

SYLLABUS DEL CORSO

Statistica Multivariata

2324-1-F8204B002-F8204B003M

Learning objectives

The aim of the course is to introduce some multivariate techniques used in exploratory data analysis and in prediction.

The student will be able to apply the aforementioned techniques to real data collected, for instance, in social and economic fields and that can be characterized by high-dimensionality.

Contents

- Exploratory data analysis
- Prediction tools

Detailed program

Basic concepts of data visualization

Tools to assay the generalization error: training and test set and K-fold cross validation

Bayes classifier, linear and quadratic discriminant analysis

Classification and regression trees

Ensemble techniques

Prerequisites

Exploratory data analysis, statistica models, probability theory, statistica inference, programming

Teaching methods

Theoretical lectures and computer lab lectures.

Assessment methods

The will just be a final examition.

The exam is written and includes theoretical and practical exercizes to be solved with or without the aid of the computer. The exercizes have the aim to assay the knoledge and the ability of the student to solve problems by applying the statistical techniques introduced in the course.

Textbooks and Reading Materials

James, G, Witten, D., Hastie, T., Tibshirani, R., An Introduction to Statistical Learning with applications in R, Springer, 2013

Everitt, B., Hothorn, T. An Introduction to Applied Multivariate Analysis with R, Springer, 2011

Hastie, T., Tibshirani, R., Friedman, J. ,The Elements of Statistical Learning, Springer, 2001

Izenman, A.J., Modern Multivariate Statistical Techniques, Springer, 2008

Azzalini, A. Scarpa, B. Analisi dei dati e data mining, Springer, 2009

Dobson, A., Barnett, A., An Introduction to Generalized Linear Models, CRC Press, 2008

Semester

Secondo semeters, first cycle

Teaching language

italian

Sustainable Development Goals

QUALITY EDUCATION
