Assignments to Lecture 1 - Introduction into R

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Setup your code location

- Oa) Install R from https://cran.r-project.org/bin/windows/base/
- Ob) and a good text editor from https://notepad-plus-plus.org/downloads/
- Oc) Create a directory on your hard drive (know the location)
- Od) Create a directory in this folder called: Assignments1
- 0e) Create a file in the Assignments1 folder called: answers.R
- Of) Open the file in your editor, and give a header, inspired on:

```
# Analysis of Hardy-Weinberg equilibrium

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setwd("<your location>/Assignments1/") # Instruct R to go to the working directory
```

R as a calculator

Use R to calculate the following:

```
1a) 1234 + 4567
```

1b) 100456 - 3350 + 23

1c) natural logarithm of 15

1d) 4596 / 12

1e) 8998 * 76

1f) Euclidean division remainder of 10 and 6

1g) the square root of -8

Vectors

If you even need help about a function you can do ?functionname to get an overview of the function parameters, scroll down the end of the help page to have an example of how to use the function (most of the times)

For these exercises store the result each time in a variable: vector2a, vector2b, etc unless specified differently in the assignment.

- 2a) Use the c() function to create a vector from 1 to 10
- 2b) Use the: operator to create a vector from 11 to 20
- 2c) We can also use the **seq()** function to create more complex vectors, create a vector from 1 to 100 going in steps of 5. (so: 1, 6, 11, ...)
- 2d) Use the LETTERS constant and the **seq()** function to create a vector that stores all the 'even' letters (gerade Buchstaben: B, D, F, etc)
- 2e) what is the type of vector2a, either use the *class()* function or ask explicitly using the *is.numeric()*, *is.character()* or the *is.logical()* functions

- 2f) combine vector2a and vector2d, what is the type of the resulting vector?
- 2g) Use the sqrt() function to compute the square root of vector2a

Matrices

For these exercises store the result each time in a variable: matrix3a, matrix3b, etc unless specified differently in the assignment.

- 3a) We can use the *matrix()* function to create a matrix, create a 10x10 matrix that holds the numbers 1 to 100.
- 3b) If you look at the help file of the *matrix()* function, you see it has a parameter *byrow* do the same thing as in exercise 3a, but now set the byrow parameter to TRUE, how is this matrix different from the one in exercise 3a?
- 3c) Select the 5th column from matrix3a, and select the 5th row from matrix3b
- 3d) How can we translate matrix3a into matrix3b?
- 3e) Add column names to matrix3a, using the LETTERS constant
- 3f) Look up the help for the *paste()* function and add your own rownames to matrix3a, in the structure: "measurement N", where N is the row number