

## **R Workshops - Azores**

Two R workshops, to be held at the University of Azores, between 1 and 4 February, 2016. One introductory to R (1-2 Feb. 2016) and other more advanced, focussing in programming and ecology applications of R (3-4 Feb. 2016).

### **Introduction Workshop – 1-2 February 2016**

1. What is R?
2. Data import – the several options
3. Data structures and objects:
  - 3.1. Vectors
  - 3.2. Matrixes
  - 3.3. Data frames
  - 3.4. Lists
  - 3.5. Arrays
4. Conversion between objects
5. Data and object exploration (analyzing tables, summarizing objects, analyzing object structure):
  - 5.1. Analyzing object structure
  - 5.2. Summarizing objects
  - 5.3. Graphic analysis of data
6. Linear models, correlations and other basic statistical operations
7. Data export – the several options
8. Common graphic interfaces (R Commander).

## Programming/Ecology Workshop – 3-4 February 2016

### Programming:

1. R and its packages – workflow
2. Objects, classes and methods
3. Defining new classes and methods
4. Control structures:
  - 4.1. Conditional instructions
  - 4.2. Iterative instructions
5. Creating functions
6. Profiling and optimization
7. Package building

### Applications to Ecology:

1. Exploratory data analyses
2. Association measures
3. Cluster analysis
4. Unconstrained ordination (PCA, CA)
5. Canonical ordination (RDA, CCA)