Course : R environment, data processing and statistical analysis

Practical course - 2d - 14h00 - Ref. TDA
Price : 1680 CHF E.T.

★★★★☆ 3,8 / 5

An open source software environment and language, R specializes in statistical processing. This course will teach you how to program in R, use the R studio editor, exploit data visualization possibilities and apply fundamental statistical algorithms: regressions, PCA, CAH.

🎯 Teaching objectives

At the end of the training, the participant will be able to:

- ✓ Know how to install and use the R analysis environment
- ✓ Import and export data
- ✓ Recognize the different types of objects in R
- ✓ Creating analysis programs with R
- ✓ Be able to perform basic statistical analyses with R
- ✓ Understanding how to manipulate data with R
- ✓ Graphical presentation of results

Intended audience

Engineers, data analysts, statisticians, developers in statistical environments or anyone interested in statistical analysis with R.

Prerequisites

Familiarity with the Microsoft Windows environment and basic knowledge of statistics.

Practical details

Exercise
Practical application of theoretical knowledge on a variety of data sets.

Course schedule

PARTICIPANTS
Engineers, data analysts, statisticians, developers in statistical environments or anyone interested in statistical analysis with R.

PREREQUISITES
Familiarity with the Microsoft Windows environment and basic knowledge of statistics.

TRAINER QUALIFICATIONS
The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS
The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

1 Introduction

- Introduction to R software and its features.
- Advantages and disadvantages.
- Access to the tool download site and installation.

Hands-on work
Installation of the analysis environment.

2 First steps

- Basic environment (console, script).
- Using the console.
- Create and save a script.
- The directory under R Installation.
- Help and comments.
- Other editors include Tinn-R and R Studio.

Hands-on work
Console operations. Scripting.

3 R objects and programming concepts

- Objects of type vector, matrix, array, factor, data.frame, list.
- Object manipulation, object classes, specific functions, joins.
- Save, delete memory.
- Notions of loop (for and while), condition (if), switch.

Hands-on work
Write R programs that manipulate object types.

4 Creating and using functions

- Function structure.
- Mathematical functions.
- String functions.
- Time/date functions.
- Set operations.
- Contingency tables.

Hands-on work
Create functions and use them in R programs.

5 Data generation, management and visualization

- Data: regular and random sequences.
- Sample data from R.
- Import and export data.
- Modify object data.
- Examples of graphs built with R.
- Creation of basic graphics.
- Chart options, sharing a chart window, saving a chart.

Hands-on work
Application exercises on data, graphical presentation of results.

⑥ Statistical analysis

- Introduction to the notion of package (library).
- Download packages.
- Some useful packages.
- Multiple linear regression.
- The case of principal component analysis (PCA).
- The case of CAH classification.

Hands-on work
Continued writing of statistical programs, integration of packages.

Dates and locations

REMOTE CLASS
2026 : 22 June, 5 Oct., 14 Dec.