



Course: R Programming

Duration: 40 Hrs (Changeable) | Fees: Individual / Batch

Since 2007, Nestsoft TechnoMaster has been providing training, internships, and services in IT technologies, both online and offline, with the expertise of over 250 industry experts. We have delivered internships, training, and seminars to more than 50,000 students, resulting in numerous success stories. We offer 100% placement support through JobsNEAR.in

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- Python/Django Fullstack
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- Flutter, Android, IOS
- Asp.net MVC
- Web Design, Javascript
- Angular JS, React JS
- CCNA, MCSA, CCNP
- AWS, GCP, Azure
- Odoo, SalesForce, Sap
- Microsoft Excel
- Ethical Hacking



Syllabus on the Next Page ..



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- THE ART OF R PROGRAMMING
- ***** INTRODUCTION
- * Why Use R for Your Statistical Work?
- * Object-Oriented Programming
- * Functional Programming?
- Functional Programming?
- * INSTALLING R
- Downloading R from CRAN
- Installing from Source
- ***** GETTING STARTED
- * How to Run R
- * Interactive Mode
- **Batch Mode**
- First R Session
- * Introduction to Functions
- * Variable Scope
- * Default Arguments
- * Preview of Some Important R Data Structures
- * Vectors, the R
- Character Strings
- * Matrices
- * Lists
- * Arrays

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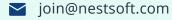
- * Data Frames
- **VECTORS**
- * Scalars, Vectors, Arrays, and Matrices
- Adding and Deleting Vector Elements
- Obtaining the Length of a Vector
- Matrices and Arrays as Vectors
- **Declarations**
- **Common Vector Operations**
- * Vector Arithmetic and Logical Operations
- * Vector Indexing
- * Generating Useful Vectors with the : Operator
- Generating Vector Sequences with seq()
- Repeating Vector Constants with rep
- * Vectorized Operations
- * Vector In, Vector Out
- * Vector In, Matrix Out
- * NA and NULL Values
- * Using NA
- **Using NULL**
- * Filtering
- Generating Filtering Indices
- * Filtering with the subset() Function

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- * The Selection Function which
- A Vectorized if-then-else: The ifelse() Function
- * Extended Example: A Measure of Association
- Extended Example: Recoding an Abalone Data Set
- **Testing Vector Equality**
- **Vector Element Names**
- More on c()
- MATRICES AND ARRAYS
- * Creating Matrices
- * General Matrix Operations
- * Performing Linear Algebra Operations on Matrices
- Matrix Indexing
- Filtering on Matrices
- * Applying Functions to Matrix Rows and Columns
- Using the apply() Function
- Extended Example: Finding Outliers
- Adding and Deleting Matrix Rows and Columns
- * Changing the Size of a Matrix
- More on the Vector/Matrix Distinction
- * Avoiding Unintended Dimension Reduction
- Naming Matrix Rows and Columns
- * Higher-Dimensional Arrays

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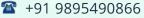






- * LISTS
- * Creating Lists
- * General List Operations
- List Indexing
- * Adding and Deleting List Elements
- Getting the Size of a List
- Accessing List Components and Values
- * Applying Functions to Lists
- * Using the lapply() and sapply() Functions
- * ARRAYS
- * Naming Columns and Rows
- * Accessing Array Elements
- Check if an Item Exists
- * Amount of Rows and Columns
- Array Length
- Manipulating Array Elements
- * Calculations Across Array Elements
- ***** DATA FRAMES
- **Creating Data Frames**
- * Accessing Data Frames
- * Other Matrix-Like Operations
- * Extracting Subdata Frames

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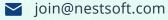
- * More on Treatment of NA Values
- * Using the rbind() and cbind() Functions and Alternatives .
- * Applying apply()
- Merging Data Frames
- Extended Example: An Employee Database
- Applying Functions to Data Frames
- * Using lapply() and sapply() on Data Frames
- ***** FACTORS AND TABLES
- * Factors and Levels
- Common Functions Used with Factors
- * The tapply() Function
- * The split() Function
- The by() Function
- * Working with Tables
- * Matrix/Array-Like Operations on Tables
- * Extended Example: Extracting a
- Other Factor- and Table-Related Functions
- * The aggregate() Function
- * The cut() Function
- * R PROGRAMMING STRUCTURES
- Control Statements
- * Loops

