Introduction to 

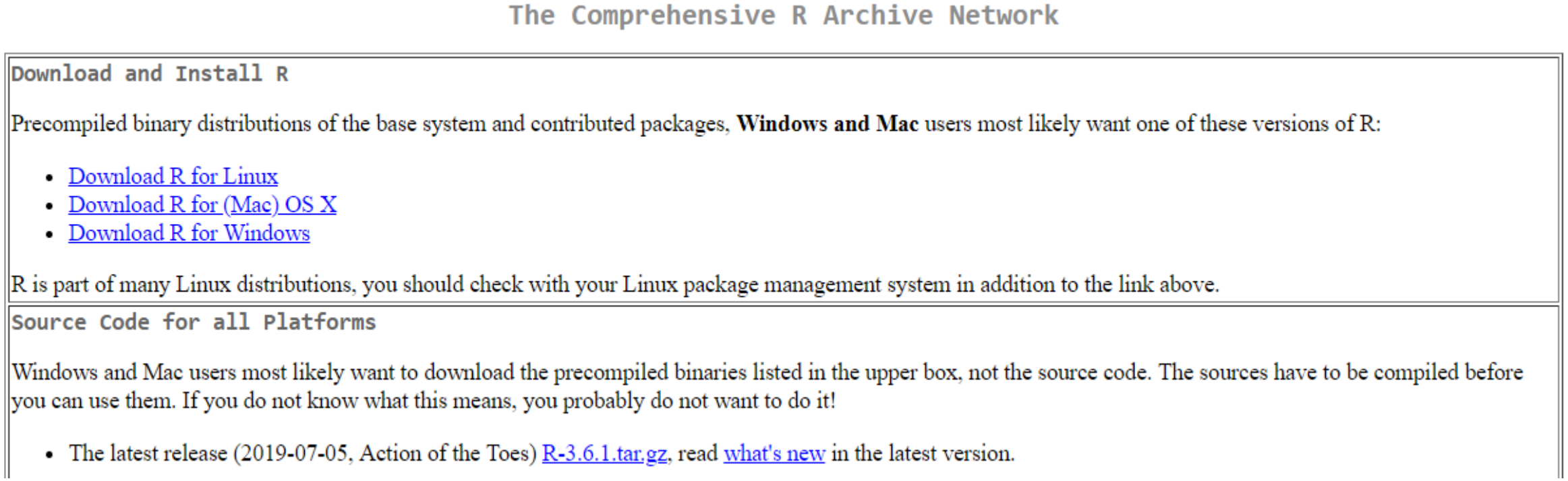
WEEK 1, LAB, FALL 2019

Get software ready

- Most school computers should have R and Rstudio.
- If you use a personal computer (Windows or Mac), finish R and RStudio installation.

Install R from CRAN

- **https://cran.r-project.org/ (google: R CRAN)**


The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- Download R for Linux
- Download R for (Mac) OS X
- Download R for Windows

