

1. OVERVIEW

Subject Area	Data Structures
Degree	Bachelor's Degree in Business Analytics
School/Faculty	School of Social Sciences and Communication
Ac. Year	Third
ECTS	6
Type	Compulsory
Language(s)	Spanish/English
Delivery Mode	On campus
Term	First (5th)
Academic Year	2024/25
Coordinating professor	Fernando Aparicio

2. INTRODUCTION

Students of Business Analytics are required to study Data Structures. The subject is worth 6 ECTS credits and is closely related to other computing modules belonging to the degree course such as Fundamentals of Programming and Databases.

As part of this subject, students will develop their computational thinking skills essentially for the purpose of solving linear and non-linear data structure problems.

3. SKILLS AND LEARNING OUTCOMES

Key skills (CB, by the acronym in Spanish):

- CB2 - Students will be able to apply their knowledge to their work or vocation in a professional manner and possess the skills which are usually evident through the forming and defending of opinions and resolving problems within their study area.
- CB4 - Students will be able to present information, ideas, problems and solutions to both specialist and non-specialist audiences.

Specific skills (CE, by the acronym in Spanish):

- CE20 - Ability to develop a strategy for the purpose of studying business variables and indicators.
- CE22 - Ability to select and apply the most suitable analytical tools in view of the specific situation facing a business

- CE28 - Ability to recognise and understand the "data cycle": data acquisition and creation, information construction, analysis and visualisation.

Learning outcomes (RA, by the acronym in Spanish):

- RA1: Devise and roll out solutions to problems characterised by a medium level of difficulty, including databases, data structures and object orientation.
- RA2: Use programming environments to compile, link and execute programs, and to identify and correct errors at every stage in the process.
- RA3: Contribute to group assignments by defending arguments, listening actively and attentively, and remaining sensitive to the positions of others involved.

The following table shows how the skills developed in the course match up with the intended learning outcomes:

Skills	Learning outcomes
CB2, CB4, CE20, CE28, CE33	RA1
CB2, CE22, CE28, CE29, CE33	RA2
CB2, CB4, CE20, CE22, CE28	RA3

4. CONTENTS

- Linear Data Structures (units 1, 2 and 3)
- Hierarchical Data Structures (unit 5)
- Hash Tables (unit 4)

5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- Lecture.
- Collaborative learning.
- Workshop-based learning.

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

Type of learning activity	Number of hours
Tutorials	10
Lectures	19

Asynchronous lectures	11
Case study analysis	10
Problem-solving	10
Written reports and essays	15
Independent assignment	40
Workshop and/or laboratory assignments	35
TOTAL	150 h

7. ASSESSMENT

The assessment methods, plus their weighting in the final grade for the course, are as follows:

Assessment system	Weighting
On-campus knowledge tests	40%
Oral presentations.	15%
Case study/problem scenario	15%
Laboratory work	20%
Performance observation	10%

On the Virtual Campus, when you open the subject area, you can see all the details of your assessment activities, including the deadlines and assessment procedures for each activity.

7.1. Ordinary exam period

To pass the course in the ordinary examination period you must obtain a grade of 5.0 or more out of 10.0 in the final grade (weighted average) for the subject area. To make this possible, it is also necessary to meet the following conditions:

- Activities 1 and 2 must have a grade equal to or higher than the minimum specified as "pass" in each case (usually 5 out of 10).
- Achieve an average grade equal to or higher than the minimum specified (usually 5 out of 10) in activities 3, 4, 5, and 6.
- Achieve a grade equal to or higher than the minimum specified in activity 7 (usually 5 out of 10).

If any of the above conditions are not met, the maximum grade in the ordinary exam period, after applying the percentages, would be 4 out of 10.

7.2. Extraordinary exam period (resits)

The extraordinary exam period will be conducted individually. To pass the subject in the extraordinary exam period, it is necessary to obtain a grade of 5 out of 10 or higher in the final grade (weighted average) of the subject.

You must complete any activities not passed in the ordinary exam period, after receiving the relevant corrections from the lecturer, or those that were not submitted.

The following situations must be considered:

If the grade for activity 7 is less than 5, you must agree on and implement a new original idea with the lecturer and document it. This will replace the corresponding 20%.

If any of the above conditions are not met, the maximum grade in the extraordinary exam period, after applying the percentages, will be 4 out of 10.

8. TIMELINE

The timeline with delivery dates of assessable activities in the subject area is indicated in this section:

Assessable activities	Date
Activity 1 Knowledge tests	
Activity 2 Knowledge tests	
Activity 3 Submission of application	
Activity 4 Submission of application	
Activity 5 Submission of application	
Activity 6 Submission of application	
Activity 7 Submission of group application	
Activity 8 Participation in forum	The entire course

The timeline may be subject to modifications for logistical reasons of the activities. Students will be informed of any changes in due time and course.

9. BIBLIOGRAPHY

The works of reference for follow-up of the course are:

- Alonso, A.; Pousa R. (2007). Casos Prácticos del nuevo Plan General de Contabilidad, Editorial Centro de Estudios Financieros, Madrid.
- Boletín Oficial del Estado (2016). Plan General de Contabilidad. Recuperado de <https://www.boe.es/buscar/act.php?id=BOE-A-2007-19884>
- Gallego, E.; Vara, M. (2008). Manual Práctico de Contabilidad Financiera, Ediciones Pirámide, Madrid.
- Gragera, E.; Gracia, L.F.; San Juan, C. (2010). Manual de Contabilidad Financiera. Metodología adaptada al espacio europeo de educación superior. Editorial Netbiblo, A Coruña.
- Mallo, C.; Pulido, A. (2008). Contabilidad Financiera: un enfoque actual. Editorial Paraninfo Cengage Learning, Madrid
- Omeñaca García, J. (2017). Contabilidad general, 13ª ed., Editorial Deusto, Barcelona.
- Pérez, Cesar (2012): ESTADISTICA APLICADA. CONCEPTOS Y EJERCICIOS A TRAVÉS DE EXCEL. GARCETA GRUPO EDITORIAL

10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

The Educational Guidance and Diversity Unit (ODI in Spanish) offers support throughout your time at university to help you with your academic achievement. Other cornerstones of our educational policy are the inclusion of students with special educational needs, universal access in all our university campuses and equal opportunities.

This ODI unit offers students:

1. Support and monitoring through counselling and personalised student plans for those who need to improve their academic performance.
2. Curricular adaptations to uphold diversity, with assistance for those students who require specific educational support, leading to equal opportunities without significant changes to methodology or evaluation.
3. We offer students a range of extracurricular educational resources to reinforce skills which will enhance their personal and professional development.
4. Career guidance by giving tools and advice to any students who have doubts about their career or think that they have chosen the wrong degree.

Students who need educational support can contact us at:

orientacioneducativa@universidadeuropea.es

11. SATISFACTION SURVEYS

Your opinion matters!

Universidad Europea encourages you to complete our satisfaction surveys to identify strengths and areas for improvement for staff, degree courses and the learning process.

These surveys will be available in the surveys area of your virtual campus or by email.

Your opinion is essential to improve the quality of the degree.

Many thanks for taking part.