

Introduction to R and RStudio

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Learning Objectives

After this workshop, participants will be able to:

- Describe uses for R
- Identify differences between R and RStudio
- Perform basic commands and functions using R
 - Creating variables
 - Creating and visualizing dataframes and vectors



What is R?

What is R?

- Programming language for statistical computing and graphics
 - Open source iteration of S
 - Comprehensive abilities for statistical modeling
 - Publication-quality graphics and visualizations
 - Command-line based
- Compatible with Unix, Windows, and Mac
 - Free!

What can R be used for?

- Data analysis
- Data visualization
- Data mining
- Statistical modeling:
 - Linear and nonlinear modelling
 - Classical statistical tests
 - Time-series analysis
 - Classification
 - Clustering

Basic Data Structures in R

- Vectors
- Arrays
- Lists
- Dataframes

R can also read and manipulate spreadsheets!

What is RStudio?

- Code editor specifically designed for R
 - Open source integrated development environment
- Allows for direct execution and management of R scripts
 - Easier to write scripts, especially for beginners
 - Environment allows direct connection between script and output
- Available for desktop and accessible in web browser via remote server
 - **FREE!**

Exercise Time!