

Degree programme	Type	Course
Interactive Communication	OB	3

Contact lecturer

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Teaching staff

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Group languages

You can consult this information at the [end](#) of the document.

Prerequisites

This course does not have any compulsory requirements, but it is recommended that students have previously passed the following courses:

Information Systems

Information Storage and Retrieval

Advanced Web Services

Objectives

The main objective of the course is to introduce students to the basic concepts and main practices of Big Data.

The course also has the following specific objectives:

1. To introduce the concepts of data sources and types of data (structure, classification, integration and quality).
2. To make the first approaches to database analysis in a spreadsheet environment and other practical tools.
3. To promote the exploration of requests and work with open data sources.
4. To develop a propaedeutic knowledge for the further development of Business Intelligence applications: the development of big data solutions for business intelligence and its influence on decision making.

Learning outcomes

1. Distinguish the salient features in all types of documents within the subject.
2. Cross-check information to establish its veracity, using evaluation criteria.
3. Submit course assignments on time, showing the individual and/or group planning involved.
4. Identify situations in which a change or improvement is needed.
5. Propose new methods or well-founded alternative solutions.
6. Identify the social, economic and environmental implications of academic and professional activities within one's own area of knowledge.
7. Propose viable projects and actions to boost social, economic and environmental benefits.
8. Propose projects and actions that are in accordance with the principles of ethical responsibility and respect for fundamental rights and obligations, diversity and democratic values.
9. Propose projects and actions that incorporate the gender perspective.
10. Communicate using language that is not sexist or discriminatory.
11. Critically analyse the principles, values and procedures that govern the exercise of the profession.
12. Explain the explicit or implicit deontological code in your area of knowledge.
13. Evaluate the impact of problems, prejudices and discrimination that could be included in actions and projects in the short or medium term in relation to certain people or groups.
14. Analyse a situation and identify its points for improvement.
15. Weigh up the risks and opportunities of both one's own and other people's proposals for improvement.
16. Plan and execute academic projects in the field of big data.
17. Solve basic problems in big data.
18. Share experiences with the group as a path to learning, in order to work subsequently in multidisciplinary groups.
19. Describe the infrastructure needed to store big data.
20. Explain the characteristics of the infrastructure needed to recover big data.
21. Explain the infrastructure needed to process big data.
22. Differentiate between the various types of existing architectures for working with big data.
23. Extract large volumes of data from social networks and the new digital media in particular.

Contents

Unit 1. Big Data: Introduction to the subject: concept of Big Data, its processes and characteristics. Artificial Intelligence and Big Data.

Unit 2. Sources, capture and storage of data: Presentation of data sources (mainly open sources. Processes of access and requests for public information and transparency laws. Processes for searching, downloading and storing different types of data (formats).

Unit 3. Data processing and analysis: Handling of data cleaning and analysis tools and functions for decision making. Basic statistics for Big Data.

Unit 4. Social Media data analysis and monitoring: Introduction to Social Media as a source of big data: presentation of techniques and tools to extract insights from the social networks.

Unit 5. Data visualization and data mapping: Presentation of different tools and possibilities of data visualization and cartographic representation of information for decision-oriented reporting.

(*) The detailed calendar with the content of the different sessions will be displayed on the day of the presentation of the course. It will also be posted on the Virtual Campus where students will be able to find a detailed description of the exercises and practices, the various teaching materials and any information necessary for the proper monitoring of the course. In the event of a change of teaching modality for health

reasons, the teaching staff will inform of the changes that will take place in the course programme and in the teaching methodologies.

The content of this course will be sensitive to aspects related to the gender perspective.

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Autonomous work: reading and coursework preparation and personal study	60	2.4	1, 2, 3, 5, 7, 9, 11, 16, 17, 18, 19, 20, 21, 22, 23
Theoretical sessions	15	0.6	9, 10, 11, 12, 17, 20, 21, 22
Seminars	10	0.4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23
Laboratory	33	1.32	4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23
Mentoring	10	0.4	1, 3, 5, 7, 16, 17, 18

The structure of the course, in which different practical activities are carried out, seeks to internalise skills related to the management of Big Data (search, extraction, analysis and publication of data for decision-making). Its methodology is completely practical. Through laboratory activities, workshops and the final project, both the theoretical component of the subject and the practical application of the contents studied are evaluated.

The continuous assessment of the course, in which specific and continuous short-term practical activities are carried out, allows for a very precise monitoring of the student's learning and progression. In addition, activities are done progressively on the acquisition of knowledge that, step by step, is involved in the next activities.

The Introduction to Big Data course includes three types or categories of assessable training activities:

Laboratory exercises: individual or team work in which practical activities are carried out with a punctual deliverable with a time limit. Students must apply the knowledge, distribute the time and prepare the deliverables within the classroom and in the hours set aside for practice under the guidance of the professor.

Seminars: individual or team work involving more extensive practical activities with deliverables open to students' creativity. There are no time limits in the classroom, but there are deadlines. Students must apply knowledge, allocate time and prepare deliverables by starting their work in the classroom, but continuing it in the form of activities supervised by the teaching team.

