R Workshop for Political Scientists

Summer 2023

Instructor:	Tuba Sendinc	**Time:** Mo: 10:45-12, Tu: 1:00-2:30 Wed, Thu, Fri: 10:00-11:30
Email:	tzs5636@psu.edu	**Place:** 369 Willard Building

Workshop Materials: https://github.com/tubasendinc/Summer-2023-R-Camp

Learning Objectives

R has gained popularity as a prominent tool for conducting research in the field of political science. Its appeal lies in the remarkable flexibility it offers for manipulating, modeling, and visualizing various forms of data structures, both simple and complex. You will discover that programming constitutes an ongoing cycle of learning and problem solving. As such, the main objective of this week-long workshop is to teach you skills and concepts that will be most helpful for solving the many problems you will encounter. This R workshop is designed for first-year graduate students who possess limited to no prior experience in R or computer programming. However, students with more advanced knowledge are also welcomed to participate.

At the end of this week-long workshop, you will be able to:

- Input and manage data
- Understand some of the fundamentals of programming in R (e.g., objects, data frames, conditional statements, loops)
- Produce summary statistics and basic data visualizations
- Basics of troubleshooting in R and understanding some common errors in code

Some Helpful Resources

- R for Data Science
- Mailund, Thomas. 2022. *Beginning Data Science in R: Data Analysis, Visualization, and Modelling for the Data Scientist.* New York: APress.
- Murrell, Paul. 2019. *R Graphics*, 3rd Ed. Boca Raton, FL: Chapman & Hall. (Website is here).
- R Reference Card 2.0
- The R Language: A Short Companion

Installing R Before Class

Follow this tutorial to download and install R and RStudio on your laptop. Please feel free to email me if you have any issues.

Tentative Course Outline

Day 1: Introduction to R Programming

- Basics of R
- Calculations
- Simple expressions
- Vectors

Day 2: Data Manipulation

- Data frames
- Setting the working directory
- Importing and exporting Data
- Reviewing Data

Day 3: Data Visualization and Working with Objects

- Graphs, tables
- Summary statistics

Day 4: Simulations

- Conditional statements
- Loops

Day 5: Troubleshooting and Some Common Problems

- Common errors and problems
- How to google "R Stuff"