

# Online Hands-on Training **R for Biologists**

**Master R Programming for Real-World  
Biological Data Analysis**

**17-21 April 2026 7:15 PM IST**

## About the Course

R for Biologists is a practical hands-on training program designed to equip learners with essential R programming skills for analyzing and visualizing biological datasets. This training covers everything from basic R operations to advanced visualizations and statistical analysis, enabling participants to confidently work with real-world biological data.

## Who Can Join?

- Graduates & Postgraduates
- Researchers & Young Scientists
- Faculty & Industry Experts
- Students from Life Sciences (Biotech, Biochem, Microbiology, Zoology, Botany)
- MBBS, BDS, Pharmacy, Medical & Chemical Sciences
- Anyone working with biological or experimental data

## Features

- Hands-on Workshop
- Live Interactive Sessions
- E-Certificate
- Session Recordings
- Lecture PPTs

## Fee

**Indian Participants: ₹1299**

**International Participants: \$85**

# COURSE MODULE

## Day 1: Introduction to R and Basic Programming

Objective: Build a strong foundation in R programming and environment setup.

### Session 1: Getting Started

- Introduction to R and RStudio
- Installing R & RStudio
- Understanding the R interface
- Running basic commands

### Session 2: Programming Basics

- Variables, lists, vectors, matrices, data frames
- Operators and calculations
- Indexing and subsetting data

**Hands-On:** Manipulate small biological datasets

### Session 3: Reading & Writing Data

- Importing data (`read.csv`, `read.table`)
- Exporting data

**Hands-On:** Work with gene/protein datasets

## Day 2: Data Manipulation with dplyr

Objective: Learn powerful tools for data wrangling using dplyr.

### Session 1: Manipulating Data

- `filter()`, `select()`, `mutate()`, `arrange()`, `summarize()`
- Combining commands with pipes (`%>%`)

**Hands-On:** Manipulate biological datasets

### Session 2: Tidy Data & Data Frames

- Transforming datasets
- Creating new variables
- Reshaping data

**Hands-On:** Clean and organize real-life biological data

### **Day 3: Data Visualization with ggplot2**

Objective: Build high-quality plots using the ggplot2 system.

Session 1: Introduction to ggplot2

- Aesthetic mappings & geoms
- Scatter, bar, box plots
- Themes, labels, colors

**Hands-On:** Create biological visualizations

Session 2: Customizing Plots

- Regression lines, faceting
- Publication-quality themes

**Hands-On:** Advanced ggplot customization

### **Day 4: Statistical Analysis in R**

Objective: Apply statistical testing and integrate results into plots.

Session 1: Statistical Tests

- t-tests, ANOVA
- Statistical workflows

**Hands-On:** Apply tests to gene expression data

Session 2: Stats with Visualization

- Adding p-values to plots
- Correlation & linear regression

**Hands-On:** Visualization with statistical outputs

### **Day 5: Advanced Visualization & Heatmaps**

Objective: Create complex biological data visualizations.

Session 1: Heatmaps & Clustering

- Heatmap creation (pheatmap, ComplexHeatmap)
- Visualizing large expression matrices

**Hands-On:** Customized heatmaps

Session 2: Multi-Panel Plots

- Complex layouts
- Multi-panel & interactive plots

**Hands-On:** Build advanced visualizations using ggplot2



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