Introduction to R

Dates: 22-26 September 2025

Time: 13:00 – 15:00

Room: Sala del Capitolo, Badia Fiesolana

Instructor: Karmen Misiou, PhD Researcher at EUI SPS

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Workshop Overview

- This workshop is intended for beginners or those with only a little experience using R.

- Its goal is to help participants get comfortable working in RStudio and learn the basics of statistical programming.

- We will cover how to work with R objects (like vectors and data frames), do data manipulation, run basic analyses, create visualizations, and follow good coding practices in R.

For extra reading beyond the course slides, you may find the free online book *R for Data Science* (by Hadley Wickham, chief scientist at Posit, the company behind RStudio) very helpful: https://r4ds.had.co.nz/index.html. You can also consult Doing Data Science in R: An Introduction for Social Scientists by Mark Andrews, which is available in the library. Finally, you can explore a collection of useful R package cheat sheets here: https://posit.co/resources/cheatsheets/.

Workshop Format

Each session will mix short lectures with hands-on practice. Please bring your own laptop with R and RStudio installed so you can follow along.

Setup Before the Workshop

To take part, you'll need both R and RStudio installed on your computer. If you don't already have them, you can download them here:

- R: https://cran.r-project.org/
- RStudio: https://posit.co/products/open-source/rstudio/

Course Structure

Day 1 (Monday, 22 Sep): Getting Started with R & RStudio
We'll begin with an introduction to the RStudio environment and the basics of R. This includes understanding the layout, using simple commands, working with objects (vectors, data frames), and learning how to write and run scripts.

Day 2 (Tuesday, 23 Sep): Working with Data
This session will cover how to import data, clean it, and prepare it for analysis. We'll practice subsetting, filtering, summarizing, and reshaping data. Along the way, we'll get to know the **tidyverse**, a collection of powerful packages for data wrangling.

Day 3 (Wednesday, 24 Sep): Descriptive Analysis & Data Visualization
We'll move on to exploring and describing data. Topics include summary statistics, cross-tabulations, and basic visualization techniques. We'll use **ggplot2** to create bar charts, line graphs, and scatter plots, focusing on how to communicate findings clearly for social science research.

Day 4 (Thursday, 25 Sep): Introduction to Modeling
This session introduces simple statistical modeling in R. We'll cover correlations, linear regression, and model interpretation — with a focus on examples from political science (e.g., public opinion, voting, or survey data).

Day 5 (Friday, 26 Sep): Reproducible Research & Good Coding Practices
In the final session, we'll focus on writing clean and reproducible code. We'll introduce R Markdown for combining text, code, and results in one document. We'll also discuss coding tips, where to look for help, and strategies to keep improving your R skills.