Statistical modelling

ECTS
3 crédits

Hourly volume
76h

Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

-The principle of nonparametric statistical tests for goodness-of-fit, independence, comparison of two populations
-The characteristics of a linear model and a generalized linear model, and their use for statistical modelling

At the end of this module, the student should be able to:

-Choose a test procedure suited to a given problem
-Build nonparametric test procedures to compare two populations
-Build goodness-of-fit tests for a single distribution or a family of distributions
-Choose a linear model or a generalized linear model suited to a given problem
-Estimate the parameters in a linear model and a generalized linear model
-Use statistical tests to validate or invalidate hypotheses on these linear models and generalized linear models.
-Implement a variable selection strategy
-Perform a complete statistical analysis on a real data set using a linear model or a generalized linear model

Necessary prerequisites

Probability: random variables, usual probability laws, expectation, variance, cumulative distribution function, limit theorems, Gaussian vectors, ¿
Inference statistics: moment estimators, maximum likelihood estimators, confidence interval for the mean / the variance for a Gaussian / non-Gaussian sample.
Basics of R software

Practical info

Location(s)

Toulouse