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- * Looping Over Non vector Sets
- * if-else
- * Arithmetic and Boolean Operators and Values
- **Default Values for Arguments**
- * Return Values
- Deciding Whether to Explicitly Call return()
- * Returning Complex Objects
- * Functions Are Objects
- * Environment and Scope Issues
- * The Top-Level Environment
- * The Scope Hierarchy
- * More on Is()
- Functions Have (Almost) No Side Effects
- * No Pointers in R
- Writing Upstairs
- Writing to Nonlocals with the Super assignment Operator
- Writing to Nonlocals with assign()
- When Should You Use Global Variables?
- * Replacement Functions
- What's Considered a Replacement Function?
- * Tools for Composing Function Code
- * Text Editors and Integrated Development Environments

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- * The edit() Function
- * Writing Your Own Binary Operations
- * Anonymous Functions
- DOING MATH AND SIMULATIONS IN R
- Math Functions
- **Extended Example**
- **Cumulative Sums and Products**
- Minima and Maxima
- * Functions for Statistical Distributions
- * Sorting
- * Linear Algebra Operations on Vectors and Matrices
- * Extended Example: Vector Cross Product
- **Set Operations**
- Simulation Programming in R
- **Built-In Random Variate Generators**
- Obtaining the Same Random Stream in Repeated Runs
- ***** INPUT/OUTPUT
- * Accessing the Keyboard and Monitor
- Using the scan() Function
- * Using the readline() Function
- * Printing to the Screen
- * Reading and Writing Files

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- * Reading a Data Frame or Matrix from a File
- * Reading Text Files
- * Introduction to Connections
- * Extended Example
- * Accessing Files on Remote Machines via URLs
- * Writing to a File
- * Getting File and Directory Information
- * STRING MANIPULATION
- * An Overview of String-Manipulation Functions
- # grep()
- * nchar()
- * paste()
- * sprintf()
- * substr
- * strsplit()
- * regexpr()
- * Regular Expressions
- * Extended Example
- ***** R DATA INTERFACES
- * R CSV Files
- * Reading a CSV File
- * Analyzing the CSV File

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- * Writing into a CSV File
- * R Excel Files
- * Install xlsx Package
- * Reading the Excel File
- * R Binary Files
- Writing the Binary File
- * Reading the Binary File
- * R XML Files
- * Reading XML File
- * XML to Data Frame
- * R JSON Files
- * Install rjson Package
- * Read the JSON File
- * Convert JSON to a Data Frame
- * R Database
- RMySQL Package
- Connecting R to MySql
- Querying the Tables
- Query with Filter Clause
- * Updating Rows in the Tables
- * Inserting Data into the Tables
- * Creating Tables in MySql

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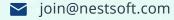
- * Dropping Tables in MySql
- ***** GRAPHICS
- * Creating Graphs
- * The Workhorse of R Base Graphics: The plot() Function
- * R Pie Charts
- R Bar Charts
- * R Boxplots
- * R Histograms
- * R Line Graphs
- * R Scatterplots
- * Starting a New Graph While Keeping the Old Ones
- * Extended Example
- * Adding Points: The points() Function
- * Adding a Legend: The legend() Function
- * Adding Text: The text() Function
- Pinpointing Locations: The locator() Function
- * Restoring a Plot
- * Customizing Graphs
- Changing Character Sizes: The cex
- * Changing the Range of Axes: The xlim and ylim Options
- * Graphing Explicit Functions
- * Extended Example

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- * Saving Graphs to Files
- * R Graphics Devices
- * Saving the Displayed Graph
- Closing an R Graphics Device
- Creating Three-Dimensional Plots
- R Statistics
- R Statistics Intro
- * R Data Set
- * R Max and Min
- * R Mean Median Mode
- * R Percentiles
- * INSTALLING AND USING PACKAGES
- * Package Basics
- * Loading a Package from Your Hard Drive
- Downloading a Package from the Web
- Installing Packages Automatically
- * Installing Packages Manually
- * Listing the Functions in a Package

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- Thank You -

N.B:This syllabus is not final and can be customized as per requirements / updates.

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