

Task 1-1: Organization

- a) Make sure you’re enrolled in this course in the KVV, as all of the tutorial’s organization will be handled there. The practice sheets will be uploaded there along with supplementary material.
- b) Read any available announcements for this lecture in the KVV.
- c) Through the semester, there will be different types of tasks. Task you are supposed to work alone on are marked with . Many tasks, however, are meant for pair work .
Find a partner – if you don’t find one for the first exercise sheet, we will find one for you in the first tutorial.
- d) After you finished working on the three tasks below, make sure to upload your solutions in the KVV. Please make sure to put **both names** into your submission; one KVV submission per pair is sufficient.

Task 1-2: Research definition

Learning goal: Getting an understanding of the concept of “research”.

Find several (at least two) definitions of “research” (from dictionaries, books on research methods, and from friends, family, or colleagues). What are the recurring themes in the definitions you found? Can you now provide a good definition on your own?

Task 1-3: Learn basic terminology in R

Learning goals: Getting to know the most important operators of R and how to use them; gaining a general understanding of the use of vectors, matrices, and lists in R; being able to use the `help` function and documentation of R.

- a) **Install R** (reference version for this course is **3.4.4**) and start it.
 - Download from <https://www.r-project.org> (or <https://sourceforge.net/projects/rportable> for a portable version)
 - Start the program by using the commands `Rterm` or `Rgui` (Windows) or `R` (Linux).
 - (There might be suitable installations on the public computer pools as well. Contact your tutor if you want to work there but encounter problems.)
- b) Download the file `R_intro_session.r` from the KVV and open it with a text editor. Repeat the individual commands in your R environment, try to **understand** and **explain** what happens.
 - Choose a suitable format, e.g. you can write your explanations as inline comments in the R-file or create a separate document which collects your explanations.
 - Use the `help` function to get more detailed information on the functions and operators used.
 - If necessary, read up background information in the documents “An Introduction to R” or “The R language definition” which you can find via `help.start()`.
- c) **List three parts** in the *official R documentation* (i.e., in three different places) which explain indexing in R.

Above all: Feel free to play around with R! This might be the best way to get a feeling of how R works.

Task 1-4: Small R task



Learning goal: Being able to define and use your own functions.

Simulate **100 000 sequential dice throws** and count how often the sequence “3, 4, 5” came up.

Write code that is as much “R-like” as possible (i.e., without explicit loops); not much longer than 2 lines. For the solution you merely need the functions `sample` and `sum` as well as indexing and operators (there are other solutions as well).

To give you an idea of what the numeric outcome of your simulation should look like, the precise expected value¹ can be calculated as follows:

```
(100000 - (3 - 1)) / 6^3
```

```
## [1] 462.9537
```

¹Deutsch: *Erwartungswert*