BELLWETHER EDUCATION PARTNERS

R for Education Research

Schedule

Class: June 3 - July 22, Thursdays 1-3pm ET

Capstone Project: July 23 - August 5

Office Hours

Tuesdays 10am - 12pm, and by appointment

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Goals for the course

Bonnie O'Keefe

Introductions

Sara Hodges

Geographer, data scientist, data visualization developer
Former EdBuild Director of Data and Visualizations

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Alex Spurrier

Senior Analyst
Bellwether, Policy and Evaluation

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Technical goals for the course

Learn to program in R.

Apply it to education research and modelling.

1. Writing scripts that are easy to understand and share
2. Documenting your scripts and the methods you use
3. Writing scripts that ensure your analysis is reproducible
4. Producing simple, effective data visualizations that make your results accessible and easy to understand

Course 1 Outline

Based on R for Data Science by Hadley Wickham and Garrett Grolemund

Class 1: Intro to R and RStudio

Class 2: Data exploration with the tidyverse

Class 3: Data wrangling

Class 4: Analysis and modeling

Class 5: Visualization

Class 6: Analysis and modeling 2, writing equations and functions

Class 7: Visualization 2, interactive plots and maps

Class 8: Intro to R Shiny

Capstone Project

Course Resources and Structure

Course website

r-for-ed-2021.github.io

- Technical resources for course
- Class lessons and data (posted the day of class)
- Recordings of the lecture (posted by the day after class)

Class structure

- Discuss homework - 15 minutes
- Interactive lecture - 1 hour
- 10-minute break
- In-class exercise - 30 minutes
- Introduce homework - 5 minutes

Course environment

1. **Zoom**: Class, Office Hours
    - Questions: raise your zoom hand or send chat
    - When you complete a coding exercise: zoom thumbs up
2. **R**: Programming Language
3. **R Studio Desktop**: Environment for writing scripts using R
    - Projects to organize scripts and files
4. **R Notebook**: Interactive document with text and executable code
    - Lectures and early homework assignments
5. **Git and GitHub**: Version control system that's useful for coordinating group work
    - Version control, issue tracking
    - Check out and submit homework
6. **R Shiny**: R package to build and host data-driven web apps

Intro to R and R Studio

Terms/Definitions

R: a programming language and software environment for statistical computing and graphics

RStudio: an application that helps you write in R in a user-friendly way

R script: a collection of commands, equations, and functions that you write to do something (like answer a data question!). Makes your analysis reproducible and shareable

R package: a collection of R functions that are verified by CRAN and published so that others can use them

Base R: the functions that come standard with your R installation

R, RStudio, and CRAN

R is free, and open source

- anyone can create a package, though it has to be approved

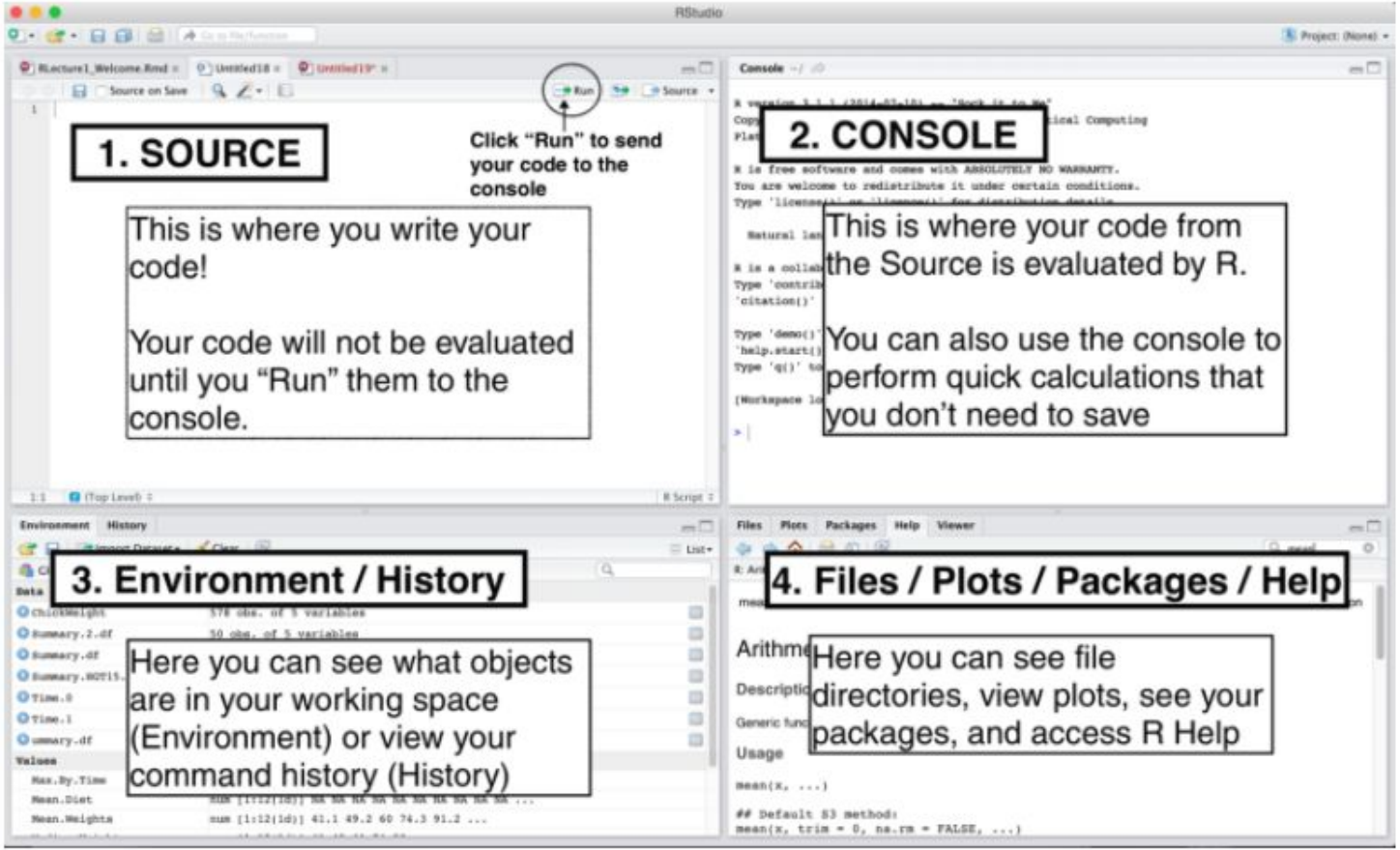
CRAN is the software repository for R, and the gatekeepers for new packages

- supported by the R Foundation
- team of volunteers that maintain R and manage new packages

RStudio is the company that created RStudio application

- pays people to create new, comprehensive packages that people use a lot and trust

RStudio is your window into your analysis



Using R