Week 1 Lab: R, RStudio, and Quarto

R and RStudio

- Installing R and RStudio.

- Getting to know RStudio

  – Four panes, what each pane does.

- Packages – the heart and soul of R (akin to apps on smart phone).

  – These need to be installed (just once) and loaded *every time you start a new R session.*

- Opening datasets.
  – Big advantage of R: You can load multiple datasets.

File Types

- R scripts (extension: .R): A collection of R commands that install packages, load datasets, and run data analysis commands.

- R projects (extension: .Rproj): A file that opens a project (with a collection of files like R scripts, datasets, etc) and **sets your home directory to the folder within which the .Rproj file resides**.

  – These are crucial. Open RStudio using .Rproj files.

Folders, Files, Workflow

- Get organized, workflow. On your hard drive, generate a course folder called "PSC 8101."

  – Use syncing/backup software, e.g., Google Drive (free, GW), Box (free, GW), or Dropbox.

- Within that folder, generate subfolders:

  – Class notes
  – Lab sessions
  – Assignments
  – Handouts

Folders, Files, Workflow

- Each week, I'll send a .zip file for our lab session.

- When unzipped, you'll have a folder called, e.g., "Week 1 lab session." Save that folder within your "Lab sessions" subfolder.

- You can open RStudio by double-clicking on the .Rproj file within that folder. Sets home directory to that folder. Easy to access all files in that folder.

- I strongly recommend the use .Rproj in your normal RStudio workflow.

  – Fyi, Rproj part of my standard workflow.

Quarto

- Extremely powerful software.

- Integrate results from data analysis (figures and tables) with your narrative/writing.

- You can write an entire paper, dissertation/book using Quarto.

- Incorporates Latex infrastructure.

- Render documents as .html or .pdf. We'll do all .pdf in this class.

- Can also create a webpage and presentation slides (as either .pdf or .html).

Quarto

- Quarto is already installed in RStudio.

- But we need to install a few other packages in order to run it.

- Note: All Quarto files have a .qmd extension. These are the files you work with, program in, and render as a .pdf (or .html).

- See .R file in Week 1 lab for instructions.