Universidad de Navarra

Técnicas en Big Data I

Guía docente 2026-27

PRESENTACIÓN

Breve descripción: Nowadays, humans and systems produce large amount of data that needs large amount of storage and processing. Since few years ago, distributed systems to load and treat such big data were created in order to reduce the time processing of this data and storage. Cloud computing is becoming more present for companies and firms and are really a valuable and increasing service to storage masive data and process big data.

- **Titulación**: ADEb, ECOb
- **Módulo/Materia**: Módulo 7. Materias optativas. Materia 7.2: optativas específicas.
- **ECTS**: 3
- **Curso, semestre**: 3º, first semester
- **Carácter**: Optativa de perfil del itinerario de Data Analytics.
- **Profesorado**: D. Ignacio Rodríguez Carreño, irodriguezc@unav.es
- **Idioma**: English.
- **Aula, Horario**: Classroom will be the Compters Lab, groundfloor, Amigos Building, Mondays from 15 to 17 h.

RESULTADOS DE APRENDIZAJE (Competencias)

Competencias optativas de perfil:

SSOP1. Accessing and managing massive data.

SSOP2. Understanding programming languages potentially used to solve economic and/or business problems.

SSOP4. Identify patterns and trends and gather useful information from massive data in economics and/or business.

SSOP5. Effective communication of results to a professional audience in economics and/or business.

PROGRAMA

Topics:

I. Introduction to Big Data

II. Computers Arquitecture. Evolution

III. Cloud Computing.

IV. Machine Learning in Google Cloud

ACTIVIDADES FORMATIVAS

Classes

There will be theoretical classes showing the concepts and computer practices with the programming language and tools chosen.

Assignment

The assigment will consist on finishing the Google Cloud Digital Leader Path in the Google Skills Boost platform (8 hours), answering the corresponding quizzes. It will worth 20%.

Exams

There will be a final exam for both profile students about the theory given in class and the google cloud course asked in the assignment that will worth **50%** for the students of the International Economics and Finance profile and **30%** for the students of the Data Analytics profile. If the students do not present the final project, then the exam will worth **70%** for the students of the International Economics and Finance profile and **50%** for the students of the Data Analytics profile. **You will have to get a 5 out of 10 in the final exam to average with the rest of the assesments.**

There will be a SQL basic exam for the Data analytics students that will worth **20%**.

Final project

It is elective. It will consist of carrying out a project of the subject that includes group work that will include a video with a presentation on it (20%). Students will write their own largescale computing code that solves a social science research problem of their choosing. For instance, students might perform a computationally intensive demographic simulation, collect and analyze large-scale streaming social media data, or train a machine learning model on a large-scale economic dataset. Students will additionally record a short video presentation about their project in the final week of the course.

EVALUACIÓN

Evaluation of undergraduate students

Honesty is the best policy:

We value honesty. Without it, there can be no trust or any meaningful social relations. Therefore, the School expects honesty and fairness from all of its members: professors, nonacademic staff, and students.

Dishonest behaviours will be sanctioned in accordance with the University Norms on Student Academic Discipline, and include lying, cheating in exams, and plagiarism in written work. We take such violations seriously. Depending on their gravity, these offences will be dealt with by the Professor in charge of the subject, by the Dean of Students, and in very severe cases, by the Vice President for Student Affairs.

Sanctions include:

- Formal warnings
- Prohibition from entering University premises for a given period
- Loss of admission rights to exams
- Loss of scholarships

A failing grade for the piece of work or the whole course

CONVOCATORIA ORDINARIA

SE1. Attendance. It will have a value of 10% of the final grade of the ordinary evaluation. At least students will have to attend the 80% of the sessions.

SE2. Assignment. The google cloud course asked in class will worth 20%.

SE3. Exam. There will be a final exam about the google cloud course asked in class and the chapters of the subject. It will worth 50% for the Int. Ec. and Fin.

students and 30% for the Data Analytics students. If the Project is not done by the students, the percentages of the exam will change to 70% and 50%,

respectively. **You will have to get a 5 out of 10 in the final exam to average with the rest of the assesments**

SE4. Quizz. There will be a basic SQL exam for the Data Analytics students that will worth 20%.

SE5. Project. It is elective. It will consist of carrying out a project of the subject that includes group work that will include a video with a presentation on it (20%)

CONVOCATORIA EXTRAORDINARIA

For the extraordinary evaluation, if the subject has been failed by the student, he/she will have to redo the exam again. The attendance and assignments will have the same weight in the extraordinary assesment. **You will have to get a 5 out of 10 in the final exam to average with the project grade**.

HORARIOS DE ATENCIÓN

Office hours will be determined with the students depending on the students' schedule.

Dr. Ignacio Rodríguez Carreño, irodriguezc@unav.es: Office 2080, hilera-segunda planta.

BIBLIOGRAFÍA Y RECURSOS

The resources to do cloud computing will be explicitly the resources provided by Google Cloud and others:

Google Cloud Skills Boost

Cloud Computing Services | Google Cloud