

## SUBJECT TEACHING GUIDE

### G342 - Mathematics for Economists

Double Degree in Business Administration and Management and Labour Relations

Double Degree in Business Administration and Management and Labour Relations

Double Degree in Law and Administration and Business Management

Double Degree in Law and Administration and Business Management

First Degree in Business Administration and Management

Degree in Business Administration and Management

Academic year 2024-2025

| 1. IDENTIFYING DATA              |  |                  |                    |                  |                              |
|----------------------------------|--|------------------|--------------------|------------------|------------------------------|
| Degree                           | Double Degree in Business Administration and Management and Labour Relations<br>Double Degree in Business Administration and Management and Labour Relations<br>Double Degree in Law and Administration and Business Management<br>Double Degree in Law and Administration and Business Management<br>First Degree in Business Administration and Management<br>Degree in Business Administration and Management |                  |                    | Type and Year    | Core. Year 1<br>Core. Year 1 |
| Faculty                          | Faculty of Economics and Business Studies  |                  |                    |                  |                              |
| Discipline                       | ECONOMICS<br>Subject Area: Mathematics<br>Basic Training Module  |                  |                    |                  |                              |
| Course unit title and code       | G342 - Mathematics for Economists  |                  |                    |                  |                              |
| Number of ECTS credits allocated | 6  | Term             | Semester based (2) |                  |                              |
| Knowledge Field                  |  |                  |                    |                  |                              |
| Web                              |  |                  |                    |                  |                              |
| Language of instruction          | Spanish  | English Friendly | No                 | Mode of delivery | Face-to-face                 |

|                  |  |
|------------------|--|
| Department       | DPTO. ECONOMIA   |
| Name of lecturer | FAUSTINO PRIETO MENDOZA  |
| E-mail           | faustino.prieto@uncan.es   |
| Office           | Edificio de las Facultades de Derecho y Ciencias Económicas y Empresariales. Planta: + 1.<br>DESPACHO FAUSTINO PRIETO MENDOZA (E114) |
| Other lecturers  | PEDRO PABLO COTO MILLAN<br>MARTA ELISA DE LA FUENTE RENTERIA   |

#### 4. OBJECTIVES

##### Conceptual objectives:

To understand and know the main concepts and mathematical techniques in differential calculus of several variables , in mathematical programming, and mathematics of financial operations.

To enhance the knowledge previously acquired in the subject of General Mathematics .

##### Procedural objectives:

To use fluently functions of more than one variable , with particular emphasis on applications from economic and business field.

To use suitable mathematical and computing tools for solving problems of optimal allocation of scarce resources and alternative uses.

To understand business theory expressed in mathematical language .

##### Attitudinal goals:

To advance in the attainment of personal autonomy .

To develop the capacity for teamwork .

#### 6. SUBJECT PROGRAM

##### CONTENTS

|   |  |
|---|--|
| 1 | Differential calculus of several variables<br>1.- Scalar valued and vector valued functions: limits and continuity.<br>2.- Scalar valued and vector valued functions: partial derivatives and differentiability.<br>3.- Applications: utility function, production function and cost function. |
| 2 | Classical optimization and constrained optimization.<br>4.- Introduction to the theory of optimization.<br>5.- Unconstrained optimization<br>6.- Constrained optimization  |
| 3 | Linear programming<br>7.- Introduction to linear programming<br>8.- The simplex method<br>9.- Duality in linear programming  |
| 4 | Simple and compound interest. Present and future values.<br>10.- Introduction to financial mathematics   |

#### 7. ASSESSMENT METHODS AND CRITERIA

| Description  | Type                  | Final Eval. | Reassessn | %             |
|--|-----------------------|-------------|-----------|---------------|
| Resolution of exercises and problems (I)           | Written exam          | No          | Yes       | 40,00         |
| Resolution of exercises by using specific software | Laboratory evaluation | No          | Yes       | 20,00         |
| Resolution of exercises and problems (II)          | Written exam          | No          | Yes       | 40,00         |
| <b>TOTAL</b>                                       |                       |             |           | <b>100,00</b> |

##### Observations

Regular students, who fail the course on the ordinary examination (continuous assessment), will go through an extraordinary call, for the 100% grade, including all course contents. In both calls (ordinary and extraordinary), the score obtained by the student will be the weighted average of the grades obtained in three exams: two written exams and one laboratory evaluation, according to the weights established for continuous assessment.

##### Observations for part-time students

Part-time students must carry out the same assessment tasks as the other students, but they will have the opportunity to take all the exams (two written exams and one laboratory evaluation) on the final day exam.

**8. BIBLIOGRAPHY AND TEACHING MATERIALS**

## BASIC

Sydsaeter, K., Hammond, P. (2006). "Matemáticas para el Análisis Económico". Prentice Hall, Madrid.

Caballero Fernández, R.E., González Pareja, A.C., Calderón Montero, S. (2000). "Matemáticas Aplicadas a la Economía y a la Empresa: 434 Ejercicios Resueltos y Comentados". Pirámide, Madrid.

Matías, R., Seijas Macias, J.A. (2009). "Matemática Financiera. Manual Básico". Escolar Editora.