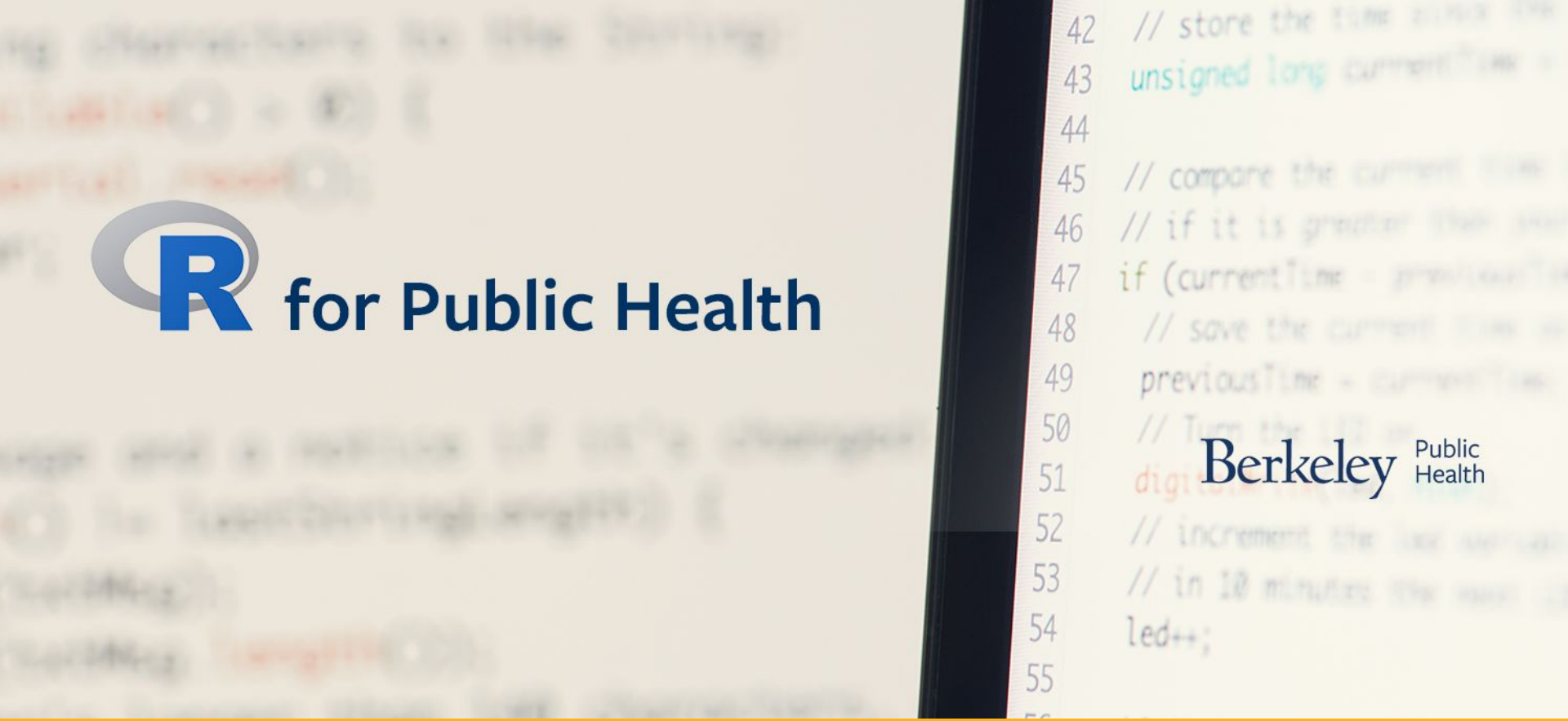


Midterm Review Fall 2023

Live Session - Format

- Midterm format & reminders
- Brief overview of course material Weeks 1-7
- Practice questions in small groups

Midterm Format

- Open-book, open-note, open-Google, and must be your own work
- Timed Proctored
  - Multiple choice
  - Complete in Gradescope
  - R not required to complete exam but helpful tool
- Take-Home
  - Full week to complete
  - Like a problem set
  - Rmd file, knit to PDF
  - Submit to Gradescope

Reminders about Proctored Exam

- Read all instructions carefully on the BCourses ‘Midterm’ page
- **Make sure you have reserved your ‘seat’ for the proctored exam**
- Questions during exam - ask the proctor in Zoom chat.

Midterm Review - Overview

- Covers Weeks 1-7
- Basic R Concepts (objects, lists, etc.)
- Reading Data In and Out of R
- Creating Reproducible Examples to Solve Problems
- Tidying Your Data
- Creating Visualizations

Midterm Review - Basic R Concepts

- **Weeks 1 and 2, PS#1**
- How to assign a value to an object
- The five basic data types in R
- Functions
- Calculation operators
- Packages
- Vectors and lists
- Functions: if(), ifelse(), and if_else()
- ‘For’ and ‘While’ loops

Midterm Review - Data Frames and Reading In Data

- **Week 3, PS#2**
- Dataframes and tibbles
- Manipulating dataframes (create, add/subtract rows, columns)
- Find and set your working directory
- Functions: data.frame(), tibble(), str(), length(), class(), typeof(), levels(), seq(), head(), tail(), read_excel(), read_csv(), dim()
- Packages: readxl, readr, tibble

Midterm Review - Reprex and Dates

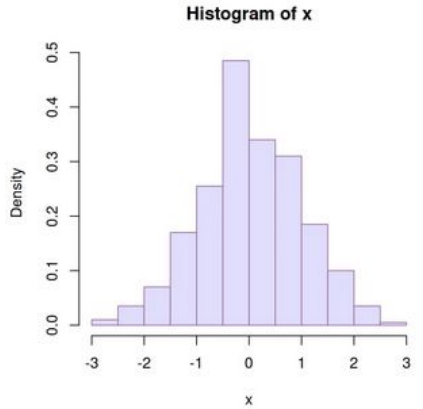
- **Week 4, PS#3**
- How to create reproducible examples
- Dates (how to create, compare, etc.)
- Functions: wday(), as_date()
- Packages: reprex, lubridate

Midterm Review - Tidying your Data

- **Week 5 & 6, PS#4**
- Subsetting by row or column
- Renaming
- Grouping and ungrouping
- Grouping and aggregating
- “Wide” and “long” datasets
- If_else() or case_when()
- Packages: tidyverse
- Functions: filter(), rename(), mutate(), arrange(), select(), group_by(), summarize(), case_when(), slice(), pivot_wider(), pivot_longer()

Midterm Review - Visualizations

- **Week 7, PS#5**
- The value of data visualization & best practices
- Create, customize and format tables and graphs
- Functions: pivot_longer(), pivot_wider(), kable()
- Packages: kable, kableExtra, ggplot2



Midterm Review - Helpful Links

- R/Posit Cheatsheets - https://posit.co/resources/cheatsheets/
- Readr: https://rstudio.github.io/cheatsheets/data-import.pdf
- Dplyr: https://rstudio.github.io/cheatsheets/data-transformation.pdf
- Tidyr: https://rstudio.github.io/cheatsheets/tidyr.pdf
- Lubridate: https://rawgit.com/rstudio/cheatsheets/master/lubridate.pdf

Midterm Review - Practice Questions

- Practice Questions with the bob_ross dataset
  - Data about “The Joy of Painting”, a program that aired on PBS from 1983-1994).
  - Data from tidy tuesday, a weekly social data project.
- Breakout Rooms
  - weekly_material/week_8

“Final Reflections”, source: https://www.twoinchbrush.com/images/painting294.png