



SC

BIOL3103 Analyse des données biologiques

[15h+15h exercices] 2.5 credits

This course is taught in the 1st semester

Teacher(s): Eric Le Boulengé
Language: french
Level: 3rd cycle course

Aims

The student will be capable :

- 1/ to define in a concise way the questions he has to resolve, the necessary experimental protocol structure and the types of data expected.
- 2/ to define the most efficient data management structure.
- 3/ to identify the statistic methods but also the multivarious descriptive methods that, depending on the questions asked and the data structure, should be applied.
- 4/ to write a management, manipulation and data analysis program with an evolved language like SAS.
- 5/ to understand the listings and results obtained. The course is mostly based on examples from the ecological domain but not exclusively.

Main themes

During this teaching, we will first initiate the student to the use of a programming language and mostly to the use of available software. We will then discuss the different mesures of ressemblance (coefficients of similarity, distance and dependance). We will examine the different methods of grouping objects (dividing or agglomerative methods, with or without hierarchy) and the techniques of graphical representation of links. Finally we will examine the ordination methods in reduced spaces (analysis in principal components, analysis of correspondances, factorial analysis). Emphasis will be put essentially on biological interpretation of these different approaches' results more than on the underlying mathematics.