Ciências ULisboa | Estatística e Investigação Operacional

Project Multivariate data Analysis (guidelines) - 2025/26
cód. disc. 421105

Departamento de Estatística e Investigação Operacional

Hand out on October 20, 2025
Data delivery on November 3, 2025
To be handed back by December 9, 2025

As a result of an experimental situation a set of data has to be analysed. The researcher has rudimentary knowledge about multivariate analysis and wants to the help of a statistician to work on his problem. The dataset and a brief description of the observed variables will be sent by email.

1. Make a preliminary analysis of the data and discuss what you have learned from this analysis.

2. Conduct a principal component analysis exploring the potentialities of this method. Include in your discussion topics like dimensionality reduction, interpretation of principal components.

3. Conduct a cluster analysis exploring the hierarchical approach.Include in your discussion advantages and limitations of each methodology used.

4. Compare the results obtained in (2) and (3).

5. Interpretation of the results. Translate the statistical results in current language, accessible to the researcher who, hypothetically, have proposed the project.

About the report:

- The report should not have more than 20 pages.

- Do not forget topics like: goals, estimation methods, decisions, conclusions of the study, and references.

- The R code, as well as the report must be send by email to `eitrigueirao@fc.ul.pt`.