

Course requirements

We will teach you to use R to analyze data and to create figures ready to use in publications. For this we will use Rstudio which serves as an interface to R.

We set up a server that runs Rstudio and you are free to use it. Just enter:

`http://40.71.199.174/`

into your browser of choice. We will give you the login information at the beginning of the course. If you want to install R and Rstudio on your laptop please follow the instructions below. Please note, the server will be taken down by the end of this year's HIRN meeting.

The data

If you decide to follow the tutorial on your own computer, please download the following two files:

`data.csv` `gene_goid.tsv`

Ideally, you create a new folder and place the two files in it.

R

Before we can use the interface to R we have to make sure to install the latest version of R. This can be done here:

`https://cran.rstudio.com/`

You can chose your platform. If you are a **Windows** user pick the base version (It also says: This is what you want to install R for the first time.)

Mac users should just download the latest version appropriate for their OS.

And **Linux** users can use their package manager. A detailed description for Linux users can be found here `https://www.rstudio.com/products/rstudio/download-server/`. Please only follow the "Installing R" instructions.

Rstudio

Once R is installed you can get Rstudio from here:

`https://www.rstudio.com/products/rstudio/download/`

I recommend picking one of the installers, please make sure that you pick the correct version. If your computer isn't too old chances are that you need the 64-bit version.

R-packages

There are thousands of R-packages that add functionality to R. Here we will use four of them. It would be very helpful if you installed them prior to the workshop.

Go to Tools in the menu bar and select:

“Install Packages”

Enter: tidyverse and click “Install”

repeat the process with:

ggrepel

ggthemes

cowplot

The tidyverse installation might take a few minutes. Once you installed the packages go to the console which should be on the left hand side of your Rstudio window and enter:

```
library(tidyverse)
```

and press enter. Ideally you shouldn't get any kind of error message. The output should look like this:

```
Loading tidyverse: ggplot2 Loading tidyverse: tibble Loading tidy-  
verse: tidyr Loading tidyverse: readr Loading tidyverse: purrr Load-  
ing tidyverse: dplyr Conflicts with tidy packages _____  
- filter(): dplyr, stats lag(): dplyr, stats
```

Please also try:

```
library(ggthemes) library(ggrepel)
```

Neither should give any output. And finally

```
library(cowplot)
```

The output of this is:

```
Attaching package: ‘cowplot’
```

```
The following object is masked from ‘package:ggplot2’:
```

```
ggsave
```

R-project

Finally, to make sure you can access the files we use for our tutorial without too much trouble it will be helpful to create a R project. In the top right corner you see:

Project: (None)

next to it is a little triangle pointing downwards. Click this triangle and chose:

New Project

You may be asked if you want to save the current workspace, just

Don't Save

Next pick:

Existing Directory

Click:

Browse...

and browse to the directory you just created. Click:

Create Project