Introduction to R programming

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R introduction

R is a programming language for statistical computing.

Useful website:

- https://www.r-project.org
- https://cran.r-project.org
- https://www.r-bloggers.com
- https://en.wikibooks.org/wiki/R_Programming

Packages

- crone:
  https://cran.r-project.org/web/packages/crone/index.html
- CRy (J. Foadi): to analyse mtz file and visualize data ... work
  in progress!!!
- bio3d - protein structure analysis
  https://thegrantlab.org/bio3d/index.php
- tidyverse -
- ggplot2 - grammar for graphics

RStudio

RStudio is an IDE for R:

- https://www.rstudio.com

- https: //www.rstudio.com/products/rstudio/download/#download

How to assign values to a variable and read data from a file

In R to assign a value to a variable there is this symbol <-

```
x <- 5
x
```

```
## [1] 5
```

that is the assignment operator

read.table("file_path")

Tidyverse

"Happy families are all alike; every unhappy family is unhappy in its own way." —- Leo Tolstoy

"Tidy datasets are all alike, but every messy dataset is messy in its own way." —- Hadley Wickham

Control flow past and present

Before it was: - if -else:

```
if (condition) {expression}
else
```

Now we have:

```
if_else (condition) {expression}
```

▶ for:

```
for (var in seq) {expression}
```

▶ while:

```
while(condition) {expression}
```

Control flow

- repeat:

```
repeat {expression}
```

- break: to stop loop
- next: to skip iteration
- return: to exit from a loop and return a value

R function

An R function is defined as global environment: .GlobalEnv.

```
add <- function(x,y)
{
  x+y

}
```

```
environment(add)
```

```
## <environment: R_GlobalEnv>
```