

### **Fundamentals of R**

### **Detailed Content**

### Introduction

Introduction to R Base R and contributed packages Download and installation of base R Installing R packages

### **The RStudio IDE**

Download and installation Overview of the RStudio environment The main panes Working directory Workspace Projects Create a project

### Using R as a Calculator

Executing commands from the command line and the source pane Arithmetic operators Relational operators Logical operators

### **Creating Objects**

Objects in R Assignment operators Naming rules Basics of R Syntax Creating objects Viewing objects in RStudio Viewing objects in the console

### **Data Types and Classes**

Basic data types Data structures in R Vectors Factors Matrices Arrays Lists Data frames Tibbles Which data structure should I use?

### **Changing data types**

Implicit coercion Explicit coercion

### Naming parts of data objects

Column names Row names Dimension names Names

## Accessing Data within Data Structures

Referring to data by position Referring to data by name

### **Replace parts of an object**

Replace names Replace values

### Add to a data object

Add elements to vectors Add rows or columns Add by position Add by name

# Removing data from a data object

Remove elements from vectors Remove rows or columns from matrices Remove rows or columns from data frames and lists

### **Evaluation in R**

Vector arithmetic Order of operations Vector recycling Vectorised operations Applying functions to elements of data structures

### **Using Functions**

What is a function? Syntax for using functions in R Arguments Getting help with a function Overview of help documentation in R Basic statistical summary functions Masking of functions Explicitly specifying the package name when calling a function Package: conflicted

### **Importing Data**

Importing data in RStudio Importing data from text files (csv)

### **Exporting Data**

Export data to text file

### **Basic Data Visualisation**

The plot function Add reference lines Add text Add a legend Exporting plots