Development of the final course work: practical group evaluation exercise in which students must solve, during the course, a practical application problem related to Big Data. Students must state the problem and carry out the four processes to provide a proposed solution based on large amounts of data: search, extraction, analysis and publication of a data report that includes a proposed decision based on the information collected and analysed.

The course material includes texts in SPANISH and ENGLISH: student are expected to have an operative control of these languages.

The detailed calendar with the content of the different sessions will be displayed on the day of the subject presentation and will also be available on the subject's Virtual Campus, where students will be able to find the various teaching materials that the teaching staff deems appropriate and all the information necessary for the

proper follow-up of the subject. In the event of a change in teaching modality due to force majeure according to the competent authorities, the teaching staff will inform of the changes that will occur in the subject's programming and teaching methodologies.

15 minutes of a class will be reserved, within the calendar established by the center/degree, for students to complete the surveys to evaluate the performance of the teaching staff and to evaluate the subject/module.

The content of the subject will be sensitive to aspects related to the gender perspective and the use of inclusive language.

Annotation: within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Classroom exercises	30%	8	0.32	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23
Laboratory	40%	8	0.32	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23
Courseworks	30%	6	0.24	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 23

Continuous evaluation

The assessment activities are as follows:

Activity A: Laboratory exercises, which have a weight of 40% of the final qualification.

Activity B: Classroom exercises, with a weight of 30% of the final qualification.

Activity C: Courseworks, which weighs 30% of the final grade.

In order to pass the course, a minimum pass mark (5.0) must be obtained in each of the activities.

When it is considered that the student has not been able to provide sufficient evidence of assessment, this subject must be classified as non-assessable.

SINGLE-ASSESSMENT:

This course does not provide for a single-assessment system

REVALUATION:

In the last three weeks of the course, students who have not passed the course may sit a revaluation test consisting of a theoretical test and a practical exercise. The compulsory condition to be eligible for the revaluation of the course is to have done at least 2/3 of the total number of practical exercises of the course (activities A, B and C) and to have obtained an average mark equal to or higher than 3.5 (and lower than 5) in all the assessment activities.

In accordance with the above criteria, if a student does not complete at least 66% of the practical activities of

the assessment activities, he/she will be considered as not assessable in this course.

SECOND ENROLLMENT:

In the case of second enrollment, students may take a single synthesis test that will consist of a theoretical test and a practical exercise. The qualification of the subject will correspond to the qualification of the synthesis test. The student who wants to take this synthesis test must notify the coordinator of the subject.

PLAGIARISM:

In the event that the student performs any irregularity that may lead to a significant variation of an evaluation act, this evaluation act will be graded with 0, regardless of the disciplinary process that could be instructed. In the event, that several irregularities occur in the evaluation acts of the same subject, the final grade for this subject will be 0.

AI:

For this subject, the use of Artificial Intelligence (AI) technologies is permitted exclusively in support tasks, such as bibliographic or information searches, text correction or translations, and in no case as a replacement for creative activities such as the production of texts, photos, videos, audios, graphics and spreadsheets. If in doubt, students should consult with the teaching staff. Students must clearly identify which parts have been generated with this technology, specify the tools used and, in the case of non-trivial uses, include a critical reflection on how these have influenced the process and the final result of the activity. The lack of transparency of the use of AI in this assessable activity will be considered a lack of academic honesty and may lead to a partial or total penalty in the grade of the activity, or greater sanctions in serious cases.

This subject doesn't provide for the single assessment system.

IRREGULARITIES:

The commission of any irregularity in an evaluation act (academic fraud, plagiarism or improper use of AI, unless such use is expressly authorised in the syllabus), which may lead to a significant variation in the grade, means that this act will be graded with a 0. In the event that the syllabus provides that to pass the subject it is an essential requirement to have obtained a minimum grade in this assessment act or that several irregularities occur in the assessment acts of the same subject, the final grade for this subject is 0. Apart from this, a disciplinary process may be initiated against the student who incurs any of these irregularities.

Any student suspected of presenting tasks that have been generated by AI, prepared by other people or copied; include content generated by AI without referencing, or that does not fall within the permitted assumptions, may be required to produce previous work or other materials that can demonstrate that it is an unpublished work and the result of his original authorship. He may also be asked to explain or justify his work separately. The teaching staff may also use AI use identification systems or carry out the verification tasks that they deem appropriate. If after the review it is detected that irregularities have been committed, the work may be graded with a zero and the student may be subject to further disciplinary measures.

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Software

As this is a completely practical course, the software required is the usual one for the tasks of capturing, processing and analysing information in different formats.

Specifically, the following tools are required:

Text editing software: Word or similar

Data analysis software: Excel or similar

Data visualisation software: Datawrapper

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(TE) Theory	6	Spanish	second semester	afternoon
(PLAB) Practical laboratories	61	Spanish	second semester	afternoon
(PLAB) Practical laboratories	62	Spanish	second semester	afternoon