

Introduction to R (SPS-INT-R-21)

27 Sep 13:00 - 15:00 | Refectory, Badia Fiesolana, Badia Fiesolana

28 Sep 13:00 - 15:00 | Refectory, Badia Fiesolana, Badia Fiesolana

29 Sep 13:00 - 15:00 | Theatre, Badia Fiesolana, Badia Fiesolana

30 Sep 13:00 - 15:00 | Theatre, Badia Fiesolana, Badia Fiesolana

01 Oct 13:00 - 15:00 | Theatre, Badia Fiesolana

The aim of this course is to make students familiar with the functioning of R, RStudio and the basics of data analysis and management. By the end of it, students will be prepared to work with R both for the quantitative methods courses and for their own analyses

Course structure

The course will consist of four main blocks, followed by a final wrap-up session, and will be structured as follows:

Day 1: Basics of R and RStudio

27/09/2021 13:00-15:00 @ Refectory, Badia Fiesolana

On the first day, we will learn about what is R and how to work with it using and setting up RStudio. We will cover the basics of the R language, such as data types and structures, how to import data, and basic functions and tools to get to know our data.

Day 2: introduction to data analysis

28/09/2021 13:00-15:00 @ Refectory, Badia Fiesolana

After getting familiarized with R, the second day will focus on data cleaning and wrangling, mostly using the **dplyr** and the **tidyr** packages. Topics will cover how to filter, select, summarize, and re-arrange variables, as well as changing the structure of data when needed. We will also learn how to create new variables and work with groups or categories.

Day 3: data management and introduction to visualization

29/09/2021 13:00-15:00 @ Theatre, Badia Fiesolana

On the first part of this lesson, we will cover the basics of data and workflow management and how to setup a smooth working environment in R that is reproducible, portable, and self-contained. The second part of day 3 will consist of an introduction to **ggplot2**, a data visualization package, to generate our first plots in R.

Day 4: relationships between variables

30/09/2021 13:00-15:00 @ Theatre, Badia Fiesolana

This session will focus on how to visualize and understand the relationship between two or more variables using R. We will learn how to draw scatterplots, linear fits and introduce new

variables in our **ggplot2** output. We will also cover a series of tools, packages and guidelines that will be useful for those who want to get familiar with regression analysis in R.

Day 5: wrap-up case study

01/10/2021 17:00-19:00 @ Seminar Room 3, Badia Fiesolana

On the last day, we will perform a hands-on case study using data from the European Social Survey, where we will review and practice the different topics covered throughout the course.

Before the workshop

For the workshop, you will need to have **both** R and RStudio working on your laptops. If you don't have them already, you can do so from the following links:

- R <https://cran.r-project.org/>
- RStudio (Desktop version, Open Source edition) <https://rstudio.com/products/rstudio/>