

R Programming: ggplot2 & dplyr in RStudio

Learn to use R and RStudio to organise projects, manipulate data structures, and create visualizations with ggplot2 and dplyr.

3 Days

24 HOURS

11

MODULES

59

TOPICS

COURSE OVERVIEW

This course introduces R and RStudio, covering installation, the RStudio interface, package management and project organisation. It then works through core R language fundamentals, including data types, operators and data structures such as vectors, data frames and lists. Learners work through data import and export, descriptive statistics, and data visualisation using ggplot2. The course closes with writing functions, control structures, and an introduction to community resources and essential packages such as dplyr, ggplot2 and rmarkdown.

WHO THIS COURSE IS FOR

Data Analysts

Data Scientists

R Programmers

Business Analysts

Statisticians

Reporting Analysts

LEARNING OBJECTIVES

- Understand R and R Studio's significance in data science, including installation and basic navigation
- Familiarize yourself with R Studio's interface, tools, and package management for efficient data analysis
- Develop proficiency in organizing projects, managing workspaces, and understanding R project architecture
- Gain foundational knowledge of R language syntax, data types, operators, and data structures (vectors, data frames, lists)
- Learn data import/export techniques, utilize descriptive statistics, and create effective data visualizations using ggplot2
- Master function creation, control structures, and explore community resources while keeping R and its packages updated

11 Modules, 59 Topics

01

Introduction to R and R Studio

TOPICS

Introduction · History and evolution of language · Place of R Studio · R's positioning in data science · Discovery of R & R Studio · Download and install

02

Navigating the R Studio Interface

TOPICS

The 4 windows of the R Studio interface · The different tools of R Studio

03

Managing Packages and Settings

TOPICS

Installing Packages · Setting Options · The help

04

Organizing Your Work in R

TOPICS

Organize your work in R · Project R · Notion of working directory, workspace · Architecture of the R project · Scripts

05

Fundamentals of the R Language

TOPICS

- The basics of the R language
- **Data types:** numeric, factors, strings, booleans, dates, etc.
- The summons
- Operators
- Mathematical functions

06

Data Structures in R

TOPICS

The different data structures · **Vectors:** initialization and manipulation · **Data.frames:** initialization and manipulation · **Lists:** initialization and manipulation · Some useful functions

07

Data Import and Export

TOPICS

Data Import and Export · **The different file formats:** csv, txt · Using the Import Tool · Some verification functions · Export · Importing scripts · Workspace export

08

Data Description and Exploration

TOPICS

- Data description
- Descriptive Functions for Numeric Variables
- Descriptive Functions for Categorical Variables
- Contingency table creation
- Creating an Aspect Ratio Table

09

Data Visualization

TOPICS

Data visualization · Basic graphical functions · The ggplot2 package

10

Function Creation and Control Structures

TOPICS

Functions · Declaring a Function · Arguments of a function · Calling a function · **Loops:** For Loop, While Loop · If and ifelse control structures · Apply functions

11

R Updates and R Essential Packages

TOPICS

- How to find help
- Online help
- The apropos function
- The bookdown site
- The R Community
- Developer Forums
- Package updates, RStudio Update, Updating R
- Introducing some must-have packages
- DPLYR for data manipulation
- ggplot2 for graphing
- rmarkdown for automated dynamic reporting

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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