

# Basic R for Workforce and Economic Development Research

June 11, 2024

## AGENDA

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### **RStudio Setup Essentials & Workflow Intro** **9:00 – 9:55**

- Learn the basics of R, R packages, and the RStudio IDE
- Overview of project set-up, directories, and workflow
- The R environment and objects
- Basic introduction to data classes in R (vectors and data frames)
- Code hygiene and best practices (commenting and documenting code)

**Key Takeaway:** Install/run R and RStudio as well as install necessary packages. Learn the main components of R and RStudio: R scripts, RMarkdown, console, environment, directory, history, and workflow fundamentals.

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### **Introduction to the “tidyverse”** **10:00 – Noon**

- Continue with a basic introduction to data classes in R (tibbles, etc.)
- Importing and exporting data with R
- Gain familiarity with tidyverse packages, syntax, and practices (<https://www.tidyverse.org/>)
- Using the pipe operator to execute multiple functions
- Intro to data munging and joining with dplyr

**Key Takeaway:** Start to use key functions for data tidying and munging with examples and hands on tutorials to start coding on your own

### **LUNCH BREAK**

**Noon – 1:15**

## Data Collection and Manipulation

1:15 – 2:45

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- Using API packages (tidycensus, blsAPI, bea.R) to pull, clean analyze data from the U.S. Census Bureau, Bureau of Labor Statistics, and Bureau of Economic Analysis
- Example Case study - Real world applicable dataset

**Key Takeaways:** Pull and analyze relevant datasets directly in R using API packages.

## AFTERNOON BREAK

## Data Visualization

3:00 – 4:45

- Introduction to basic plotting and ggplot2
- Aesthetic styling and themes, visualization for analysis
- Working with spatial data in R (sf)
- Mapping packages (e.g., leaflet, tigris)

**Key Takeaways:** Understand the basics of data visualization in R and generate frequently used charts using ggplot2. Cover the basics of using and mapping spatial data in R.