BEFORE THE WORKSHOP

Outline

Installing R

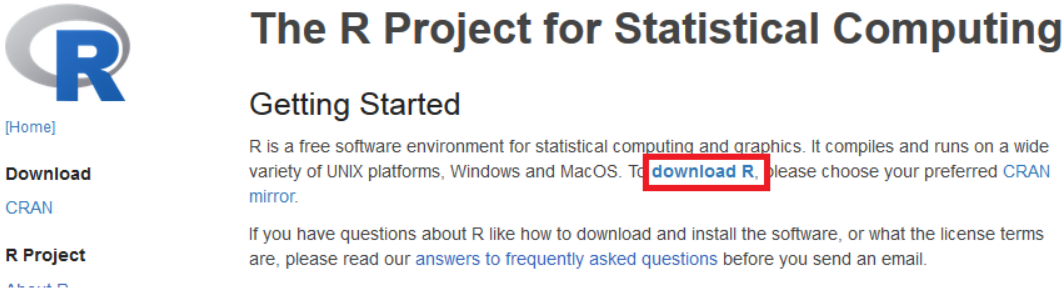
Installing R studio

Review some statistical methods

Installing R

The program is free and can be found on the website https://www.r-project.org/ . To download the program, follow the steps below:

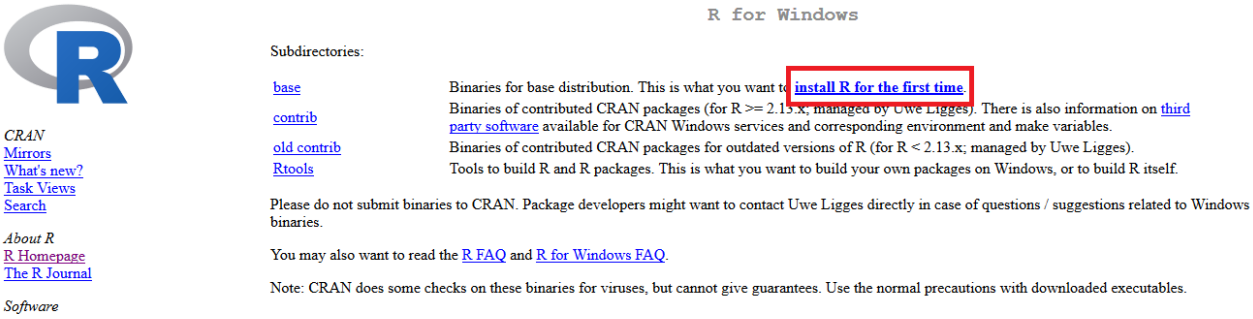
1) Click on the hyperlink “download R” located in the section “Getting Started”



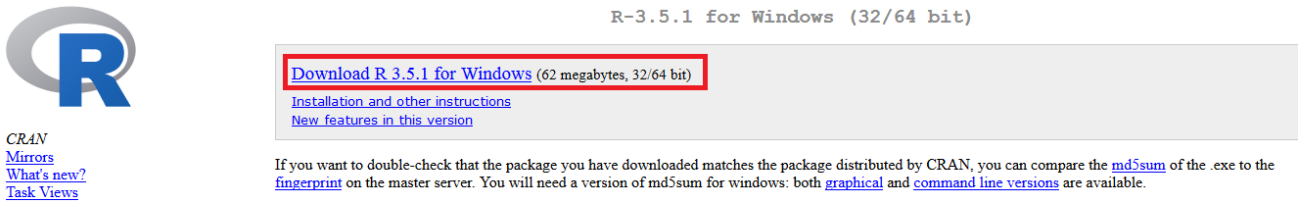
2) Choose a mirror according to your location and click on the respective URL (web address)

3) On the section “Download and Install R”, select the option to download R for your specific operation system (Windows, Mac or Linux).

4) Click on the link “install R for the first time”



5) Finally, click on the link “R 3.5.1 for Windows” (this name varies according to the current version of the program and the operational system). This should start the download process.



