Programming with R

Objective

This course teaches researchers how to work with the statistical programming language "R". We will learn about the data structures and functions in R, and how to write simple R scripts.

Description

Whereas many courses and textbooks teach the R language together with statistics, this course focuses **exclusively on programming in R.** We will **not discuss** statistical problems at all.
This helps the participants to focus on the challenges associated with understanding and creating R scripts.

Topics in detail:

- **Introduction to R:** The participants will familiarize themselves with the general principles of R programming and with the RStudio interactive environment.
- **Data structures in R:** To use R efficiently, practitioners need to understand how to store and process their data using the data structures provided by the language. We will cover vectors, matrices, arrays, lists and data frames in detail, and learn about how to import and export data to / from R.
- **Functions in R**: The participants will learn how to implement simple algorithms as R functions. We will cover control structures, iteration constructs and mapping functions to data.
- **Plotting in R:** We will learn about the built-in plotting facilities. Note that this part does not cover advanced graphics offered by the 'ggplot' package.

Methodology

- The course is taught on campus using PowerPoint presentations and online tools.
- The participants work with hands-on exercises in the RStudio interactive environment.
- After the first day participants will complete an online homework exercise.
- The online tool setup is provided by the instructor.

Conditions

This is an introductory course. No previous programming experience required, but good typing skills are essential.

Trainer

Dr. András Aszódi
VBCF BioComp, Vienna

- Holds a PhD in chemistry
- He has extensive computational biology experience, both in academia and industry
- His develops short courses on biostatistics and scientific programming

Organizational Information

Language / Format	English / On campus
Target group	Doctoral Candidates at all stages and Postdocs (R2/R3) from all faculties
Date	Monday-Tuesday, 17-18 June 2024, 9:00 – 13:00
Registration	For registration click here