



## 1. General information

Course: OPERATIONAL RESEARCH FOR BUSINESS

Type: ELECTIVE

Degree: 318 - UNDERGRADUATE DEGREE IN BUSINESS MANAGEMENT AND ADMINISTRATION (TO)

Center: 6 - FACULTY OF LAW AND SOCIAL SCIENCES

Year: 4

Main language: Spanish

Use of additional languages:

Web site:

Code: 54337

ECTS credits: 4.5

Academic year: 2023-24

Group(s): 40 42 43

Duration: First semester

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: ALFREDO RODRIGUEZ SANCHEZ - Group(s): 40 42 43

| Building/Office                            | Department                    | Phone number | Email                     | Office hours |
|--------------------------------------------|-------------------------------|--------------|---------------------------|--------------|
| San Pedro / Desp.empresas / Tercera planta | ANÁLISIS ECONÓMICO Y FINANZAS | Teams        | alfredo.rodriguez@uclm.es |              |

## 2. Pre-Requisites

Not established

## 3. Justification in the curriculum, relation to other subjects and to the profession

Not established

## 4. Degree competences achieved in this course

## Course competences

| Code | Description                                                                                                                                                                                                                                                                                                                                  |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E07  | Understand the economic environment as a result and application of theoretical or formal representations on how the economy works. To do so, it will be necessary to be able to understand and use common handbooks, as well as articles and, in general, leading edge bibliography in the core subjects of the curriculum.                  |
| E08  | Ability to produce financial information, relevant to the decision-making process.                                                                                                                                                                                                                                                           |
| G01  | Possession of the skills needed for continuous, self-led, independent learning, which will allow students to develop the learning abilities needed to undertake further study with a high degree of independence.                                                                                                                            |
| G03  | Develop oral and written communication skills in order to prepare reports, research projects and business projects and defend them before any commission or group of professionals (specialised or non-specialised) in more than one language, by collecting relevant evidence and interpreting it appropriately so as to reach conclusions. |
| G04  | Ability to use and develop information and communication technologies and to apply them to the corresponding business department by using specific programmes for these business areas.                                                                                                                                                      |

## 5. Objectives or Learning Outcomes

## Course learning outcomes

## Description

Know the tools and methods for quantitative analysis of the company and its environment, including business decision making models and economic forecasting models.

Search for information, its analysis, interpretation, synthesis and transmission.

To know the models and techniques of analysis of the economic and legal environment that companies currently face, with special attention to the search for opportunities and the anticipation of possible changes.

## Additional outcomes

## 6. Units / Contents

Unit 1:

Unit 2:

Unit 3:

Unit 4:

Unit 5:

## 7. Activities, Units/Modules and Methodology

| Training Activity                      | Methodology                   | Related Competences (only degrees before RD 822/2021) | ECTS | Hours | As | Com | Description |
|----------------------------------------|-------------------------------|-------------------------------------------------------|------|-------|----|-----|-------------|
| Class Attendance (theory) [ON-SITE]    | Lectures                      | E07 E08                                               | 0.7  | 17.5  | N  | -   |             |
| Class Attendance (practical) [ON-SITE] | Problem solving and exercises | E07 E08 G03 G04                                       | 0.6  | 15    | N  | -   |             |

|                                               |                                      |                 |                                        |       |   |   |  |
|-----------------------------------------------|--------------------------------------|-----------------|----------------------------------------|-------|---|---|--|
| Writing of reports or projects [OFF-SITE]     | Guided or supervised work            | E07 E08 G01     | 0.5                                    | 12.5  | Y | N |  |
| Problem solving and/or case studies [ON-SITE] | Guided or supervised work            | E07 E08 G03 G04 | 0.35                                   | 8.75  | Y | N |  |
| Writing of reports or projects [OFF-SITE]     | Cooperative / Collaborative Learning | E07 E08 G01     | 0.2                                    | 5     | Y | N |  |
| Problem solving and/or case studies [ON-SITE] | Cooperative / Collaborative Learning | E07 E08 G03 G04 | 0.05                                   | 1.25  | Y | N |  |
| Study and Exam Preparation [OFF-SITE]         | Self-study                           | E07 E08 G01     | 2                                      | 50    | N | - |  |
| Final test [ON-SITE]                          | Assessment tests                     | E07 E08 G03 G04 | 0.1                                    | 2.5   | Y | Y |  |
| Total:                                        |                                      |                 | 4.5                                    | 112.5 |   |   |  |
| Total credits of in-class work: 1.8           |                                      |                 | Total class time hours: 45             |       |   |   |  |
| Total credits of out of class work: 2.7       |                                      |                 | Total hours of out of class work: 67.5 |       |   |   |  |

