SHORT COURSE

Introduction to R for Health Data Science: Hands-on training

22, 23, 27, 28 november 2023

Introduction to R for Health Data Science: Hands-on training

This hands-on training will provide an introductory overview of the basic tools for effective health data science with R, using the tidyverse collection of packages.

You will learn, through hands-on exercises, how to import data to R, perform common data transformations and pre-processing, visualize, analyse, model and interactively report your results.

The course is aimed at health professionals, researchers, data analysts, post-graduation students or anyone wanting to:

- Start using R as a tool for research or data science
- Migrate to R from other software (e.g. Excel, Stata, SPSS)
- Expand their data analysis skillset with data cleaning, visualization and interactive reporting

Maximum of 30 participants, selected by order of registration.

Learning objectives:

1. Understand core R programming language concepts
2. Identify the main tidyverse functions used in a data science workflow
3. Perform common data transformation and pre-processing techniques in epidemiological data
4. Understand the syntax of a statistical model in R and manage the model output
5. Identify the core components of a ggplot and build their own plots
6. Build dynamic reports with RMarkdown
7. Develop simple dashboards using Shiny
8. Use version control within an R project

Course responsible:

Dr. Carlos Matos

Public Health Doctor @ Northern Regional Health Administration

Assistant professor @ ICBAS School of Medicine and Biomedical Sciences, University of Porto

Health Data Science PhD candidate @ Faculty of Medicine, University of Porto

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Requirements

Computer with R and RStudio (Both are free and open source. An installation tutorial will be made available beforehand).

No prior knowledge of R is required.

Statistical knowledge is not required but may be helpful in the statistical modelling section.

Course language:

English. (Portuguese, if all participants speak Portuguese)

Certificate:

A certificate of participation will be given to the participants who attend at least 75% of the course.

Venue:

ISPUP auditorium

Registration:

Online registration at
http://www.ispup.up.pt

Duration and Schedule:

Total of 4 sessions, from 9:00 am to 5:30 pm.

22 November – Wednesday; 23 November – Thursday;

27 November – Monday; 28 November – Tuesday;

Fee:

295€

225€ for students and collaborators of ISPUP, public health internship medical doctors and for students and alumni from the University of Porto, upon presentation of the respective proof.

Contacts:

Instituto de Saúde Pública da Universidade do Porto

Rua das Taipas, nº 135, Porto (Portugal)
Email: cursos@ispup.up.pt

Application deadline:

08 November 2023

PROGRAM

Day 1 – Introduction to R and the tidyverse. Import and transform data.	
09 – 12.30	• Introduction to R and RStudio • Creating a project • Data types
12.30 – 14	Lunch break
14 – 15.30	• Introduction to the tidyverse • Import data to R
15.30 – 15.45	Coffee break
15.45 – 17.30	• Data transformation • Exercises

Day 2 – Explore and visualize your data.	
09 – 12.30	• Exploratory data analysis • Introduction to data visualization
12.30 – 14	Lunch break
14 – 15.30	• Anatomy of a ggplot • Creating the most common chart types
15.30 – 15.45	• Coffee break
15.45 – 17.30	• Exercises

PROGRAM

Day 3 – Statistical modelling. Communicate your results.	
09 – 12.30	• Syntax of an R model • Linear and logistic models • Reporting model outputs
12.30 – 14	Lunch break
14 – 15.30	• Exercises • Create R Markdown reports • Build interactive Shiny dashboards
15.30 – 15.45	• Coffee break
15.45 – 17.30	• Exercises

Day 4 – Reproducible research. Final exercises.	
09 – 12.30	• Version control with git and GitHub • Publish to GitHub
12.30 – 14	Lunch break
14 – 15.30	• Final exercises
15.30 – 15.45	• Coffee break
15.45 – 17.30	• Final exercises