Bachelor Degree in Business Administration and Management and Business Transformation

Course: Data visualization techniques

Subject: Computer science

Credits: 6 ECTS

Program: Bachelor

Modality: On-Site

Year: Second

Semester: Second

1. Index

2. Presentation

2.1 Description

The business world is experiencing a real revolution. The increasing availability of large amounts of information, the radical development of artificial intelligence and new data visualization technologies have marked a before and after in the way companies detect and develop business opportunities: identifying patterns of consumer behaviour, developing products and services from them and developing marketing strategies based on predictive models.

2.2 Relevant professional applications

In this subject we introduce you to the fundamental techniques of Machine Learning behind the Big Data revolution and we help you to implement them from real cases that you must work using one of the most popular statistical programming tools: A. At the end of the course you will work with a visualization tool to create your own dashboards.

3. Learning outcome of the degree

- RAT1 - The graduate will be able to recognize the tasks of the different functional areas within a company or organization, taking into account previous theoretical learning about business structures.
- RAT4 - The student will describe the techniques of management in the development of business organizations by means of different written tests.
- RAT6 - The graduate will be able to understand the different data analysis techniques used to assess the feasibility of a business project.
- RAT9 - The student will be able to provide clear and precise explanations of any knowledge/information, both orally and in writing, in Catalan, Spanish and a third language, particularly English.
- RAT10 - The student will be able to apply digital technologies (at the right time) in his/her field of expertise.
- RAT12 - The graduate will be able to develop both traditional and digital marketing and promotional projects in a business environment.
- RAT18 - The student will be able to provide innovative, creative and entrepreneurial solutions in professional situations.
- RAT19 - The student will be able to evaluate the sustainability and social impact of the proposals presented, with ethical, environmental and professional responsibility.

- RAT20 - The student will be able to apply the gender perspective in the professional tasks.
- RAT22 – After completing the degree, the student will be able to design work processes to achieve organizational efficiency.
- RAT23 – The graduate will be able to actively propose a plan for the implementation and support of information and communication systems for the digital transformation of the organization, according to a project based on a real business case.

4. Learning outcomes of the subjects

- RAM4 - The student will be able to practice the proper use of technology, information and software systems for a digital transformation.
- RAM5 - The student will be able to properly design web technology services and applications for integration into corporate information systems.
- RAM7 - The student will be able to correctly interpret management techniques and economic aspects related to the production of technological tools.
- RAM8 - The student will be able to properly use management techniques and technological tools for a digital transformation.

5. Contents

The increasing availability of large amounts of information, the radical development of artificial intelligence and the new technologies of data visualization have marked a before and after in the way in which companies detect and develop business opportunities, transform, adapt or expand their business, identifying patterns of consumer behaviour, developing products and services from them and developing marketing strategies based on predictive models. In particular, it will address issues such as:

- Introduction to R and PowerBI software
- Main data visualization tools
- Data Presentation: Dashboards and Data Visualization
- Interpretation of graphs and data for each department of the company
- Techniques of linking data and results between various departments in the company
- Application through examples and exercises of Corporate Social Responsibility to ensure a better sustainable community and continuity in awareness of its importance.

6. Methodology

Learning outcomes developed	Teaching methodology	Training activities
Knowledge	Master class	Teacher's presentations
	Instructional sessions	Student's presentations
	Tutoring	Meetings for the resolution of doubts
	Learning based on readings	Reading and analysis of documents
Skill	Learning based on projects	Problem solving
	Learning based on audio-visual	Audiovisual analysis
	Case-based learning	Search and processing of information. Problem solving
Competence	Project-based work	Reporting Submissions of reports or papers

7. Evaluation

Evaluation system	Weight
Continuous evaluation: exercises, problems, reporting, papers, case studies	40 %
Mid-term exam	20 %
Final exam	40 %

When computing the final grade, the on-going activities (participation, in-class quizzes, seminar cases and group projects, midterm exam) will be weighted only if the final exam grade is equal to or greater than 4.0. Therefore, to obtain a passing course grade, the final exam grade must be equal to or greater than 4.0. If the final exam grade is less than 4.0, the final exam grade becomes the final course grade, irrespective of the other grades. Students must take the final exam if they want to receive a quantitative course evaluation. Students who do not sit the final exam will receive a "No Show" overall course grade.

"The maximum grade that students may obtain on the revaluation tests [...] shall be 5,0. In addition, "the grade of the revaluation tests will, in any case, constitute the final grade of

the subject". **Thus, only those students who having completed the partial exam, the final exam and have completed 100% of the activities of continuous assessment of the subject, are suspended (final grade of the subject less than 5) will be entitled to the exam."**

<u>Single Evaluation:</u> The single assessment consists of a single examination equivalent to 100% of the grade of the subject. The exam, and therefore the subject, is passed with a grade of 5 out of 10 in this final test.

To benefit from the single assessment, it is necessary to send the teacher a written request during the first 15 working days of the course.

8.   Bibliography

8.1 Basic Bibliography
- Introduction to Mathematical Statistics, Global Edition, 8th Edition, Robert V. Hogg, Joeseph McKean, Allen T. Craig, Late, 2021 |Pearson

8.2 Recommended bibliography
- Hogg,R.V., McKean, J., Craig A.T. (2021). Introduction to Mathematical Statistics, Global Edition, 8th Edition. Pearson.