+33 (0)1 48 10 09 46
formation@ambient-it.net
140 Avenue Jean Lolive 93500 Pantin - France

Updated 07/27/2023

Sign up

Fundamentals of Statistical Analysis with R course

2 days (14 hours)

Presentation

R is one of the most powerful Open Source statistical software packages available today. The R programming language is cross-platform, enabling programmers to develop software for several competing platforms by writing the program only once. R runs on all major operating systems: Windows, Linux and Mac. The aim of R analysis is to perform statistical analyses as well as various operations such as data manipulation or graphical production. Our statistical analysis with R training course will enable you to master statistics using R software. You'll be able to analyze your data and communicate your results, import and export data, distinguish the different types of R objects and create analysis programs. At the end of the course, you'll be able to perform a statistical analysis with R and present the results graphically.

Objectives

- Install and use the R analysis environment
- How to manipulate data with R
- Import and export data
- Distinguish between the different types of objects in R
- Create analysis programs in R
- Be able to perform basic statistical analyses with R
- Use graphs to reconstruct results

Target audience

- Engineers
- Data analysts
- Statisticians
- Statistical environment developers
- Anyone interested in statistical analysis with R

Prerequisites

- Familiarity with the Microsoft Windows environment
- Basic knowledge of statistics

Program of our training course Fundamentals of statistical analysis with R

Introduction

- Getting started with R software
- Installation and start-up
- What is a variable?
- Variable description
- Creating objects in R
- Manipulating objects in R
- Installing an extension
- Using the R editor
- Reference from R

Data import and export

- Import and export data in various formats:
  - Excel
  - .csv
  - SAS files
  - MS Access
  - .xml on the web
  - MySQL
  - .json files

Data handling

- Manipulate data using R operators and objects
- Different types of object
  - variables
  - vectors
  - matrices
  - texts
- Special attributes
- Handling dates and s
- Creating data tables
- Structure of a data table

- Creating and editing data on the command line

Exploring and cleaning tables

- Ensuring import completeness
- Finding variable names
- Identifier for table observations
- Modify the name of a variable
- Extract part of the data
- Add a calculated variable
- Search for outliers/missing values
- Linking two paintings together

Graphical presentation with R

- Graphical representation
- Bar chart
- Point cloud matrix
- Displaying and managing graph windows
- Save graphics in various formats
- Add additional information to a graph
- Changing settings in the graphics window
- Graphical presentation of results

Statistical tests

- Performing statistical tests with R
  - Essential test principles
- Comparison of categorical variables
- Parametric/non-parametric tests
- Relationship tests between variables
- p" statistical test
- Neyman and Pearson approach
- Comparison of percentages and averages

Analysis programs with R

- Conditions and comparison
- Regular expressions
- Types of formulas
- Conditional structure
- Vectorization Purrr
- Automated reports (R Markdown)
- Using R studio

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.