

30231 - Automatic Learning

Syllabus Information

Academic Year: 2020/21

Subject: 30231 - Automatic Learning

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 439 - Bachelor's Degree in Informatics Engineering

ECTS: 6.0

Year: 3

Semester: Second semester

Subject Type: ---

Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The learning process is based on the teachers' lectures and the students' work during the practical sessions. In both cases, previous personal work is essential. Before each lecture, students should study and understand previous lectures. Before each practice session, students should analyse the assignment, perform some preliminary work, and identify the parts that require further clarifications from the teacher. At the end of each practical sessions, students should present the results obtained.

4.2.Learning tasks

The course is 150 hours which includes the following learning tasks:

- **Lectures (type T1)** (30 hours).
- **Practice sessions (type T3)** (30 hours).
- **Autonomous work (type T7)** (80 hours).
- **Examinations (type T8)** (10 hours).

4.3.Syllabus

The course will address the following topics:

1. Supervised Learning. Regression
2. Regularization and model selection
3. Logistic regression
4. Generative models. Naive Bayes
5. Anomaly Detection
6. Non-supervised learning. PCA
7. Clustering
8. Recommender systems
9. Non-parametric methods. Gaussian processes
10. Big Data

4.4.Course planning and calendar

4.5.Bibliography and recommended resources

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30231&Identificador=14696>

[BB: Bibliografía básica / BC: Bibliografía complementaria]

- [BB] 2. Duda, Richard O.. Pattern classification / Richard O. Duda, Peter E. Hart, David G. Stork . - 2nd ed. New York [etc.] : John Wiley and Sons, cop. 2001
- [BB] Murphy, Kevin P.. Machine learning : a probabilistic perspective / Kevin P. Murphy . Cambridge [etc.] : The MIT Press, cop. 2012
- [BC] Alpaydin, Ethem. Introduction to machine learning / Ethem Alpaydin . 3rd ed. Cambridge [etc.] : MIT Press, cop. 2014
- [BC] Bishop, Christopher M.. Pattern recognition and machine learning / Christopher M. Bishop . [1st ed., 13th print.] New York : Springer, 2009

Listado de URL

- Transparencias y apuntes de la asignatura, enunciados de problemas, casos de estudio y Guiones de prácticas[<http://add.unizar.es>]