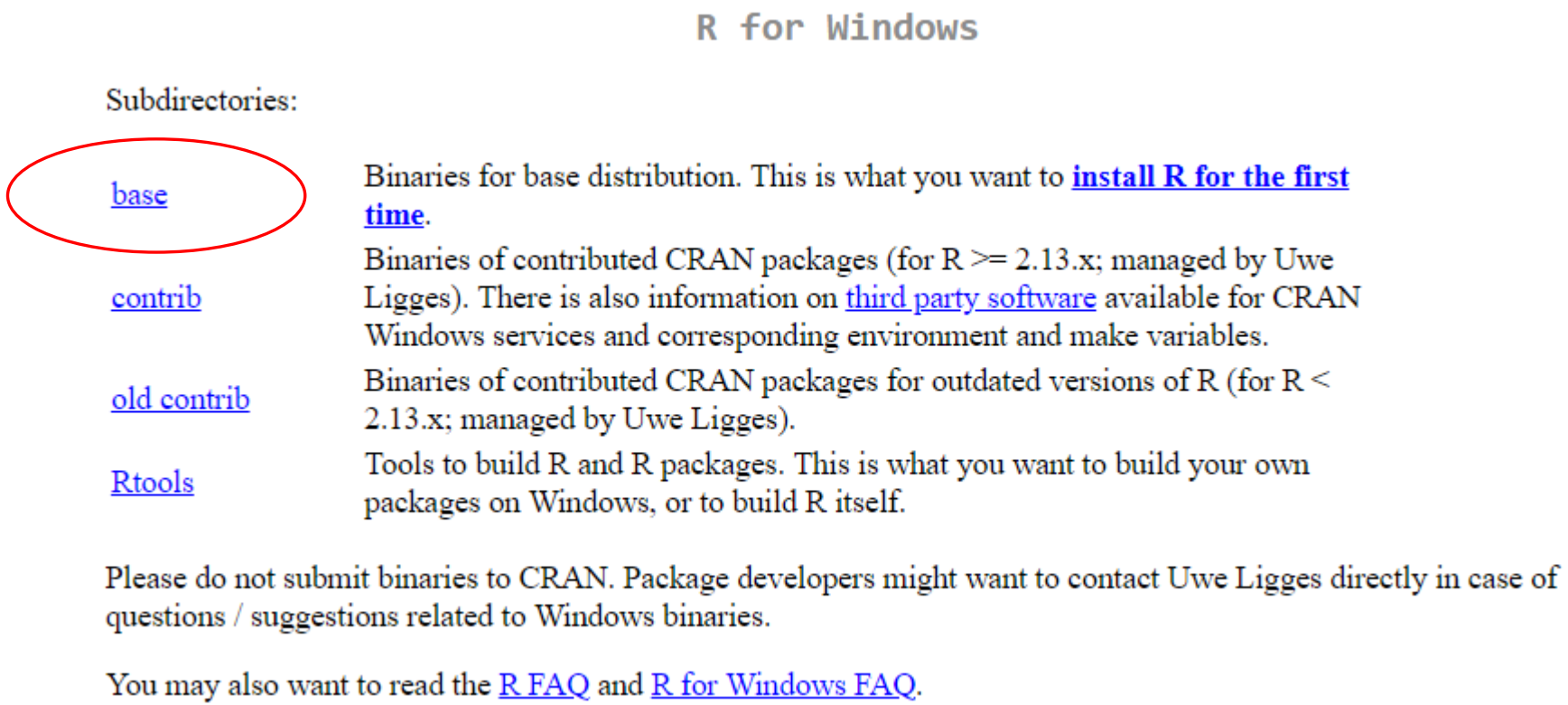
R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release (2019-07-05, Action of the Toes) R-3.6.1.tar.gz, read what's new in the latest version.

R for Windows



R for Windows

Subdirectories:

base — Binaries for base distribution. This is what you want to **install R for the first time**.

contrib — Binaries of contributed CRAN packages (for R >= 2.13.x; managed by Uwe Ligges). There is also information on third party software available for CRAN Windows services and corresponding environment and make variables.

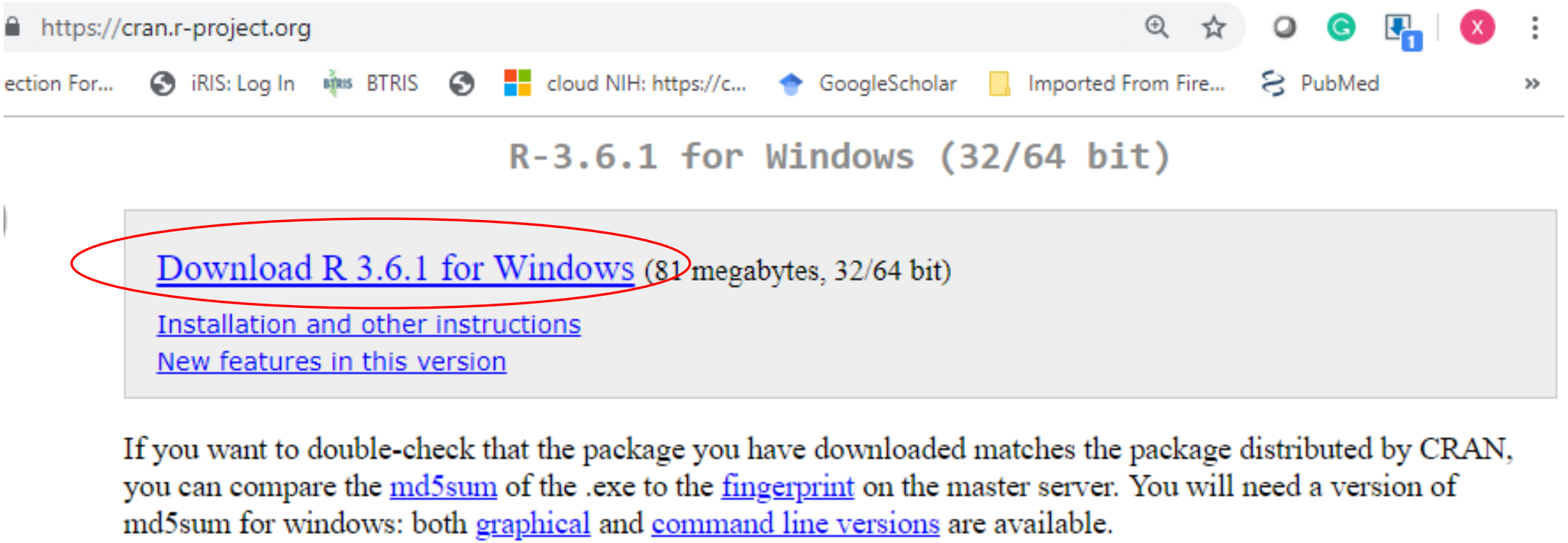
old contrib — Binaries of contributed CRAN packages for outdated versions of R (for R < 2.13.x; managed by Uwe Ligges).

