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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 has become an important topic in the scientific community. An obvious requirement for all researchers is that they should be able to reproduce their own research. Furthermore, all data-analytic procedures should also be reproducible for other researchers. Indeed, more and more scientific publishers promote open data and open source publications. That is, next to a purely text-based explanation of the data-analytical procedures in the method section of a publication, all data and all code for (pre)processing, visualizing and analyzing the data also are included.

In this workshop we provide researchers guidance on how to perform reproducible research in R and RStudio. We will focus on defining reproducible research and illustrate why modern scientists should incorporate it in their workflow. In a hands-on manner, the workshop addresses the following topics: 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.***

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