Introduction to R, Part 1 of 3: Workspaces and Types

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Prerequisites: This course assumes that student has some programming experience and using a personal computer. No other experience is required.

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Course description: R is considered the preeminent language for data science and statistics and has come into its own with the rise of big data. Explore the origins of R and learn how to use R for your own data science projects. One of the best places to start learning a language is in working with its basic types. As you start learning how to apply the R language, build a solid foundation using these types to become familiar with R's structure, syntax and, hopefully, best practices. Begin your journey into R with baby steps—before writing any code, take a look at coding conventions, data categories, and R's selection of basic data types. Explore how some basic types are used, assigned to variables, and cast from one type to another. Discover why R is such an important language today, and be able to write your own R scripts using your own local R environment.

Course outline:

About R
- Introduction
- What is R?
- Who Uses R?
- HIstory of R
- Installing R
- Exercise - Your Turn
- Summary

RStudio
- Introduction
- Demo: A Brief Tour of RStudio
- Demo: More RStudio Details
- Exercise - Your Turn
- Demo: Your Turn Solutions
- Summary

Workspaces
- Introduction
- Creating R Code
- The R Workspace
- Demo: R Code and Workspace
- Demo: Conventions
- Demo: Variable Type
- Demo: Session
- Summary

Basic Types
- Introduction
- General Classes of Data
- What are Data Types?
- Working with Data Types
- Numeric Data Type
- Integer Data Type
- Complex Data Type
- Logical Data Type
- Character Data Type
- Raw Data Type
- Date Data Type
- Time Data Type
- POSIXIt Time Type
- Type Casting
- Summary

Base Type Demos
- Introduction
- Demo: Numeric and Complex Data Types
- Demo: Logical, Character, Raw Data Types
- Exercise - R as a Calculator
- Demo: Two Variable Solutions
- Demo: Complex Variable Solutions
- Summary

Dates Demo
- Introduction
- Demo - The Date Type
- Demo: Working with Dates
- Demo: Working with Time
- Demo: Library Functions
- Summary

Variables
- Introduction
- Variables
- Variable Naming Rules
- Assigning Variables
- Variable Data Types
- Variables in RStudio
- Deleting Variables
- Demo - Working With Variables
- Demo: Naming Rules and Assignment Operators
- Summary

Missing Values
- Introduction
- Missing/Other Values in R
- Working with Missing Values
- Demo - Missing Values
- Demo: Working with NA Values
- Demo: NA vs NULL
- Exercise - Missing Values
- Demo: Missing Value Solutions
- Summary