Rtools — Tools to build R and R packages. This is what you want to build your own packages on Windows, or to build R itself.

Please do not submit binaries to CRAN. Package developers might want to contact Uwe Ligges directly in case of questions / suggestions related to Windows binaries.

You may also want to read the R FAQ and R for Windows FAQ.

Download and Install (accept default)



R for MAC

Latest release:

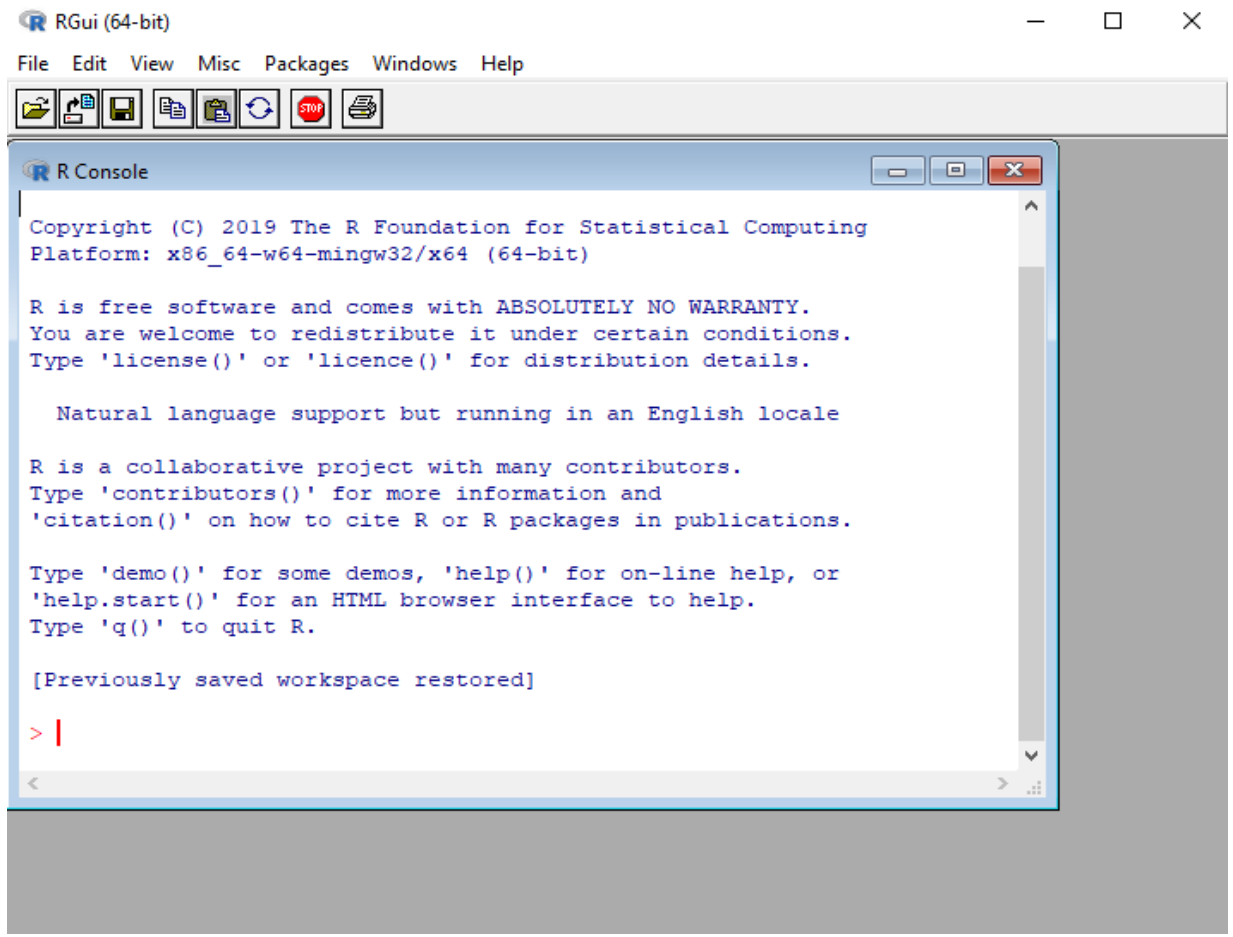
R-3.6.1.pkg
MD5-hash: 279e6662103dfe6a625b4573143cb995
SHA1-hash: 4e932f8e5013870d2a9179b54eaee277f41657b0
(ca. 76MB)

