

COURSE GUIDE

2025/26

Faculty

151 - Faculty of Economics and Business. Álava Department

Cycle

.

Degree

GADEMP10 - Bachelor's Degree in Business Management & Administration

Year

First year

COURSE

25829 - Mathematics II

Credits, ECTS:

6

COURSE DESCRIPTION

This instrumental subject belongs to the first course of the degree and it is held during the second semester. The subject completes the learning of the mathematical concepts and technics started during the first semester, introducing several variables in the study of functions and differential calculus

COMPETENCIES/LEARNING RESULTS FOR THE SUBJECT

The specific competences of this subject related with the results expected after learning this subject are:

- To understand the concepts and basic techniques of algebra and differential calculus, and their applications to the economic science.
- To use the deductive thinking in the process of justify the procedures and formulate logic arguments.
- To formalize thought mathematical models economic issues and situations.

Regarding the transversal competences, in this subject will be mainly developed the ability to analysis and synthesis.

The learning outcomes of the subject "Mathematics II" are:

- Management of basic concepts and techniques of algebra and differential calculus.
- Resolution of practical cases in which deductive reasoning is used in the justification of procedures and formulation of logical arguments.
- Formalization of quantifiable phenomena of the economic environment through mathematical models applied to economic and business science.

In addition, this subject will work on transversal competences:

- Capacity for analysis and synthesis
- Autonomous Learning
- Decision making and problem solving

Theoretical and Practical Contents

- 1.- Functions of several variables
- 2.- Derivation
- 3.- Optimization of one variable
- 4.- Non conditioned optimization of several variables
- 5.-Optimization with restriction of equality
- 6.- Linear programming
- 7.- Integration of several variables

TEACHING METHODS

In the sessions the various topics that make up the subject will be developed. These will have a theoretical and practical character. In relation to the theoretical part, its objective is the introduction and justification of the concepts and results that are part of the subject's program, using for this an expository methodology and the active work by the students in the classrooms.

The compression and expansion of the contents of the subject is favored with the use of exercises, questions and tasks in which the concepts studied are applied to the economic and business world, thus deepening their assimilation and management, in the investigation on their use.

In some sessions, self-learning and co-learning activities will be used, promoting teamwork and student participation in problem solving. Manipulative mathematics will also be promoted as a learning method.

Most of the exercises and tasks are designed to show the economic and business applications of mathematical technics, in order to enhance the utility of the subject and motivate its learning.

Types of Teaching

Types of teaching	M	S	GA	GL	GO	GCL	TA	TI	GCA
Hours of face-to-face teaching	51	0	9						
Horas de Actividad No Presencial del Alumno/a	72	0	18						

Legend: M: Lecture-based S: Seminar GA: Applied classroom-based groups  
GL: Applied laboratory-based groups GO: Applied computer-based groups GCL: Applied clinical-based groups  
TA: Workshop TI: Industrial workshop GCA: Applied fieldwork groups

Evaluation methods

- Continuous evaluation
- End-of-course evaluation

Evaluation tools and percentages of final mark

- Written test, open questions 100%

Ordinary Examination Period: Guidelines and Opting Out

There will be a partial exam (50% of the grade), corresponding to the continuous assessment.

However, the student may choose to be evaluated with said continuous evaluation or may choose a final evaluation (100%)

The attitude and work shown in the classroom by the student can be evaluated up to a extra positive or negative 10% of the mark obtained in the exam.

A more extensive continuous evaluation can be offered to the students. The student guide published in egela will specify the tasks, deadlines, and exercises required to pass the subject through this continues assessment.

Failure to take the test set on the official exam date will automatically waive the call.

Extraordinary Examination Period: Guidelines and Opting Out

In the extraordinary call the student can choose to keep the marks that have been obtained during the course in the continuous evaluation (50%), and therefore, only examine the content and skills not passed.

The other option of the student in the extraordinary call is to sit on 100% of the grade.

Failure to take the test set on the official exam date will automatically waive the call.

Mandatory Materials

The egela platform will be used as an information repository, where the necessary material for monitoring the subject will be published. It will also serve as communication with the students.

Bibliography

Basic bibliography

SYDSAETER, K.and HAMMOND, P. (2012) Essential mathematics for economic analysis. Pearson.

HOFFMAN, L. and BRADLEY, G. (2012): Calculus for Business, Economics and the Social and Life Sciences. McGraw-Hill.

Detailed bibliography

\* CABALLERO, R. y otros: Matemáticas aplicadas a la Economía y a la Empresa. 380 ejercicios resueltos y comentados. Editorial Pirámide. Madrid 1993

\* HOFFMAN, L. y BRADLEY, G.: Cálculo aplicado para Administración, Economía y Ciencias Sociales. Editorial McGraw-Hill. Bogotá 2004 (8ª edición)

\* STEWART, J.: Cálculo (conceptos y contextos). Editorial Thomson. México D.F. 2006 (5ª edición)

Journals

Web sites of interest

Observations