6) After downloading the program, click on the executable file (.exe) and follow the instructions to install it.

If you already have R installed in your computer, please double check if the version you have is the most recent one. Old versions of the program may generate incompatibilities with the packages that we are going to use during the

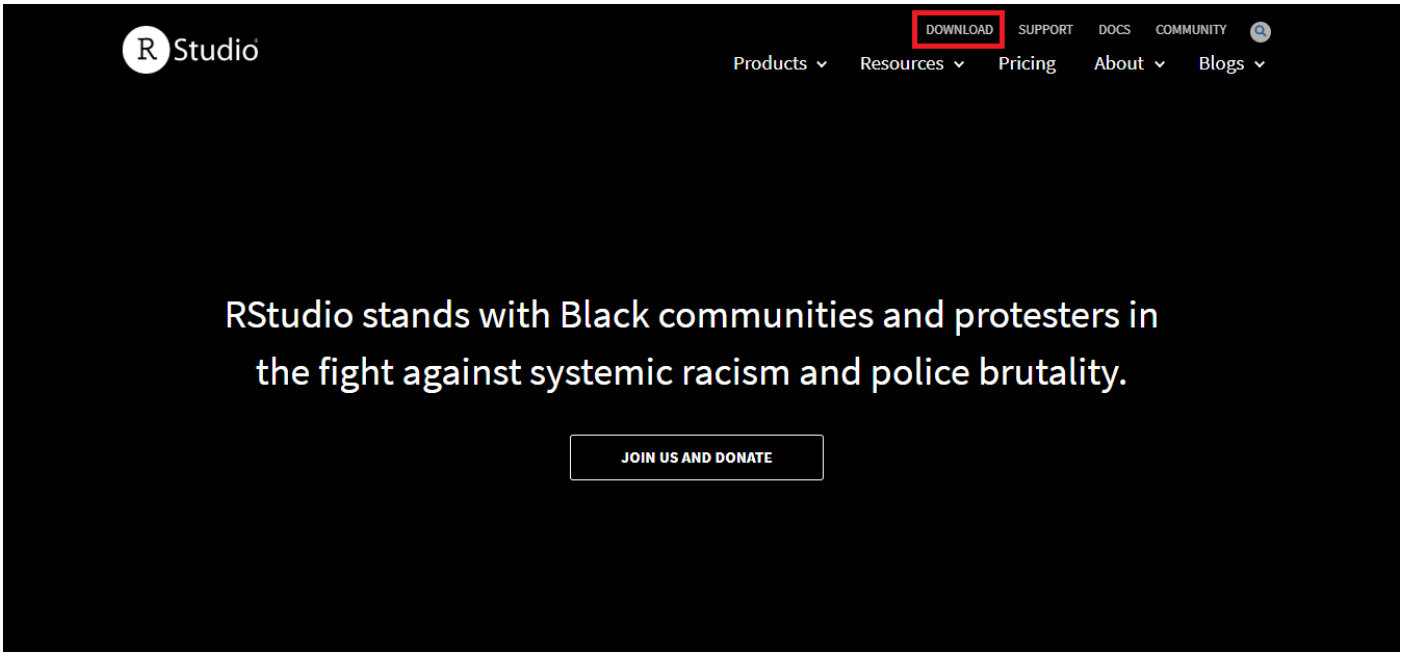
workshop. If you have an old version, please just uninstall the program and download it again from the website, following the steps above.

