

Advanced R – 2 days



Introduction

This advanced R training course will introduce you to the more powerful functionality of R.

You will learn more advanced ways to manage data items, such as working with incomplete data and merging datasets. You will also learn some methods of supervised machine learning for data analysis. These topics include linear and curvilinear regression, non-gaussian regression and model-building. You will learn how to customise the powerful graphical capabilities of R to produce visualisations of your data and results. You'll see how to use R to produce custom solutions for your data. You will learn a range of programming techniques, which include loops, conditional statements, error trapping and creating custom classes for your own summary and plot routines.

Prerequisites

A good working knowledge of the topics covered on the introduction course

Exercises

This course is instructor led, involving the utilisation of examples and exercises in a workshop environment.

Topics

Manipulating data

Working with data

The session starts with a brief look at importing data items and builds on the beginner's course by showing some advanced methods for data import and validation, including how to read Excel files

- Making data items
- Factor variables

Dealing with object types

In this session you will learn how to explore and alter object properties. You'll also learn how to make data objects and to merge datasets.

- Joining – cbind, rbind merge

Manipulating data contd.

Summary statistics

In this session you'll learn more advanced methods for summarizing data tables.

- Data summaries
- apply()
- tapply()
- sapply()
- aggregate()
- prop.table()
- addmargins()

Graphics

Advanced graphical methods

In this section you will learn more advanced methods of graphical summary. Topics include: error bars, using colour palettes and making legends. You'll also learn how to alter graphical parameters to produce more customised plots, as well as methods for adding items to plots (such as labels, additional text and more data series).

- Error bars
- Legends
- Colour
- Labels
- Adding to plots
- Graphical pars

Programming

This section of the course covers both the basics of R programming and a few more advanced areas to give you a complete overview of the methods you'll need to produce custom solutions. Topics include: loops, conditional statements, invisible results, user intervention, error trapping, and argument matching.

You will learn how to use custom classes for producing your own print, summary and plot routines. You will also learn how to save and load custom functions and scripts.

- Basic methods
- Custom classes and other advanced methods