

Statistical modelling



ECTS
3 crédits



Hourly volume
76h

Introducing

-Perform a complete statistical analysis on a real data set using a linear model or a generalized linear model

Description

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

Necessary prerequisites

Probability: random variables, usual probability laws, expectation, variance, cumulative distribution function, limit theorems, Gaussian vectors, χ^2

Inference statistics: moment estimators, maximum likelihood estimators, confidence interval for the mean / the variance for a Gaussian / non-Gaussian sample. Basics of R software

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

 Toulouse