

62234 - Machine learning for Big Data

Syllabus Information

Academic Year: 2019/20

Subject: 62234 - Machine learning for Big Data

Faculty / School: 110 -

Degree: 534 - Master's in IT Engineering

ECTS: 3.0

Year: 2

Semester: First semester

Subject Type: Optional

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 methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as

- **Lectures.**
- **Talks from experts.**
- **Lab sessions.**
- **Practice sessions.**
- **Tutorials.**
- **Autonomous work and study.**
- **Assignment.**
- **Assessment.** Oral presentation of the practical assignment.

Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials, including a discussion forum.

Further information regarding the course will be provided on the first day of class.

4.2.Learning tasks

This is a 3 ECTS course, that is equivalent to approximately 75 hours of student work (35 of lectures and practice sessions and 40 hours of autonomous work).

4.3.Syllabus

The course will address the following topics:

1. Introduction.
2. Deep Neural Networks.
 1. Basic Concepts. Training of Deep Neural Networks. Backpropagation.
 2. Deep Convolutional Networks.
 3. Practical aspects of deep neural networks (Numerical gradient, overfitting, regularization, activation functions, stochastic gradient descent). Hardware and software tools for deep learning.
3. Application cases: Natural Language Processing and Visual Classification.
4. Sequential Learning and other state of the art models weakly supervised or unsupervised
5. Approximate Nearest Neighbour.

4.4.Course planning and calendar

The course takes place in the Rio Ebro Campus. Sessions are organized in

- Lectures.
- Practice sessions.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website and course website.

4.5.Bibliography and recommended resources