IQB
Forschungsdatenzentrum

Reproducible Research in Collaboration: Writing Academic Texts on GitHub Together

FDZ Herbstakademie / Autumn Academy 2025

- Dozierende*r / Lecturer: Dr. Aaron Peikert & Hannes Diemerling (Max-Planck-Institut für Bildungsforschung, Berlin)
- Termin / Date and Time: Donnerstag / Thursday, 18.09.2025, 9:00 – 17:00 h

Abstract

Computational reproducibility is the ability to obtain identical results from the same data with the same computer code. This workshop teaches participants to work reproducibly in two parts, at first alone, later in collaboration.

Many researchers want to work reproducibly, but it is not easy. Considerable time is required to acquire the skills required for reproducible research, and the path is lined with pitfalls. This workshop gets researchers up to speed on how to create reproducible data analyses in R (and beyond). Specifically, researchers learn to automate the whole process from raw data to publishable manuscripts. This automation is possible by combining dynamic document generation (via R Markdown/Quarto), version control (via Git), workflow orchestration (via Make) and software management (via Docker).

Collaboration is at the heart of good science. As research teams grow in size, diversity, and speed, the need for structured, transparent, and efficient collaboration increases—especially in the face of rising demands for scientific rigor and reproducibility. This workshop teaches participants how to apply techniques from agile software development to the collaborative writing of scientific documents based on the reproducible workflow taught earlier. Using GitHub as the central platform, we guide participants through a hands-on workflow for writing, reviewing, and managing academic texts together. Researchers familiar with Git/GitHub will learn how to extend their skills beyond code to the entire research process. Those new to GitHub will gain a practical introduction to this powerful tool and discover how version control, issues, and pull requests can streamline research from collaborative writing to project management.

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By the end of the session, you will be able to:

- Manage a GitHub repository for a manuscript
- Ensure automatic reproduction independent of computer hardware
- Use issues and pull-requests to coordinate writing and feedback
- Leverage branch-and-merge workflows to track revisions and enforce transparency

Voraussetzungen / Previous knowledge required

Proficient use of R or Python is a requirement. Some prior experience with Git, however small, is advantageous.

Software / Software requirements

Participants require a stable internet connection and a GitHub account.