Ph.D. in "Life Course Research" – Socio-demographic curriculum

Academic Year 2023-2024

Introduction to R and RStudio

Prof. Gaia Bertarelli
University of Venice
gaia.bertarelli@unive.it

Prof. Antonella D'Agostino
University of Siena
dagostino10@unisi.it

Objectives

R programming language is a useful tool for data scientists, analysts, and statisticians. R's ability to handle basic and complex analyses and is a valuable asset for a wide range of data-related tasks.
This introduction to R crash course covers the basics of this open source language. You'll gain useful coding skills and be ready to start your own data analysis in R.

Program

Friday, January, 12th, online, 9.00-10.30 (Instructor: G. Bertarelli):

- Introduction to R and Rstudio (editors, packages, types of objects (vectors, matrices, lists, etc etc))
- Indexing
- Basic mathematical/statistical functions

Friday, January, 12th, online, 11.00-12.30 (Instructor: A. D'Agostino):

- Management of datasets and dataframes (import/export, reshape, dataframe operations, subsetting (focus on: tidyverse R package))

Friday, January, 26th, online, 9.00-10.30 (Instructor: G. Bertarelli):

- Introduction to programming in R:
  - basic constructions (for, while, if, ifelse,…)
  - creating functions in R

Friday, January, 26th, online, 11.00-12.30 (Instructor: A. D'Agostino):

- Graphics tools (focus on: ggplot R package)

Suggested lectures and materials

- *OpenIntro Statististics* (https://openintro.info/stat/labs.php).:
  - R e RStudio: download - Intro
  - Introduction to data
  - Probability, Distribution, Intro to inference, Confidence interval, . . .
- Emmanuel Paradis, *R for beginners*, https://cran.r-project.org/doc/contrib/Paradis-rdebuts_en.pdf
- Wickham, H., Çetinkaya-Rundel, M., & Grolemund, G. (2023). *R for data science*. O'Reilly Media, Inc. (https://r4ds.hadley.nz/)

Requirements

Basic knowledge of descriptive statistics.