

Introduction to RStudio Lab

Due: 2:30pm Friday, January 27th

Instructions

Work through the problems below. After you finish, you will submit your answers as a .pdf document to gradescope. Instructions for doing so are at the end of the lab.

For each problem, put your solution between the bars of red stars.

Introduction

R is a programming language that we will frequently use in our course to visualize and work with data, to create programs to assist computations, create data models, and perform statistical inference.

Note that there are 3 closely related computer processes that we will work with: *R*, *RStudio*, and *RMarkdown*. It's worth taking a moment to distinguish between them.

- R is a **programming language**, which can be accessed by typing particular commands into the console or at the command prompt.
- RStudio is an **integrated development environment (IDE)**, and provides a clean user interface for writing and executing R code. This is the main tool we will use to interact with the R language.
- RMarkdown (or .Rmd) is a **file type** which can contain R code, prose, and graphical outputs. One of the easiest ways to share your results with others is to distribute your .Rmd file.

RStudio comes in two varieties: RStudio Desktop and RStudio Server. The desktop version is a program you can install on your personal computer, and uses your computer's resources to perform calculations. On the other hand, the server version can be accessed just using a web-browser, and will perform calculations on Grinnell's server; there is no need to install any additional programs. For class purposes, we will use the RStudio Server, available at <https://rstudio.grinnell.edu>.

Set-up

For this first lab, we will set-up a directory (a folder) on the RStudio server where you can store your lab materials for STA 209.

1. Use your web browser to navigate to the Grinnell RStudio server at <https://rstudio.grinnell.edu>
2. Log-in using your Grinnell username and password
3. You will see 3 panels on your screen (We'll talk about what each one represents later). Find the bottom right pane (the one with Files, Plots, Packages, Help, Viewer tabs). This is called the Files pane, and represents your file system on the server.
4. Click on the New Folder button (a folder with a green plus icon) and create a folder called STA 209. After you click OK, you should see a new folder appear in the Files pane.
5. Throughout the term, you will put R documents you create in this folder. You are welcome to create other folders to help organize your files as well.

Accessing Lab Assignments

All lab files will be available on the STA 209 course website.

For each lab assignment, you will need to download the lab document from the course website to your current computer, and then upload the file from the computer to the RStudio server. To do so...

1. Open the course website and navigate to the Lab page
2. Download the relevant lab .Rmd file to the computer you are working on.

3. Use your web browser to navigate to the Grinnell RStudio server at <https://rstudio.grinnell.edu>
4. Log-in using your Grinnell username and password
5. In the Files Pane (typically lower right corner) of RStudio, click on the Folder called STA 209. If you don't see STA 209, first click on the Home button, and then look for STA 209.
6. Press the upload button and browse to the lab you just downloaded. Click "Open" and then "OK" to upload the lab assignment to your STA 209 folder on the RStudio Server.
7. In the File pane, click on the .Rmd file you just uploaded. It will open a new pane (called the Editor pane) in the upper left of your screen.

So far, you've been reading these instructions on a .pdf. Now, go to your Lab_1-25_Intro_R.Rmd file you just opened in the editor pane, and find this instruction. It will be between two bars of red stars. For the rest of the lab, follow the instructions in the .Rmd
