

# Introduction to R

Chunlei Ge

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## 1 Learning objectives

- How to install R and Rstudio
- How to load an R package
- How to use RStudio cloud server
- How to update them
- How to run some simple calculation

## 2 R and Rstudio

### 2.1 Download and install R

#### 2.1.1 Windows

Visit [R Project](#) to learn about R versions Download and install R from your preferred CRAN mirror [here](#)  
Choose “0-Cloud” or a mirror site near you

### 2.1.2 Mac

Check that your macOS system is up-to-date

Download and install R from [R Archive Network](#)

### 2.1.3 Linux

Download R for Linux <https://mirror.rcg.sfu.ca/mirror/CRAN/>

## 2.2 Download and install R studio IDE (Windows and Mac)

Download and install R Studio from [here](#)

## 2.3 R Markdown

R Markdown is a format for writing reproducible, dynamic reports with R.

R Markdown document can help us generate PDF, HTML, and other types of output with R code, results, and raw LaTeX.

(This pdf file <Introduction\_to\_R.pdf> is the output of Rmarkdown file <Introduction\_to\_R.Rmd>.

Feel free to open and edit it after you install Rstudio in your computer or use it as the template of your first report)

Learn more at <https://rmarkdown.rstudio.com/>

And a quick way to familiar with R Markdown <https://www.rstudio.com/wp-content/uploads/2015/02/rmarkdown-cheatsheet.pdf>

Some more about R studio: <https://www.rstudio.com/resources/cheatsheets/>

## 2.4 Load R package

use function: `install.packages()` to installing a package installing a Java Version : <https://www.java.com/en/download/>

```
install.packages("MASS")
install.packages("rJava")
install.packages("RWeka")
```

Help

```
help (pi)
```

```
## starting httpd help server ... done
```

```
?pi
# the mathematical functions ...
?Arithmetic
?abs
?log
```

```
?round  
?sin  
?Special
```

Loading an R package

```
library(MASS)  
library(rJava)  
library(RWeka)
```

## 2.5 How to use RStudio cloud

<https://rstudio.cloud/>

## 2.6 How to update

### 2.6.1 Updating R

Windows

First Install the *installr* package if you don't have it

```
# installing/loading the package:  
if(!require(installr)) {  
  install.packages("installr");  
  require(installr)  
} #load / install+load installr
```

```
## Loading required package: installr
```

```
##
```

```
## Welcome to installr version 0.23.4
```

```
##
```

```
## More information is available on the installr project website:
```

```
## https://github.com/talgalili/installr/
```

```
##
```

```
## Contact: <tal.galili@gmail.com>
```

```
## Suggestions and bug-reports can be submitted at: https://github.com/talgalili/installr/issues
```

```
##
```

```
## To suppress this message use:
```

```
## suppressPackageStartupMessages(library(installr))
```

Now call *updateR()* function to call update

```
updateR()
```

macOS

One Mac you need to go to the CRAN website to install the newer package installer.

### 2.6.2 Updating RStudio

Updating RStudio is easy, just go to *Help > Check for Updates* to install newer version.

### 2.6.3 Updating R package

Updating out of date package that were installed with *install.packages()* is easy with the *update.packages()* function.

```
update.packages("MASS")
```

## 3 Simple calculation

```
x <- c(67,67,77,62,69.84,74.168,29.5,81.8,71,71,74.8)
y <- c(170,176,172,183,167.64,175.26,165.1,177.8,170,178,176)

y^2
```

```
## [1] 28900.00 30976.00 29584.00 33489.00 28103.17 30716.07 27258.01 31612.84
## [9] 28900.00 31684.00 30976.00
```

```
y+2
```

```
## [1] 172.00 178.00 174.00 185.00 169.64 177.26 167.10 179.80 172.00 180.00
## [11] 178.00
```

```
y/2
```

```
## [1] 85.00 88.00 86.00 91.50 83.82 87.63 82.55 88.90 85.00 89.00 88.00
```

```
x+2
```

```
## [1] 69.000 69.000 79.000 64.000 71.840 76.168 31.500 83.800 73.000 73.000
## [11] 76.800
```

```
x*x
```

```
## [1] 4489.000 4489.000 5929.000 3844.000 4877.626 5500.892 870.250 6691.240
## [9] 5041.000 5041.000 5595.040
```

```
2*x
```

```
## [1] 134.000 134.000 154.000 124.000 139.680 148.336 59.000 163.600 142.000
## [10] 142.000 149.600
```

```
x^2
```

```
## [1] 4489.000 4489.000 5929.000 3844.000 4877.626 5500.892 870.250 6691.240  
## [9] 5041.000 5041.000 5595.040
```

```
log(x)
```

```
## [1] 4.204693 4.204693 4.343805 4.127134 4.246207 4.306333 3.384390 4.404277  
## [9] 4.262680 4.262680 4.314818
```

## 4 Reference

Data Analysis in R. <https://ubc-library-rc.github.io/data-analysis-r/>

**\*\* Keep Calm and Have a Cup of Tea\*\***



image: <https://www.expertreviews.co.uk/food-drink/1415799/best-green-tea>