

Statistical Learning (61220)

Instructors: I.PAPAGEORGIOY

Elective Course, 3rd or 4th semester, 5 ECTS units

Course level: Graduate (MSc)

Language: Greek

Course Description

A range of statistical learning methods is studied. For supervised learning: (i) Classification problems and methods such as LDA, QDA, k-nn, decision trees (ii) data reduction problem, principal components analysis, factor analysis. For unsupervised learning: clustering (hierarchical, optimization clustering, model-based). Model Assessment and Selection.

Prerequisites

Multivariate analysis. Statistical inference.

Target Learning Outcomes

Upon completion of the course, students will have the knowledge and the skills to implement statistical methods aiming to deal with the problem of classification, data dimension reduction, factor analysis and clustering. They will be able to interpret the results and assess the methodologies' performance.

Recommended Bibliography

- Hastie, Tibshirani and Friedman (2009) Elements of Statistical Learning, 2nd edition Springer
- James, Witten, Hastie and Tibshirani (2011) Introduction to Statistical Learning with applications in R, Springer
- B. S. Everitt, S. Landau, M. Leese, and D. Stahl (2011) Cluster Analysis, Fifth Edition, Wiley

Teaching and Learning Activities

Face to face teaching covering theory and practice. The practicals are implemented with R.

Assessment and Grading Methods

Written exam and projects.