the Degree in Marketing and Digital Communication is the second and last subject of the subject of mathematics.

The course is divided into two parts: the first focuses on linear algebra, studying in some detail systems of linear equations, matrices and determinants, and also vectors and linear applications; the second part, considered as the continuation of mathematics I, focuses on the study of differential calculus and optimization of functions of various variables.

02.2 Relevant professional applications

The student will understand that mathematics does not represent a subject in itself, but must be understood as a tool to be used later in other fields (finance, economic analysis, etc.), a tool with which they can analyze different cases and make coherent professional decisions.

3. Learning outcomes of the degree

- RAT6 - The graduate will be able to understand the different data analysis techniques used to assess the feasibility of a business project.
- RAT9 - The student will be able to provide clear and precise explanations of any knowledge/information, both orally and in writing, in Catalan, Spanish and a third language, particularly English.
- RAT10 - The student will be able to apply digital technologies (at the right time) in his/her field of expertise.
- RAT13 - The graduate will be able to analyze the economic operations of companies, which have been carried out in the financial markets.
- RAT16 - The graduate will be able to understand the economic-financial information of business entities and institutions in relation to their environment. RAT18 - El estudiante podrá proponer soluciones innovadoras, creativas y emprendedoras en situaciones propias del ámbito profesional.
- RAT19 - The student will be able to evaluate the sustainability and social impact of the proposals presented, with ethical, environmental and professional responsibility.
- RAT20 - The student will be able to apply the gender perspective in the professional tasks.

- RAT21 - The graduate will be able to verify the economic-financial information of business organizations and institutions with regard to their environment, by analyzing the companies' profit and loss accounts.

4. Learning outcomes of the subjects

- RAM1 - The student will be able to demonstrate clearly the fundamental concepts related to linear algebra, differential calculus and integral calculus by performing written exercises.
- RAM2 - The student will be able to correctly solve enunciation problems using Venn diagrams with the basic techniques of linear algebra, by solving written case studies.
- RAM3 - The student will be able to adequately solve systems of linear equations through individual written exercises.
- RAM4 - The student will be able to correctly solve the diagonalization of third order square matrices through individual written exercises.
- RAM5 - The student will be able to precisely solve succession and function limits through individual written exercises.
- RAM6 - The student will be able to correctly calculate the convergence of a numerical series its sum by individual written exercises.

5. Contents

The course is divided into two parts: the first focuses on linear algebra, studying in some detail systems of linear equations, matrices and determinants, and also vectors and linear applications; The second part focuses on the study of differential calculus and the optimization of functions of various variables. In particular,

- The real numbers
- Successions and series of real numbers
- Real variable functions and graphical representation
- Limits of functions
- Derivatives
- Optimization of functions
- Methods of integration
- Functions of various variables
- Optimization of functions of various variables
- Application through examples and exercises of Corporate Social Responsibility to ensure a better sustainable community and continuity in awareness of its importance.

6. Metodology

Learning outcomes developed	Teaching methodology	Training activities
Knowledge	Master class	Teacher's presentations
	Instructional sessions	Student's presentations
	Tutoring	Meetings for the resolution of doubts
	Learning based on readings	Reading and analysis of documents
Skill	Learning based on projects	Problem solving
	Learning based on audio-visual	Audiovisual analysis
	Case-based learning	Search and processing of information. Problem solving

7. Evaluation

Evaluation system	Weight
Continuous evaluation: exercises, problems, reporting, papers, case studies	40 %
Mid-term exam	20 %
Final exam	40 %

When computing the final grade, the on-going activities (participation, in-class quizzes, seminar cases and group projects, midterm exam) will be weighted only if the final exam grade is equal to or greater than 4.0. Therefore, to obtain a passing course grade, the final exam grade must be equal to or greater than 4.0. If the final exam grade is less than 4.0, the final exam grade becomes the final course grade, irrespective of the other grades. Students must take the final exam if they want to receive a quantitative course evaluation. Students who do not sit the final exam will receive a "No Show" overall course grade.

"The maximum grade that students may obtain on the reevaluation tests [...] shall be 5,0. In addition, "the grade of the reevaluation tests will, in any case, constitute the final grade of

the subject". Thus, only those students who having completed the partial exam, the final exam and have completed 100% of the activities of continuous assessment of the subject, are suspended (final grade of the subject less than 5) will be entitled to the exam."

Single Evaluation: The single assessment consists of a single examination equivalent to 100% of the grade of the subject. The exam, and therefore the subject, is passed with a grade of 5 out of 10 in this final test.

To benefit from the single assessment, it is necessary to send the teacher a written request during the first 15 working days of the course.

8. Bibliography

- College Mathematics for Business, Economics, Life Sciences, and Social Sciences plus MyLabMathematics with Pearson eText, Global Edition, 15th Edition, 2021 Raymond A. Barnett Raymond A. Barnett, Michael R. Ziegler, Karl E. Byleen, Christopher J. Stocke
- I.N. Bronshtein, K.A. Semendyayev, Gerhard Musiol, Heiner Mühlig, Handbook of Mathematics, Springer, 6th ed. 2019, ISBN-10: 3662462206, ISBN-13: 978-3662462201.
- R. Larson, B. Edwards. Cálculo, Tomo I. Décima edición. Ed. Cengage Learning, 2016.