Installing R Studio

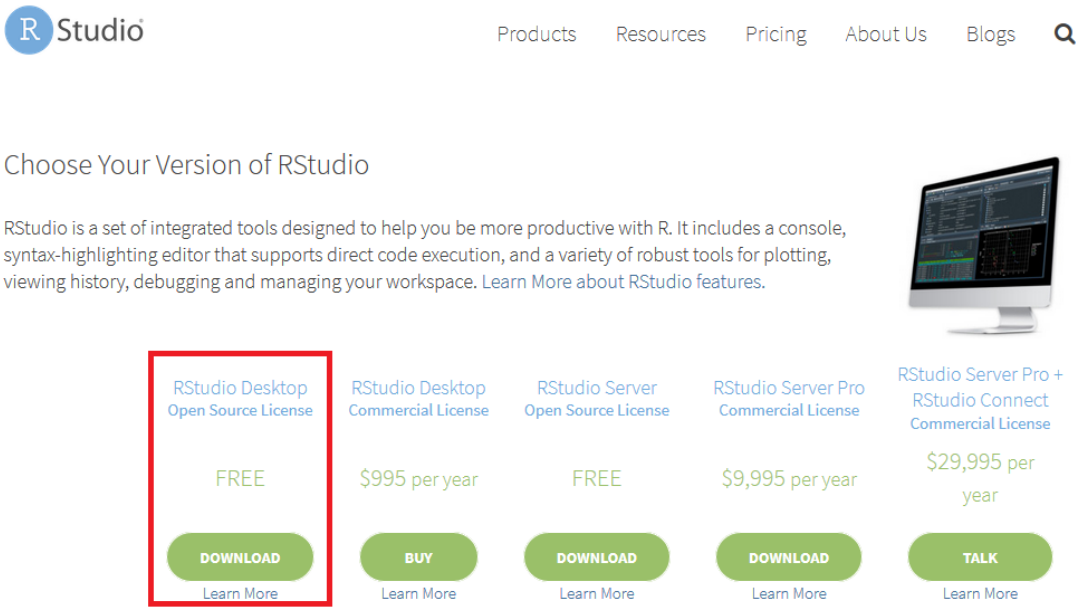
R is a software environment for statistical computing and graphics, but its interface is not that friendly. So, in order to make this a better experience, we are going to use an integrated development environment (IDE), which is a software application that provides comprehensive facilities to programmers. For R, the most common IDE is R Studio. To download R Studio, please follow the steps below:

1) Access the website: https://www.rstudio.com/

2) Click on the button “Download”



3) Select the free option for the RStudio Desktop. Click on the button “Download”.



4) Click on the installer that is built for your operational system. This should start the download process.

Installers for Supported Platforms

Installers	Size	Date	MD5
RStudio 1.1.463 - Windows Vista/7/8/10	85.8 MB	2018-10-29	58b3d796d8cf96fb8580c62f46ab64d4
RStudio 1.1.463 - Mac OS X 10.6+ (64-bit)	74.5 MB	2018-10-29	a79032ba4d7daaa86a8da01948278d94
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	89.3 MB	2018-10-29	8a6755fa9fae2bafce289df3358aaf63
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (64-bit)	97.4 MB	2018-10-29	bc50d6bd34926c1cc3ae4a209d67d649
RStudio 1.1.463 - Ubuntu 16.04+/Debian 9+ (64-bit)	65 MB	2018-10-29	cfd659db18619cc78d1592fefaa7c753
RStudio 1.1.463 - Fedora 19+/RedHat 7+/openSUSE 13.1+ (32-bit)	88.1 MB	2018-10-29	742f0bad60dfeaa3281576e14ad6699e
RStudio 1.1.463 - Fedora 19+/RedHat 7+/openSUSE 13.1+ (64-bit)	90.6 MB	2018-10-29	c7303067a0ca99deea7e427b856952d1

5) After downloading the program, click on the executable file (.exe) and follow the instructions to install it.

If you already have R studio installed in your computer, please double check if the version you have is the most recent one. Old versions of the program may generate incompatibilities with R. If you have an old version, please just uninstall the program and download it again from the website, following the steps above.

Review some statistical methods

This workshop is going to be focused on learning the R language and how we can use the program to run some statistical methods. Therefore, we are not going to cover in details the methods nor the goals and assumptions underlying each one of the statistics used in this workshop. Please, make sure that you are familiarized with all the statistical methods below.

Linear regression

Multiple regression

GLM

T-test

Paired T-test

Mixed models

Model selection (AIC, stepwise selection, model averaging)

PCA

PCoA

Clusters

CCA

RDA

Partial-RDA

NMDS