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

| 8. Evaluation criteria and Grading System             |                       |                            |             |
|-------------------------------------------------------|-----------------------|----------------------------|-------------|
| Evaluation System                                     | Continuous assessment | Non-continuous evaluation* | Description |
| Theoretical papers assessment                         | 40.00%                | 0.00%                      |             |
| Practicum and practical activities reports assessment | 30.00%                | 0.00%                      |             |
| Final test                                            | 30.00%                | 100.00%                    |             |
| <b>Total:</b>                                         | <b>100.00%</b>        | <b>100.00%</b>             |             |

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

| 9. Assignments, course calendar and important dates                                    |              |
|----------------------------------------------------------------------------------------|--------------|
| Not related to the syllabus/contents                                                   |              |
| <b>Hours</b>                                                                           | <b>hours</b> |
| Class Attendance (theory) [PRESENCIAL][Lectures]                                       | 17.5         |
| Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]               | 15           |
| Writing of reports or projects [AUTÓNOMA][Guided or supervised work]                   | 12.5         |
| Problem solving and/or case studies [PRESENCIAL][Guided or supervised work]            | 8.75         |
| Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]        | 5            |
| Problem solving and/or case studies [PRESENCIAL][Cooperative / Collaborative Learning] | 1.25         |
| Study and Exam Preparation [AUTÓNOMA][Self-study]                                      | 50           |
| Final test [PRESENCIAL][Assessment tests]                                              | 2.5          |
| <b>Global activity</b>                                                                 |              |
| <b>Activities</b>                                                                      | <b>hours</b> |
| Final test [PRESENCIAL][Assessment tests]                                              | 2.5          |
| Class Attendance (theory) [PRESENCIAL][Lectures]                                       | 17.5         |
| Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]               | 15           |
| Writing of reports or projects [AUTÓNOMA][Guided or supervised work]                   | 12.5         |
| Problem solving and/or case studies [PRESENCIAL][Guided or supervised work]            | 8.75         |
| Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]        | 5            |
| Problem solving and/or case studies [PRESENCIAL][Cooperative / Collaborative Learning] | 1.25         |
| Study and Exam Preparation [AUTÓNOMA][Self-study]                                      | 50           |
| <b>Total horas: 112.5</b>                                                              |              |

| 10. Bibliography and Sources      |                                                                                                                                                                         |                                           |      |                   |      |             |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------|-------------------|------|-------------|
| Author(s)                         | Title/Link                                                                                                                                                              | Publishing house                          | Citv | ISBN              | Year | Description |
| Taha, Hamdy A.                    | Investigación de operaciones                                                                                                                                            | Pearson Educación                         |      | 978-607-32-0796-6 | 2012 |             |
| Deulofeu, J.                      | Prisioneros con dilemas y estrategias dominantes                                                                                                                        | RBA                                       |      | 978-84-473-6631-6 | 2010 |             |
| Aguado, J.C.                      | Teoría de la decisión y de los juegos                                                                                                                                   | Delta publicaciones                       |      | 84-96477-36-3     | 2007 |             |
| Barbolla, R., Cerdá, E., Sanz, P. | Optimización : programación matemática y aplicaciones a la economía                                                                                                     | Garceta                                   |      | 978-84-9281-220-2 | 2011 |             |
| Sergio, J., Mateos, E.            | El arte de programar en R: un lenguaje para la estadística                                                                                                              | Instituto Mexicano de Tecnología del Agua |      | 978-607-9368-15-9 | 2014 |             |
|                                   | <a href="https://cran.r-project.org/doc/contrib/Santana_El_arte_de_programar_en_R.pdf">https://cran.r-project.org/doc/contrib/Santana_El_arte_de_programar_en_R.pdf</a> |                                           |      |                   |      |             |

|                                      |                                                                                  |                            |               |      |
|--------------------------------------|----------------------------------------------------------------------------------|----------------------------|---------------|------|
| Pérez, I., Minguillón, E., Jarne, G. | Matemáticas para la economía:<br>programación matemática y<br>sistemas dinámicos | McGraw-Hill                | 84-481-3192-4 | 2001 |
| Barbolla, R., Cerdá, E.              | Optimización. Programación<br>matemática y aplicaciones a la<br>economía         | Garceta Grupo<br>Editorial |               | 2010 |
| Cao, R.                              | Introducción a la Simulación y a la<br>Teoría de Colas                           | Netbiblio                  |               | 2002 |
| Diestel, R.                          | Graph Theory                                                                     | Electronic<br>Edition      |               | 2005 |
| Eppen, G.D. et al.                   | Investigación de operaciones en la<br>ciencia administrativa                     | Prentice Hall              |               | 2000 |
| Gibbons, A.                          | Un primer libro de teoría de juegos                                              | Antoni Bosch               |               | 2005 |