

# "Introduction to R" series

[Aug.30 1-3pm: Part 1 – Data Wrangling](#)

[Sep.06 1-3pm : Part 2 – Data Visualization](#)

[Sep.13 1-3pm : Part 3 – Data Analysis](#)

[Sep.20 1-3pm : Part 4 – Real-world Data Analysis Using R](#)



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# Where to find R?

- Within NIAID, you can use self-service:
  - Windows Software Center: <https://inside.niaid.nih.gov/it-equipment/installing-scientific-software-using-software-center>
  - Mac self-service: <https://inside.niaid.nih.gov/it-equipment/installing-scientific-software-mac-self-service>
- Within NIH, you can use the Biowulf HPC cluster: <https://hpc.nih.gov/>
- Download and install R and Rstudio:
  - R: <https://www.r-project.org/>
  - Rstudio: <https://www.rstudio.com/>

# Part 2: Data Visualization Review

- Materials: [https://github.com/niaid/2024\\_Introduction-to-R/tree/main/Part%202\\_Data%20visualization](https://github.com/niaid/2024_Introduction-to-R/tree/main/Part%202_Data%20visualization)
- Base R plotting system
  - <https://r-charts.com/base-r/>
  - Base R graphics functions can be customized adding legends, texts, grids, modifying the axes, among other functions.
- Package ggplot2
  - <https://ggplot2.tidyverse.org/>
- Three good places to start with different level and purpose:
  - The [Data Visualization](#) and [Communication](#) chapters in [R for Data Science](#).
  - Make common graphics as quickly as possible: [The R Graphics Cookbook](#) by Winston Chang.
  - If you've mastered the basics and want to learn more, read [ggplot2: Elegant Graphics for Data Analysis](#).

# Part 3: Data Analysis Overview

- [Correlation](#)
- [Principal component analysis](#)
- [Statistical Test](#)
  - One/Two sample t-test, Paired t-test,
  - One-way ANOVA, Two-way ANOVA, Pairwise t-test
  - Fisher's test, Chi-square test
- Statistical Model Analysis:
  - [Linear regression model](#)
  - [Logistic regression model](#)
- Other reference sources:
  - [R Tutorials for Applied Statistics](#)

# Tutorial Set Up

- Unzip the downloaded file in your downloads folder
- Open the subfolder “Part 3\_Data analysis” and then the “2024\_Part 3\_Intro to R\_Data analysis.Rmd” file
- If Rstudio is installed, then this should open the project in RStudio