Large Scale Computing_20
Guía docente 2023-24

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, primer semestre.
- **Carácter**: Optativa de perfil del itinerario de Data Analytics.
- **Profesorado**: D. Ignacio Rodríguez Carreño, irodriguezc@unav.es
- **Idioma**: Inglés
- **Aula, Horario**: Classroom will be the Computers Lab, groundfloor, Amigos Building in the next schedule:

Monday October 30th	12-15 h
Friday November 3rd	9-12 h
Monday November 6th	12-15 h
Friday November 9th	9-12 h
Friday November 17th	9-13 h
Friday November 24th	9-13 h
Friday December 1st	9-13 h

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.

Assignments and quizzes

There will be theory and practical sessions with exercises and/or assignments in computers. The quizzes and finishing the google cloud courses asked in class will worth 40%. 30% will be the quizzes and 10% will be the courses asked in class.

Final project

The students will have to do a final project that will be 40% of the subject. Students will write their own large-scale 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 Policy

We value honesty. There can be no trust or meaningful social relationships without it. Therefore, the Faculty expects honesty and justice from all its members: professors, administrative staff and students. The dishonesty will be sanctioned in accordance with the University Norms on the Academic Discipline of Students of August 2015 that include lying, cheating on exams, and plagiarism of written works. We take these offenses seriously. Depending on its severity, the subject teacher, the vice-dean of students, and in very serious cases, the vice-rector of students will be in charge of its sanction.

Sanctions include:

- Formal reprimands
- Expulsion from the University for a period
- Loss of examination session
- Loss of scholarships suspended in the grade of the work or the subject

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. Project.** 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 (50%)
- **SE3. Assignments**. The quizzes and finishing the google cloud courses asked in class will worth 40%. 20% will be the quizzes and 10% will be the courses asked in class.

CONVOCATORIA EXTRAORDINARIA

For the extraordinary evaluation, if the subject has been failed by the student, he/she will have to present again the project. The attendance and assignments will have the same weight in the extraordinary assesment.

HORARIOS DE ATENCIÓN

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

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BIBLIOGRAFÍA

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

[Google Cloud Skills Boost](#)

[Qwiklabs provides real Google Cloud environments that help developers and IT professionals learn cloud platforms and software, such as Firebase, Kubernetes and more.](#)

[Qwiklabs](#)

[Qwiklabs](#)

[Cloud Computing Services | Google Cloud](#)

[Meet your business challenges head on with cloud computing services from Google, including data management, hybrid & multi-cloud, and AI & ML.](#)

[Google Cloud](#)