

Subject: "Big Picture" of Statistical Programming -FRSONLY-

INTERNAL FR

Hi Andrew,

Damian, Jeff, Kyle, and I have volunteered to collaborate with you to organize the "big picture" of statistical programming (i.e., why programming is essential to quantitative work) portion of our first class on 1/13. After our discussion today, I have envisioned it to happen:

1. After the course is introduced by you and/or William
2. Before we walk the students through installing R on their computers
3. With all laptops closed in order to facilitate interaction with the students

and, also as discussed in our meeting earlier, to answer questions along the lines of:

1. What is statistical software?
2. What is a data set?
3. What is a program?
4. What is the benefit of programming over point-and-click use of software?
5. How do economists use programming for their quantitative work?
6. What is the current state of the replicability of economic research, and how can learning how to program well benefit the profession as a whole?

Since next Friday will be here before we know it, I suggest that we come up with a schedule to stick to. I have suggested one below, and am flexible to revise based upon how the week is looking for everyone else:

- We each think about additional questions to add to my preliminary list above and have a final list by **COB Monday, 1/9**
- A first draft of slides finished by **noon Wednesday, 1/11**
- Comments on the first draft due by **OOB (let's say 9:00 am) Thursday, 1/11**
- A final draft of slides finished by **COB Thursday, 1/12**

I have a good amount of experience teaching these types of concepts to new RAs, so I would be happy to take the lead on organizing and presenting the slides unless you or someone else would like to.

Please let me know what you think, and I look forward to the coming semester.

Best regards,
Erik

Class 1

0. Intake
 - a. Escort students from check-in to classroom
 - b. Breakfast and attendance
1. Opening remarks: Andrew Cohen / William Ampeh
 - a. Introductions: professors, FRB staff
 - b. Course overview, review syllabus, goals, pitch RA jobs
 - c. Discuss major assignments and grading
 - d. Discuss available support (TA sessions, email, etc.)
 - e. Explain security procedures (IDs, escorts, etc.)
2. Introduce key concepts (without laptops)
 - a. What is statistical software?
 - b. What is a data set?
 - c. What is a program?
 - d. What is the benefit of programming over point-and-click use of software?
 - e. How do economists use programming for their quantitative work?
 - f. What is the current state of the reproducibility in economic research, and how can learning how to program well benefit the profession as a whole?
3. Technical set up (with laptops, and FRB staff)
 - a. Loaner laptops
 - b. Install R and Rstudio
 - c. Access github, download course materials
4. Main lecture (interactive, with in class exercises)
 - a. Financial literacy (?)
 - b. R literacy
 - c. R Session Demo: fundamental R language concepts
 - i. Starting an R session
 - ii. Data types: vector, matrix, data frame
 - iii. Assignment operators
 - iv. Functions, operators
 - v. Commenting
 - vi. Help
 - vii. History
 - viii. Environment
 - d. RStudio Demo:
 - i. Interface overview
 - ii. Import data (read.csv) or use built-in dataset
 - iii. How to create and run a program
 - iv. How to save and clear environment
 - v. Distinguish file extensions and types (R, Rmd, etc.)
 - vi. Good programming style
5. Assign Homework

- a. Create a program that does some fundamental operations
- b. Explain how to submit homework