

Object Oriented Programming in R



Level: Advanced

Duration: 6 hours

The training course will cover R object-oriented programming techniques. We'll discuss what OOP is and the different varieties within R. Beginning with the popular S3 and S4 OOP frameworks, we'll finish with the new {R6} package that is used extensively in Shiny applications. By the end of the course, participants will be able to use OOP within their own code.



Course Outline

- **Advanced Functions:**

- Scoping rules (including lexical scope)
- The ... argument
- Argument matching

- **S3 classes:**

- Introduction to object-oriented programming
- Constructing S3 objects
- Drawbacks

- **S4 classes:**

- Creating and using S4 classes
- Differences between S3 and S4 classes

- **R6 classes**

- Differences between {R6} and S3/S4
- Mutable states
- Creating methods
- Shallow and deep copies

Learning Outcomes

By the end of the course, participants will be able to...

- Select the most appropriate form of OOP for their task
- Leverage encapsulation, polymorphism and inheritance to provide a nice user interface to their code
- Write functions with rich results, user-friendly display and programmer-friendly internals
- Extend the functionality of functions for new object types
- Write code that is extensible by others

Prior Knowledge

This course assumes that participants are comfortable with the fundamentals of R programming, writing functions and control flow. It follows on from the [Programming with R](#) course.

Attendee Feedback

- "Really great course! Useful content that will greatly benefit me in my future R projects."
- "The instructor was excellent. The course material that was written and that prepared for the R sessions was very good, and is a resource I can draw upon in the future."
- "The course was well structured had lots of useful examples and gave the opportunity to practice the skills taught."

Contact

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