

Installing Course Software

We need to install three different components for this semester:

1. The R Programming Language
2. The RStudio IDE
3. A set of R Packages and data

All of these components are open-source and available for all modern operating systems. You may have trouble, however, if you have an older OS and have not updated it recently.

Even if you already have R installed, I suggest doing a fresh update for the semester.

1. Installing the R Language

To install R, go to <https://cran.r-project.org/> and select your operating system. Then:

macOS => click on R-4.1.1.pkg and follow instructions

Windows => click on **base** followed by "Download R"

For Linux, either install from source or use your favorite package manager.

You need to install R before anything else, but we will never actually open it directly. So feel free to remove and shortcuts or links that are created during installation.

2. Installing RStudio

To install RStudio, follow the following link and download either the dmg (macOS) or exe (Windows):

<https://www.rstudio.com/products/rstudio/download/#download>

Note: On macOS, you need to drag the RStudio icon into your Applications directory after downloading.

3. Install R Packages

Finally, download and unzip the "course_materials.zip" file from the class website. We will use this directory throughout the semester, so put it somewhere you will remember it.

Then, open the setup.Rmd file in RStudio, and click the green play buttons (see next slide).

3. Install R Packages

The screenshot shows the RStudio interface with a file named 'setup.Rmd' open. The code in the editor is as follows:

```
1 ---  
2 title: "Class Setup"  
3 author: "Taylor Arnold"  
4 ---  
5  
6 ## Setup  
7  
8 This notebook installs all of the packaged needed for the other notebooks.  
9 Click on the green "play" button to begin the process. It may take a few  
10 minutes.  
11  
12 ```{r}  
13 install.packages(  
14   pkgs = c(  
15     "tidyverse", "ggrepel", "cleanNLP", "ggimg", "jsonlite",  
16     "lubridate", "readxl", "rnatrualearth", "sf", "stringi", "xml2",  
17     "readr", "ggplot2", "stringi", "forcats", "ggrepel", "tidyr",  
18     "tidyverse", "Hmisc", "irlba", "devtools", "umap", "glmnet",  
19     "remotes", "tidyverse", "knitr", "rmarkdown", "igraph", "lwgeom",  
20     "RcppRoll", "glmnet", "tokenizers", "udpipe", "cld3", "topicmodels",  
21     "xgboost", "FNN"  
22   )  
23 )  
24 ```  
25  
26 Once you install the packages above, also install the following directly from  
27 GitHub.  
28  
29 ```{r}  
30 remotes::install_github("statsmaths/smodels", upgrade = "always")  
31 ```  
32
```

Two red arrows originate from the right side of the image. The first arrow points to the green 'Run' button (a play icon) located to the right of the first code block (lines 12-24). The second arrow points to the green 'Run' button located to the right of the second code block (lines 29-31). The right side of the RStudio window shows the 'Environment' pane (empty), the 'Files' pane (showing a directory listing with files like 'data', 'funs', 'notebook00.Rmd', 'project.Rproj', and 'setup.Rmd'), and the 'Console' pane at the bottom.

Click here

Then,
click here

For the Semester

You should plan on bringing a laptop with a working version of R, RStudio, and all of the installed packages to each class meeting. If that is or becomes an issue, just let me know and we will find a solution.

Note that if you are having computer issues, particularly during an exam, it is always possible to use the lab computers in Jepson as a back-up. They have R and RStudio installed, but not all of the class R packages. Simply start from Step 3 in these notes before getting started.