Week 1: Introduction to R and RStudio

✓ Familiarize participants with R, RStudio, and basic R syntax.

- **Lecture:**

    - Introduction to R

    - Installing and setting up R and RStudio

    - Navigating the RStudio interface: Console, Script Editor, Environment/History, and Files/Plots/Packages/Help pane

    - Basic R commands: Arithmetic operations, variables, and data types

    - Writing and running R scripts

    - Introduction to basic R functions: print(), c(), length(), str(), etc.

Week 2: Data Structures in R , Data Import and Export

✓ Understand and manipulate basic data structures in R.
✓ Learn how to import data from various sources and export data to different formats

- **Lecture:**

    - Creating and manipulating vectors, matrices, lists, and data frames

    - Basic data exploration: head(), tail(), summary(), dim()

    - Reading data from CSV, Excel, and text files

    - Using readr, readxl, and data.table packages

    - Writing data to files

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week 3: Data Cleaning, Transformation and Data Visualization

✓ Learn techniques for cleaning and transforming dat
✓ Introduce data visualization using
✓ Learn how to install, load, and utilize additional R packages.

- **Lecture:**

    - Handling missing values

    - Data transformation

    - Filtering: filter(), select()

    - Combining data: merge

    - Basics of data visualization

    - Introduction to ggplot2: Grammar of graphics

- Creating basic plots: Scatter plots, bar plots, histograms

- Installing and updating packages: install.packages(), update.packages()

- Loading and unloading packages: library(), detach()