# PH 718 Data Management and Visualization in R

## Part 0: Syllabus Review & Introduction to R

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## Contact

- Instructor: Zhiyang Zhou
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- Lectures
  - Tue/Thur 16:00–17:15 via Zoom
- Office Hours
  - By appointment

## Grading

- Assignments (60%)
  - Submitting digital copies
  - Attaching (if applicable) both outputs and source codes
  - Including necessary interpretation
  - Organized in a CLEAR and READABLE way
  - Accepting no late submission
- Final project (40%)
  - TBD
- Bonus points (TBD)
  - Irregular quiz held on Canvas

## Materials

- Reading list
  - [R4DS] H. Wickham, M. Cetinkaya-Rundel, & G. Grolemund. (2023). *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*, 2nd Ed. Sebastopol: O'Reilly Media. (Accessible at r4ds.hadley.nz)
  - [ISL] G. James, D. Witten, T. Hastie, & R. Tibshirani. (2021). *An Introduction to Statistical Learning: with Applications in R*, 2nd Ed. New York: Springer. (Accessible at www.statlearning.com)
- Lecture notes and beyond
  - Posted at Canvas and zhiyanggeezhou.github.io
  - Subject to update **without prior notice**

## Why using *R*?

- Open source: Freely accessible to everyone.

- Powerful for data analysis: Extensive libraries created and maintained by statisticians; built-in methods for advanced statistical modeling.

- Data visualization: High-quality plots with libraries like *ggplot2*.

- Cross-platform: Working on Windows, macOS, and Linux.

## Be careful when using *R*

- NO quality control: Packages developed by small groups without extensive testing

## How to learn *R*?

- Self-learning with regular practice

- Be sophisticated in statistics

## How to find solutions when using *R*?

- Help manual (reliable)

- Online resources (not always reliable)

    - Search engines: Google, etc.
    - Q&A communities: Stack Overflow, Reddit, Posit Community, etc.
    - Large language models: ChatGPT, Claude, etc.

## Installation

- Base *R*: https://cran.r-project.org

- *Rstudio*: https://www.rstudio.com