R 3.6.1 binary for OS X 10.11 (El Capitan) and higher, signed package. Contains R 3.6.1 framework, R.app GUI 1.70 in 64-bit for Intel Macs, Tcl/Tk 8.6.6 X11 libraries and Texinfo 5.2. The latter two components are optional and can be ommitted when choosing "custom install", they are only needed if you want to use the `tcltk` R package or build package documentation from sources.

Note: the use of X11 (including `tcltk`) requires XQuartz to be installed since it is no longer part of OS X. Always re-install XQuartz when upgrading your macOS to a new major version.

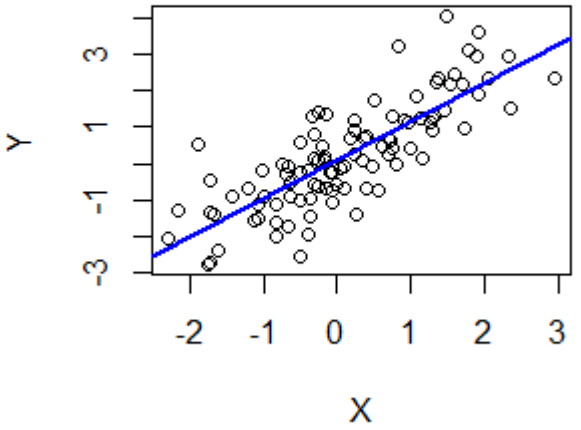
Important: this release uses Clang 7.0.0 and GNU Fortran 6.1, neither of which is supplied by Apple. If you wish to compile R packages from sources, you will need to download and install those tools - see the tools directory.

