

Statistical Learning

Academic Year: (2022 / 2023)

Review date: 19-05-2022

Department assigned to the subject: Statistics Department

Coordinating teacher: NOGALES MARTIN, FRANCISCO JAVIER

Type: Compulsory ECTS Credits : 6.0

Year : 2 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Linear algebra
 Probability and Data Analysis
 Introduction to Statistical Modeling

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to the statistical learning
2. Evaluation of learning methods
3. Unsupervised learning
 - 3a. Clustering
 - 3b. Dimension reduction
4. Probabilistic learning
 - 4a. Statistical classification
 - 4b. Regression and prediction
5. Case studies

LEARNING ACTIVITIES AND METHODOLOGY

Theory (3 ECTS), Practice (3 ECTS).

50% lectures with teaching materials available on the Web. The other 50% practical sessions (computer labs).

ASSESSMENT SYSTEM

The assessment will be made by weighting the continuous evaluation (50%) and the final exam (50%), with a minimum grade of 5 points over 10 in each assessment activity.

% end-of-term-examination:	50
% of continuous assessment (assignments, laboratory, practicals...):	50

BASIC BIBLIOGRAPHY

- BISHOP, C.M. "PATTERN RECOGNITION AND MACHINE LEARNING", SPRINGER SCIENCE AND BUSINESS MEDIA, 2006
- FRIEDMAN, J.; HASTIE, T.; TIBSHIRANI, R. "THE ELEMENTS OF STATISTICAL LEARNING", NEW YORK, SPRINGER SERIES IN STATISTICS, 2001
- K. Murphy Machine Learning, A Probabilistic Perspective, MIT Press, 2012