LAB 01 - Welcome!

PH142 Fall 2025

Announcements

- **Lab01:** due 1/23 at 11:59pm

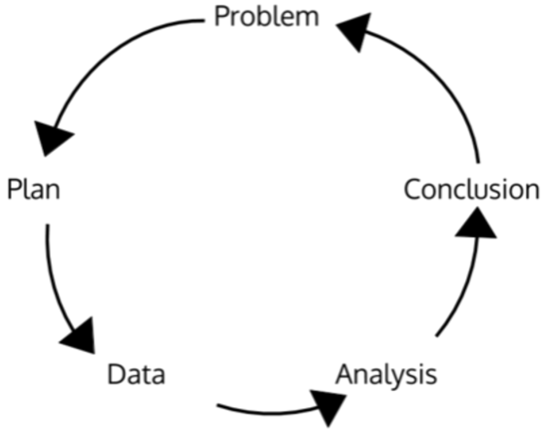
Key Course Resources

- **Course Website**
- **Datahub:** Run Rstudio
- **Ed Discussion:** Announcements, questions
- **Gradescope:** Assignment submission, grades

Week 1 Lecture Review

PPDAC Framework

- **Problem**: A clear statement of what we are trying to achieve
  - Problem type – descriptive, predictive, causative/etiologic
- **Plan**: the procedure we use to carry out the study
- **Data**: data collect based on the plan
- **Analysis**: summarization and analysis of the data to answer questions posed by your problem
- **Conclusion**: what you learned from your answers to the problem



Week 1 Lecture Review

Variable Types

Categorical: a variable that has grouping levels

- **Nominal**: no underlying order or rank, e.g. blood type, zip code
- **Ordinal**: with an underlying order or rank, e.g. blood pressure level (low, normal, high)

Quantitative: a numeric variable which you can perform mathematical operations on

- **Discrete**: can be counted, e.g. the number of cookies in the bag you got from a bakery
- **Continuous**: can be measured precisely, with a rule or scale, e.g. 5.34 grams of cornstarch

Why We Use R

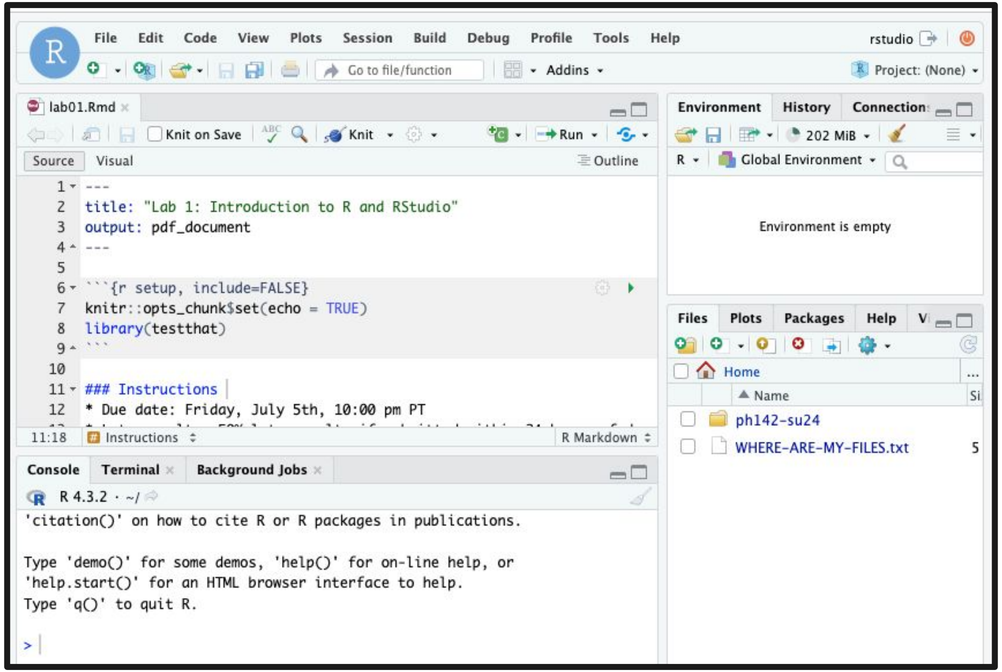
- When programming, you can easily save all your steps
  - Easy to re-run/duplicate
  - Easy to extend
- R is free and open source
  - This means that anyone can install and use it, making it more accessible than SAS/Stata
- R is flexible and ever-evolving

RStudio Panes

Source (top left): A text editor where you will write R Markdown files (labs, homework assignments, etc.)

Console (bottom left): A place to type code and see results immediately.

Ex. 2+2 → R prints 4



~~~
---
title: "Lab 1: Introduction to R and RStudio"
output: pdf_document
---

```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
library(testthat)
```

### Instructions
* Due date: Friday, July 5th, 10:00 pm PT
~~~

```
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

>
```

Environment is empty

Environment (top right): Shows the objects you create

Files/Packages/Help (bottom right):

- View folders

- Manage packages

- Learn function documentation

Programming in R

Calculator: R can be used as a calculator

Objects: You can store values using the arrow `<-`

- Example: `age <- 20`

Vectors: Use `c()` to combine and store multiple numbers

- Example: `ages <- c(19, 20, 21)`

Functions: Commands that perform tasks with your data

- Example: `sqrt(64)` will output `8`

LAB 01 Walkthrough

Lab Submission

- Follow the directions on the LAB01 file
- Make sure your Gradescope is set up
- Submit using the **Terminal Tab** (next to the console in the bottom left pane)
    - Copy and paste the given line into the terminal
    - Follow prompts (NOTE: the terminal will **not** show your password being typed out!)
- **<u>CHECK IN GRADESCOPE THAT ALL YOUR TESTS PASSED</u>**