CS&SS 569 - Visualizing Data and Models
Lab 1. Intermediate R and Prediction

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Welcome!

- ▶ Welcome to the first lab of CS&SS 569!
- ▶ I am Ramses Llobet (rllobet@uw.edu), I am a Ph.D. candidate in Political Science.
- ▶ My research interest are in **political economy** and **methodology**.
- ▶ Please **DO NOT** hesitate to stop me if you don't hear or understand me properly.
- ▶ **DO NOT** hesitate to ask questions. No question is silly. :)

`R` setup

- How to install `R` and `R-studio`.
  - R-4.5.2 for Windows
  - R-4.5.2 for macOS
- R-studio can be downloaded from posit's repository.

Logistics

1. **Lab Sessions**: Fridays, 3:30 - 4:45pm via Zoom (**link**)

▶ Materials will be available on the **course website**
▶ Always look for these files: lab1_slide.pdf, lab1_practice.rmd, lab1_key.rmd, and lab1_data.csv
  ▶ I will also provide a compressed *ZIP* file with all materials.

2. **Office Hours**: after labs or by appointment: *rllobet@uw.edu*.

▶ Trouble-shooting, questions about the lecture and assignments, etc.
▶ Please email me with time and a short comment of the topic you want to discuss.
▶ Zoom link: (**meeting room**)

Logistics - `R`

2. I have to read lots of your code. Please be considerate when writing code and submitting assignments.
   ▶ Do not print **unnecessary** code and output. Learn how to use `results = "hide"` and `echo = TRUE` in R Markdown.
   ▶ Name well
     ▶ functions vs. all other objects
     ▶ readability is about consistency (dot.naming, CamelCaseNaming, pothole_naming).
     ▶ short, clear, consistent – help future you (and present me)
   ▶ Be tidy in your code and your workspace/directory.

Logistics - `R`

2. I have to read lots of your code. Please be considerate when writing code and submitting assignments.

  ▶ Specify arguments fully, e.g.
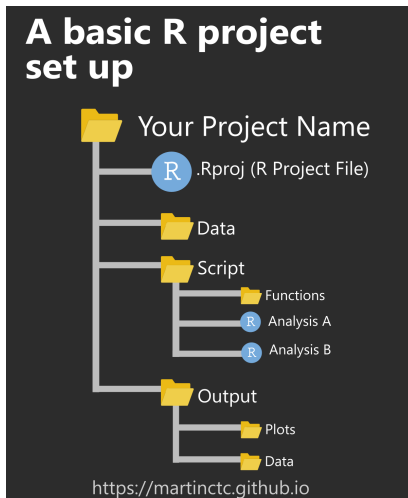
```
rbinom(n = 1000, size = 30, prob = 0.49) # GOOD!

rbinom(1000, 30, 0.49) # LESS GOOD!
```

▶ See the Google R styleguide for an example.

Logistics - R Useful resources

- For R:
  - Introductory:
    - *Hands-On Programming with R* (Grolemund 2014).
    - R cheat sheets.
  - Intermediate:
    - *R for Data Science* (Grolemund and Wickham 2023, 2nd edition).
    - *Data Visualization: A Practical Introduction* (Healy 2018).
    - *Graphical Data Analysis with R* (Unwin 2015).
  - Advanced:
    - *Advanced R* (Wickham 2019).

Project management: workflow

A basic R project set up

Your Project Name
- .Rproj (R Project File)
- Data
- Script
  - Functions
  - Analysis A
  - Analysis B
- Output
  - Plots
  - Data

https://martinctc.github.io

Getting help: minimal reproducible example

▶ If you feel stuck with an error, seek help but remember to provide **reproducible code** in an R-script file:

1. Trouble shoot and **locate the error**.

2. Load necessary **libraries** at the beginning.

3. Include **only** the necessary code to reproduce the error.

4. **Comment** your code for clarity.

5. If applicable, send the necessary **data** to reproduce the error.

▶ You can send the reproducible code via Slack message.

R review

- ▶ Data wrangling with `dplyr`.
- ▶ Analysis.
- ▶ Install 'tinytext'' for RMarkdown.
- ▶ Intermediate R: prediction and visualizing uncertainty (*if time allows*)

Let's open RStudio and **review_script.R**.