



5th edition

Advanced Course: Data Analysis Using R

July 24th to 28th, room 12.2.12 (Dept of Political Sciences, UAveiro)

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**



FCT
Fundação para a Ciência e a Tecnologia

microlab

CEECIND/01373/2018

CESAM CENTRO DE ESTUDOS
DO AMBIENTE E
DO MAR

universidade de aveiro



dbio

departamento de biologia



5th edition

Advanced Course: Data Analysis Using R

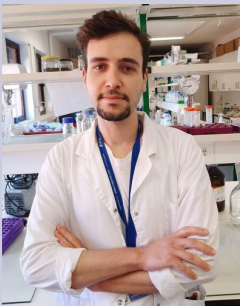
Lecturers



Cátia Fidalgo, PhD in Biology (specialty Microbiology)
Department of Biology & CESAM, University of Aveiro



Frederico Leitão, MSc in Microbiology
Department of Life Sciences, Faculty of Sciences and Technology,
University of Coimbra.
CEF, University of Coimbra & CESAM, University of Aveiro



Rafael Tavares, MSc in Microbiology
Department of Life Sciences, Faculty of Sciences and Technology, University
of Coimbra.
CEF, University of Coimbra & CESAM, University of Aveiro

Registration & fees

PhD students from DBIO or CESAM: 100% discount

Others from UAveiro: 50% discount (100€) *

Others: 200€

* Internal transfers from other departments are accepted

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

Any questions: cifidalgo@ua.pt

Detailed program *

Monday
July 24th

09:00	Welcome reception	<i>Cátia Fidalgo</i>
09:30-11:00	Introductory session about R and R Studio	
11:00-12:30	Objects and Operations in R	
14:00-18:30	Data input from different sources	

Tuesday
July 25th

09:00-12:30	Data manipulation using <i>tidyverse</i>	<i>Cátia Fidalgo</i>
14:00-18:30	Models in R: the basics	<i>Frederico Leitão</i>

Wednesday
July 26th

09:00-12:30	Data visualization: graphing in R with <i>ggplot</i>	<i>Cátia Fidalgo</i>
14:00-18:30	Exploratory data analysis, Univariate and Multivariate analyses	

Thursday
July 27th

09:00-12:30	Loops and repeated instructions	<i>Cátia Fidalgo</i>
14:00-18:30	Handling biological sequences in R	<i>Rafael Tavares</i>

Friday
July 28th

09:00-12:30	Microbial community analyses	<i>Cátia Fidalgo</i>
14:00-18:30	Hands-on exercises	
	Wrap-up session	

* may change slightly according to attendee interests

Classroom

