



6<sup>th</sup> edition

# Advanced Course: Data Analysis Using R

July 22<sup>nd</sup> to 26<sup>th</sup> at the University of Aveiro

## General information

R is a **free, open-source software** that runs on different operating systems, is **used world-wide** for data analyses, and has an extensive online help system that can assist the users when they run into a bump on the road. The **thousands of available packages** allow users to perform a panoply of analyses on their data, and cite the exact methodology used.

The present course will consist of **introductory-level lectures** and **hands-on exercises** on command line-based data analysis, using R and RStudio. Attendees will be equipped with tools to understand not only the examples presented, but also to **face new challenges** that are specific to their future analyses.

Attendees should expect to **learn the very basics of R, data manipulation & visualization tools**, and analysis of several data types using different packages.

Applicants should have a background in Biology or related areas, and be scientists or post-graduation students (MSc or PhD). The course has the duration of **40 h** (Advanced Course; 6 ECTS) and is comprised of 10 blocks which are detailed in the following pages. Evaluation will consider attendance, overall interest and participation. A certificate will be provided at the end of the course.

Please install [R](#) and [Rstudio](#) before the course starts – or update to **most recent versions**



microlab

CEECIND/01373/2018

**FCT**  
Fundação para a Ciência e a Tecnologia

**CESAM** CENTRO DE ESTUDOS  
DO AMBIENTE E  
DO MAR

universidade de aveiro



**dbio**

departamento de biologia

## Detailed program \*

	July 22 <sup>nd</sup>	July 23 <sup>rd</sup>	July 24 <sup>th</sup>	July 25 <sup>th</sup>	July 26 <sup>th</sup>
Morning	Welcome; Introductory session about R and RStudio	(the good kind of) Manipulating data with the <i>tidyverse</i>	Plots with <i>ggplot2</i>	Univariate and multivariate data analyses	Application: Biological sequences analysis
	Objects and operations in R				
Afternoon	Importing data from different sources	Models with R	Exploratory data analysis	Loops and repeated instructions	Wrap up

\* may change slightly according to attendee interests

## Registration & fees

PhD students from DBIO or CESAM: free

Others from UAveiro: 200€ (Internal transfers from other departments are accepted)

Others: 400€

**Register** by filling out the [form in this link](#).

Any questions: [cifidalgo@ua.pt](mailto:cifidalgo@ua.pt)