

## 27536 - Decision-making systems

### Syllabus Information

**Academic year:** 2024/25

**Subject:** 27536 - Decision-making systems

**Faculty / School:** 109 - Facultad de Economía y Empresa

**Degree:** 449 - Degree in Finance and Accounting

**ECTS:** 5.0

**Year:** 4

**Semester:** First semester

**Subject type:** Optional

**Module:**

### 1. General information

The main goal of this subject is for the student to acquire the necessary knowledge to be able to develop and use computerized decision support systems for the resolution of financial and accounting problems, providing scientific rigor at all stages of the decision-making process through the use of decisional tools. To this end, will introduce the methods, models and techniques most commonly used in scientific problem solving.

These approaches and goals are aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda of the United Nations (<https://www.un.org/sustainabledevelopment/es/>), in particular, the activities planned in the subject will contribute to some extent to the achievement of goals 4 (target 4.7), 8 (target 8.3) and 9 (target 9.5).

### 2. Learning results

**The student, in order to pass this subject, must demonstrate the following results:**

- To know the advantages of a computerized decision support system for organizations in the resolution of problems, particularly those in the field of Finance and Accounting.
- To know the scientific approaches followed in the resolution of complex problems characterized by the existence of multiple scenarios, actors and criteria.
- Handling traditional decisional tools.
- To build models for the resolution of Decision Making problems in the field of Finance and Accounting.
  
- Manage computer tools to solve decision making problems.
- To know the advantages of Simulation in the modeling and description of financial systems.
- Build small Simulation models in the field of Finance and Accounting.
- Manage computer tools that allow the processing of large volumes of information.
- Design databases to efficiently store economic information, especially accounting and financial information.
- Learn how to debug and consolidate existing information in a database.
- Design queries to extract relevant information from a database.
- Use the information extracted from a database to perform a financial analysis or to solve small decision problems.

### 3. Syllabus

Unit 1. Introduction to Decisional Systems

Decision problems and processes. Components of a Decisional System. Computer tools in the company.

Unit 2. Decision Making. Optimization

Introduction to Decision Making. Modeling and solving optimization problems. Optimization software.

Unit 3. Decision Making. Simulation

Introduction to Simulation. Generation of random numbers and variables. Simulation software.

Topic 4. Database Exploitation

Introduction to Databases. Relational model. Tables and Queries Design. Database management software.

Topic 5. Case Studies

Resolution of case studies on the design of Decisional Systems in Finance and Accounting.

### 4. Academic activities

Master classes: 15 hours

Problem solving and case studies: 35 hours

Personal Study: 73 hours

Assessment tests. 2 hours

5 ECTS = 125 hours

In principle, the teaching methodology and its evaluation is planned to be based on face-to-face classes . However, if circumstances so require, they may be carried out online.

## 5. Assessment system

The course will be evaluated by continuous or global evaluation in the first call and by global evaluation in the second call.

### **Continuous assessment:**

It will consist of 3 parts:

- **Intermediate test of Decision Making problems** (40% of the grade, minimum of 4 out of 10).
- **Delivery of Database exercises** (40% of the grade, minimum of 4 out of 10). It will consist of the resolution of small exercises that will be presented in class (4 or 5 deliveries).
- **Participation and resolution of practical cases in class** (20% of the grade, minimum 2/3 of the cases). They will consist of the resolution of problems of greater complexity in which the different tools seen in the course must be used , based on a script that will be provided.

### **Global Evaluation:**

Examination-type test, which will consist of two parts:

- Resolution of small Decision Making and Database problems (80% of the grade)
- Resolution of a Practical Case in the resolution of which the different tools used in the course must be used simultaneously (20% of the grade).

### **Assessment Criteria:**

Decision Making and Database problems should be solved using the models, techniques and computer tools presented in class. Correct modeling, resolution, correct use of the software and interpretation of the solutions obtained will be valued.

The evaluation of the Practical Cases will assess the correct approach and resolution of the case, as well as the degree of autonomy in its development.

## 6. Sustainable Development Goals

4 - Quality Education

8 - Decent Work and Economic Growth

9 - Industry, Innovation and Infrastructure