Workshop: R primer

Shuang Zhang (Assistant Professor)

June 10, 2021

Install R & RStudio

OK, you may be confused about the difference between R and RStudio. Simply put: R is our coding language operating behind, and RStudio is our editor for writing the R code and displaying the results in the front. We also use RStudio to install the R packages (R packages are specific modules designed to complete specific tasks; for example, we use the very popular “ggplot2” package for plotting).

Note: when downloading R, you can always download the newest R version (which can be slightly different than the R version in the videos below)

For mac: <https://www.youtube.com/watch?v=LanBozXJjOk>

For windows: <https://www.youtube.com/watch?v=NZxSA80lF1I>

For linux: <https://www.youtube.com/watch?v=WpNd6j1nvEE>

Workshop code and data location

<https://github.com/wadesnoopy/REU_R_Workshop>

Some tutorials

R for data science

<https://r4ds.had.co.nz/>

Learn ggplot2

<https://ggplot2-book.org/index.html>

Learn data.table

<https://cran.r-project.org/web/packages/data.table/vignettes/datatable-intro.html>

Geospatial analysis with R

<https://geocompr.robinlovelace.net/>

<https://rspatial.org/raster/>

Some cheatsheets

R basics

<https://github.com/rstudio/cheatsheets/blob/master/base-r.pdf>

Plotting with the ggplot2 package

<https://github.com/rstudio/cheatsheets/blob/master/data-visualization-2.1.pdf>

Data manipulation with the data.table package

<https://github.com/rstudio/cheatsheets/blob/master/datatable.pdf>

Working with raster files with the raster package

<https://rpubs.com/etiennebr/visualraster>

Working with vector files with the sf package

<https://github.com/rstudio/cheatsheets/blob/master/sf.pdf>

Working with dates and times with the lubridate package

<https://github.com/rstudio/cheatsheets/blob/master/lubridate.pdf>

Some useful resources

Give me the symbol shapes and line types in R

<http://www.cookbook-r.com/Graphs/Shapes_and_line_types/>

Give me some spatial data

<https://www.naturalearthdata.com/>

Give me some color

<https://colorbrewer2.org/#type=sequential&scheme=BuGn&n=3>

<https://cran.r-project.org/web/packages/viridis/vignettes/intro-to-viridis.html>