

Academic Year: ( 2023 / 2024 )

Review date: 26-04-2023

Department assigned to the subject: Signal and Communications Theory Department

Coordinating teacher: MARTÍNEZ OLMOS, PABLO

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

This subject does not have courses that are supposed to be approved to take it. However, it is intended to introduce advanced machine learning techniques necessary to address current data modeling problems in healthcare applications. In that sense, the student is expected to automatically take advantage of the fundamentals of data science, neural networks, and learning.

**DESCRIPTION OF CONTENTS: PROGRAMME**

In this course, we aim to offer a perspective on advanced machine learning techniques necessary to address current learning problems in healthcare. Among them, we highlight the following:

1. Multi-view and heterogeneous probabilistic models.
2. Probabilistic models for time series.
3. Point processes.
4. Implicit models based on neural networks.

These techniques will be illustrated in relevant healthcare problems such as computational psychiatry, microbiology, omics data treatment, and electronic health record analysis, among others.

**LEARNING ACTIVITIES AND METHODOLOGY**

AF1: THEORETICAL-PRACTICAL CLASSES. In them the knowledge that students must acquire will be presented. They will receive the class notes and will have basic reference texts to facilitate the follow-up of the classes and the development of the subsequent work. Exercises, practical problems will be solved by the student and workshops and an evaluation test will be carried out to acquire the necessary skills.

AF2: Updated to allegation

AF3: STUDENT INDIVIDUAL OR GROUP WORK.

AF8: WORKSHOPS AND LABORATORIES.

MD1: THEORY CLASS. Lectures in class by the teacher with the support of computer and audiovisual media, in which the main concepts of the subject are developed and materials and bibliography are provided to complement the students' learning.

MD2: PRACTICES. Resolution of practical cases, problems, etc. raised by the teacher individually or in a group.

MD3: TUTORING. Individualized assistance (individual tutorials) or in groups (collective tutorials) to students by the teacher.

MD6: LABORATORY PRACTICES. Applied / experimental teaching to workshops and laboratories under the supervision of a tutor.

**ASSESSMENT SYSTEM**

The student's final grade is obtained 100% through continuous evaluation, which will include a research project, laboratory practices, and deliverable exercises

<b>% end-of-term-examination:</b>	0
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	100

