Big Data

Grado en Economía y Negocios Internacionales

UNIVERSIDAD NEBRIJA

SYLLABUS

Course: Big Data

Degree: Grado en Economía y Negocios Internacionales

Type: Elective

Languages: This course will be taught in English

Modality: In-Person and Online

Credits: 6

Year: 3rd

Semester: Spring Semester

Professors and contact information: César Lapuente & Javier Saiz Briones

1. COMPETENCIES AND LEARNING OUTCOMES

1.1. Competencies

Basic competencies
CB1.
CB2.
CB3.
CB4.
CB5.

General competencies
CG8.
CB9.

Specific competencies

CE9.
CE18.

Elective competencies

CEO3.
CE04.

1.2. Learning outcomes

By the end of this course, the student will be able to:
– Work with large volumes of information and extract meaningful signals from them.

2. CONTENTS

2.1. Prerequisites

None.

2.2. Description

This course provides theoretical and practical elements to add a new competition to meet the demands of industry technology to handle mass data, because it will enable the pupil to extract useful knowledge from data in a context of proliferation of production data in organizations and networks in general. At the end of the subject, the pupil will be able to:

- Know the basics and the historical evolution of data science, Big Data.
- Apply the concepts associated with the massive generation of information from different sources.
- Understand the physical and logical structures of one or more solutions to massive data and choose one to be applied to solve a practical case.
- Use software solutions available in the market in application to solve specific problems thereof.
- Implement a solution in the laboratory to solve a case. Apply the recruitment process massive data.
- Analyse, design and program a solution of massive data in a real-life case.
- Understand the techniques for mass data management.

2.3. Covered Topics

Topic 1. What is Big Data
• Data, information, knowledge, and wisdom.
• The relationship with statistics.
• The V's (from 3 to 10).
• Big Data and Economics.

Topic 2. A brief history of data
• Before digital technology.
• After digital technology.

Topic 3. Architecture – technical concepts
• Data sources.
• Types of data.
• Databases.
• Architecture:
– Types.
– Concepts: data source, data warehouse (DW), data mart, metadata, facts and dimensions, data mining, etc.
– Modelling and reporting.

Topic 4. Business concepts
• Use case.
• Roles and competencies.
• Dashboard.
• KPIs.

2.4. Individual / Group Assignments

Throughout the course, practical activities will be carried out in class and/or as assignments, including individual work, group work, and exercises.

Students will complete a group project in which data associated with a Use Case, to be defined in due course, will be collected and analysed. This project will consist of two main activities:

- Identification, collection, filtering, and storage of data.
- Data analysis, pattern identification, and KPI generation for inclusion in a Balanced Scorecard.

2.5. Learning Activities

In-Person Learning	Hours	Attendance %
AF1 Lecture / Theoretical Foundations	**45**	**100%**
AF2 Case Studies	**9**	**100%**
AF3 Tutorial	**9**	**100%**
AF4 Individual / Group Assignments	**18**	**0%**
AF5 Online Assignments	**6**	**50%**
AF6 Extracurricular Materials	**6**	**0%**
AF7 Self Study	**57**	**0%**

Online Learning	Hours	Attendance %
AF8 Online Lecture	**12**	**50%**
AF9 Online Case Studies	**12**	**0%**
AF5 Online Assignments	**48**	**0%**
AF6 Extracurricular Materials	**18**	**0%**
AF7 Self Study	**24**	**0%**
AF10 Online Tutorial	**12**	**100%**
AF11 Individual / Group Assignments	**24**	**50%**

Methodologies:
In-Person: MD1, MD2, MD3, MD4
Online: MD1, MD2, MD3, MD4

3. GRADING RUBRICS

3.1. Grades

Grades are calculated as follows:

0 - 4.9 Fail (SS)
5.0 - 6.9 Pass (AP)
7.0 - 8.9 Notable (NT)
9.0 - 10 Outstanding (SB)

The mention of "Matrícula de Honor" may be awarded to students who have obtained a grade equal to or greater than 9.0.

3.2. Evaluation criteria

Ordinary Session

Modality: In-Person

Evaluation Criteria	Percentage
S1 Attendance and Participation	10%
S2 Individual / Group Assignments	30%
S3 Midterm Exam (On-Site)	10%
S4 Final Exam (On-Site)	50%

Modality: Online

Evaluation Criteria	Percentage
S10 Participation (Forums and Supervised Activities)	10%
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	60%

Extraordinary Session

Modality: In-Person

Evaluation Criteria	Percentage
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	70%

Modality: Online

Evaluation Criteria	Percentage
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	70%

3.3. Restrictions

Minimum Grade
To be able to qualify for inclusion of the above evaluation criteria percentages in the calculation of the final grade, it is necessary to obtain at least a grade of 5.0 in the final test.

Attendance
Student who have missed more than 25% class meetings (unexcused) may be denied the right to take the final exam in the ordinary session.

Writing Standards
Special attention will be given to written assignments, as well as to exams, regarding both presentation and content in terms of grammatical and spelling aspects. Failure to meet the minimum acceptable standards may result in point deduction.

3.4. Plagiarism Warning

Nebrija University will not tolerate plagiarism under any circumstances. Reproducing content from sources other than a student's own work (the internet, books, articles, and peers' work, among others) without proper citation will be considered plagiarism.

If these practices are detected, they will be considered a serious offense, and the sanctions provided for in the Student Regulations may be applied.

4. BIBLIOGRAPHY

Required Reading

Marr, B. (2015). *Big Data*. Wiley.

Marr, B. (2016). *Big Data in Practice*. Wiley.

Mayer-Schönberger, V., & Cukier, K. (2013). *Big data: A revolution that will transform how we live, work, and think*. Houghton Mifflin Harcourt.

Recommended Reading

Provost, F., & Fawcett, T. (2013). *Data science for business: What you need to know about data mining and data-analytic thinking*. O'Reilly Media.

Matter, U. (2024). *Big data analytics: A guide to data science practitioners making the transition to big data (1st ed.)*. Chapman & Hall/CRC