RGui Windows



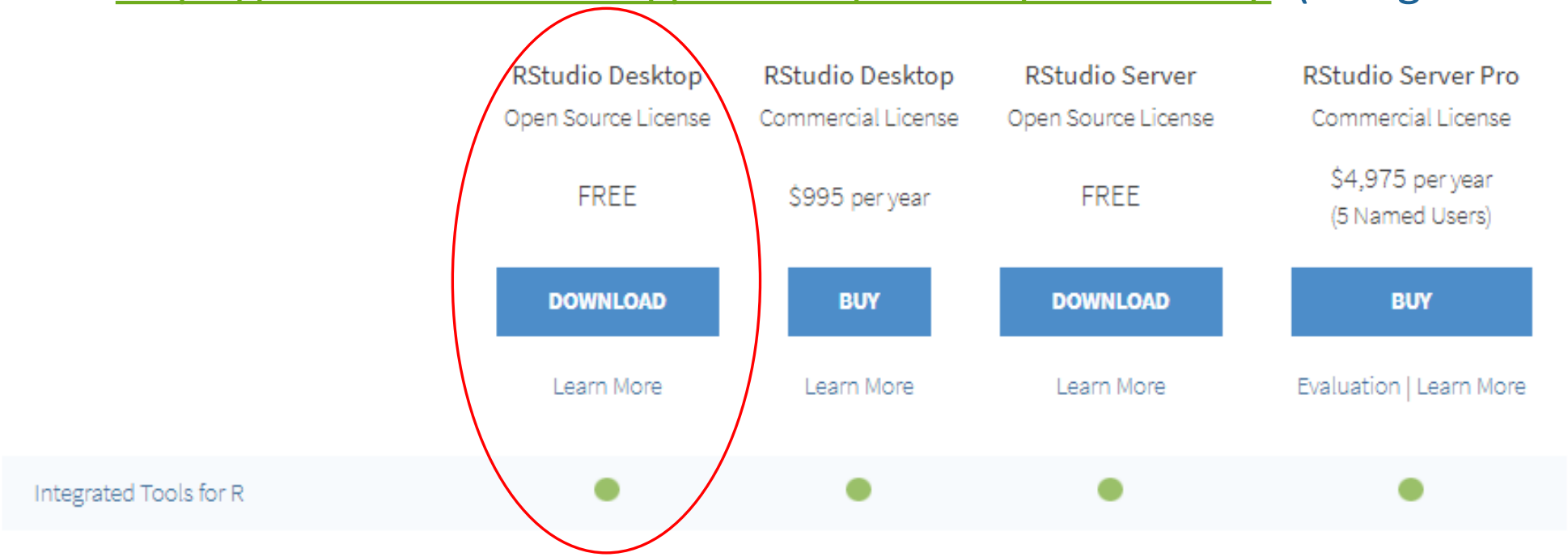
- Demo R Windows
- File → new script

- X <- rnorm(100)
- Y <- rnorm(100)+X
- plot(X,Y)
- abline(lsfit(X,Y), col=4, lwd=2)



Install RStudio

- **RStudio** is an integrated development environment (**IDE**)
- https://www.rstudio.com/products/rstudio/download/ (Google Rstudio download)



Download and Install (accept default)

RStudio Desktop 1.2.1335 — Release Notes

RStudio requires R 3.0.1+. If you don't already have R, download it here.

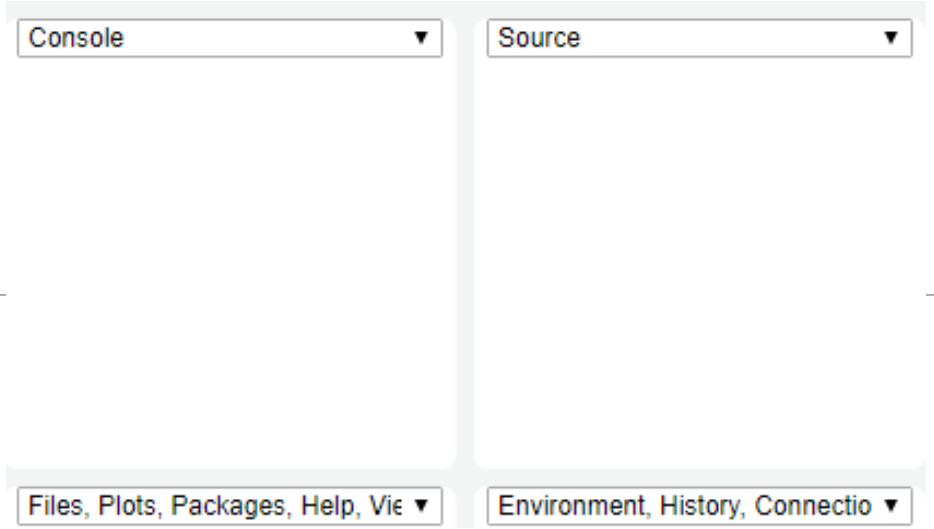
Linux users may need to import RStudio's public code-signing key prior to installation, depending on the operating system's security policy.

RStudio 1.2 requires a 64-bit operating system, and works exclusively with the 64 bit version of R. If you are on a 32 bit system or need the 32 bit version of R, you can use an older version of RStudio.

Installers for Supported Platforms

Installers	Size	Date	MD5
RStudio 1.2.1335 - Windows 7+ (64-bit)	126.9 MB	2019-04-08	d0e2470f1f8ef4cd35a669aa323a2136
RStudio 1.2.1335 - macOS 10.12+ (64-bit)	121.1 MB	2019-04-08	6c570b0e2144583f7c48c284ce299eef

Open RStudio



- Understand various windows
- Console, Source (scripts), file/Plots/help/.., Environment/..
- Open new files from templates, eg. Rmarkdown
- Demonstrate basic examples for data summary

Questions?

- 1. Get software ready.
  - Most school computers should have R and Rstudio.
  - If you use personal computer, finish R and RStudio installation
- 2. Run sample R code for week 1.

Suggested additional reading

- The ***R Project Homepage***
- ***R Tutorial*** - web site at Clarkson University Department of Mathematics
- ***DataCamp*** offers a free *Introduction to R* course and many additional courses with subscription.
- R for data science (package: tidyverse)
  - https://r4ds.had.co.nz/
- Rmarkdown for reporting
  - https://bookdown.org/yihui/rmarkdown/