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| **Workshop**: | Reproducible Research in R | |
| **Lecturer:** | Dr. Dries Debeer (Ghent University, Belgium)  Benjamin Becker, M.Sc. (IQB Berlin, Germany) | |
| **Date:** | Part 1: | Donnerstag, 29.09.2022, 9:00 – 13:00 Uhr |
|  | Part 2: | Freitag, 30.09.2022, 9:00 – 13:00 Uhr |

**Abstract**

Reproducible research is currently one of the most trending topics in the scientific community. An obvious requirement for all researchers is that they should be able to reproduce their own research. Furthermore, it is becoming more and more standard that publications no longer consist only of a written paper. Instead, all data cleaning and analysis steps should be published and reproducible for others as well.

In this workshop we want to provide researchers guidance on how to perform reproducible research in R. We will focus on defining reproducible research and illustrate why modern scientists cannot live without it. The hands-on part of the workshop will then focus on organizing projects in RStudio, writing reproducible R scripts, using RMarkdown for dynamic document generation and Version Control via Git and Github. As the workshop will be held remotely, there will be a strong focus on implementing the workflows on the participants’ computers and on practical exercises.

***Contents.***

After a general introduction on reproducible research (what is it and why do we need it), the following topics will be covered during the course:

- RStudio Projects and Setup

- Writing Reproducible R Scripts

- RMarkdown

- Version Control via Git and Github

***Previous knowledge required.***

Participants should have some previous experience using R and RStudio. Participants should be able to:

* Read and write data in R
* Do some basic statistical analysis in R

***Literature.***

Wickham, H. (2019). *Advanced R*. CRC press. (<http://adv-r.had.co.nz/>)

Xie, Y., Allaire, J. J., & Grolemund, G. (2018). *R markdown: The definitive guide*. Chapman and Hall/CRC. (<https://bookdown.org/yihui/rmarkdown/>)

Bryan, J. (2022). *Happy Git and GitHub for the useR*. (<https://happygitwithr.com/>)

***Software requirements.***

R [>= 4.2.0], RStudio, RMarkdown