Advice on using R

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First steps

You should install R and RStudio on your computer. They are installed in our labs. To install them on your computer:

- R: `https://cran.r-project.org` (Mac/Linux/Windows)
- RStudio: `https://posit.co/download/rstudio-desktop` (Mac/Linux/Windows)
- For Chromebook, `go here`[1] (installs both)

Do things sensibly

Create a folder (directory) on your computer and/or your computer lab account to keep all your work and data for the course. Something simple like '`auw/methods`' is a good idea. (Note: in computer-speak, the shortcut '$\sim$/' refers to your home directory, so the path to this directory would be '$\sim$/`auw/methods`').[2] On my computer, the path I use is '$\sim$/`data/auw`'.

When you start RStudio, you can find out where you are in your computer with the command:

`getwd()`

`wd` stands for 'working directory' Probably, you are not where you want to be. You should change the working directory to your chosen place for your work in the course, perhaps '$\sim$/`auw/methods`', or in my case '$\sim$/`data/auw`'. Note that you need the quotation marks:

`setwd('`$\sim$`/data/auw')`

R, like most computer languages, relies on external libraries ('packages', in R-speak). We will make extensive use of the tidyverse package. You need to install this:

`install.packages('tidyverse')` (Note the quotation marks)

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[1]https://blog.sellorm.com/2018/12/20/installing-r-and-rstudio-on-a-chromebook/
[2]This is true on `POSIX` systems, such as Mac and Linux. On Windows, R emulates `POSIX` (it uses forward slashes (/), not backslashes (\ ), and $\sim$/, not \HOME\etc.)

You will probably get a pop-up box asking you to choose a 'mirror', a place where R packages are located. Just choose one close to your location. India is the closest, I think, but you can use whichever one you like. The speed of light means that 'closeness' doesn't matter much.

Only once should you need to install a package. However, to *use* the package, you need to call it at the beginning of your R file using the `library()` command.

An example

A standard way to get things started would be, after installing tidyverse:

1. Start RStudio
2. Go to File -> New File -> R script
3. Go to File -> Save and save your new R script in your `auw/methods` folder (or wherever). Give it a meaningful name.
4. Go to the directory you want to use
5. At the top of your new R script, write a comment explaining what the script is for. Comments in R begin with the character `#`. You might write something like `# an example R script`.

An Example R script:

`# an example R script`

`setwd('~/data/auw')` (note the quotation marks)

`library(tidyverse)` (no quotation marks)

After this, you can add other commands to begin doing some analysis. Follow the examples in the Wickham text (*R for Data Science)*. Then use one of the snippets in our course folder. You might want to copy the course folder to your own computer.

Enjoy, and remember to save your work!