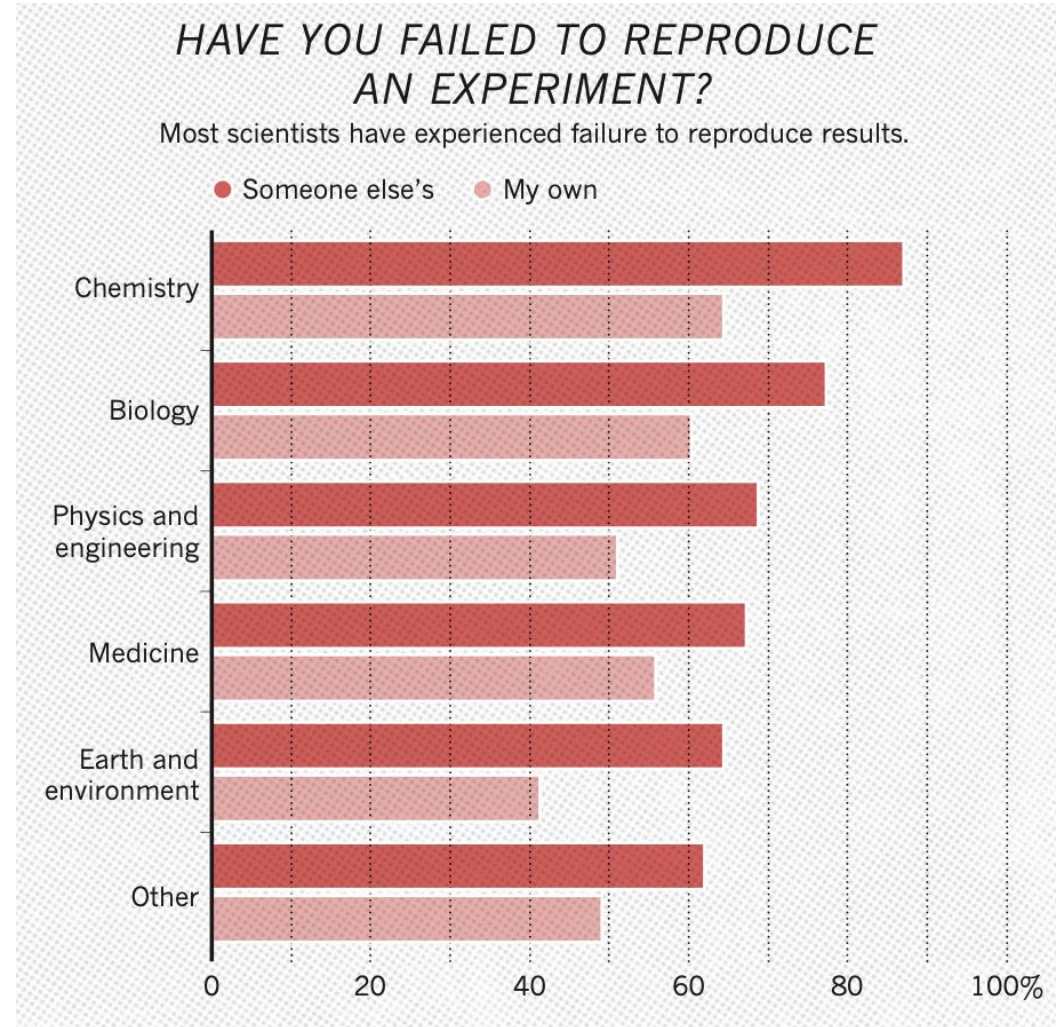


Reproducible Research and Version Control

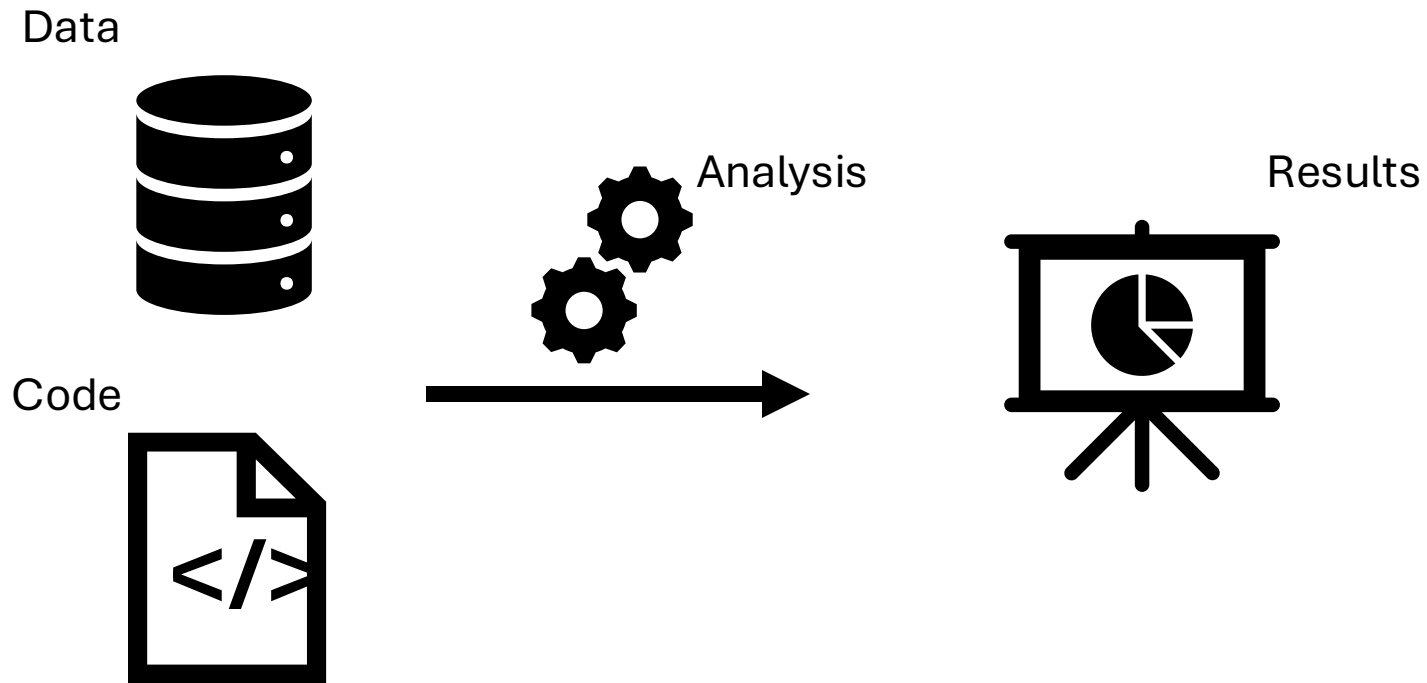
Introduction to Git and GitHub

Replication crisis



What is reproducible research?

- Someone else (or yourself) should be able to generate same results with same data and code



Reproducible research

- Raw data
 - Public repositories
 - Non-proprietary formats (e.g. .csv instead of .xls)
- Code
 - Documented
 - Instructions
- Environment
 - Programs and versions

Benefits

You are the primary beneficiary (future you will thank you!)

- Remember how and why analyses were performed
- Easier to rerun analyses with new data
- Tasks can be carried over into new projects
- Display of transparency and trustworthiness
- Increases paper citations

Benefits

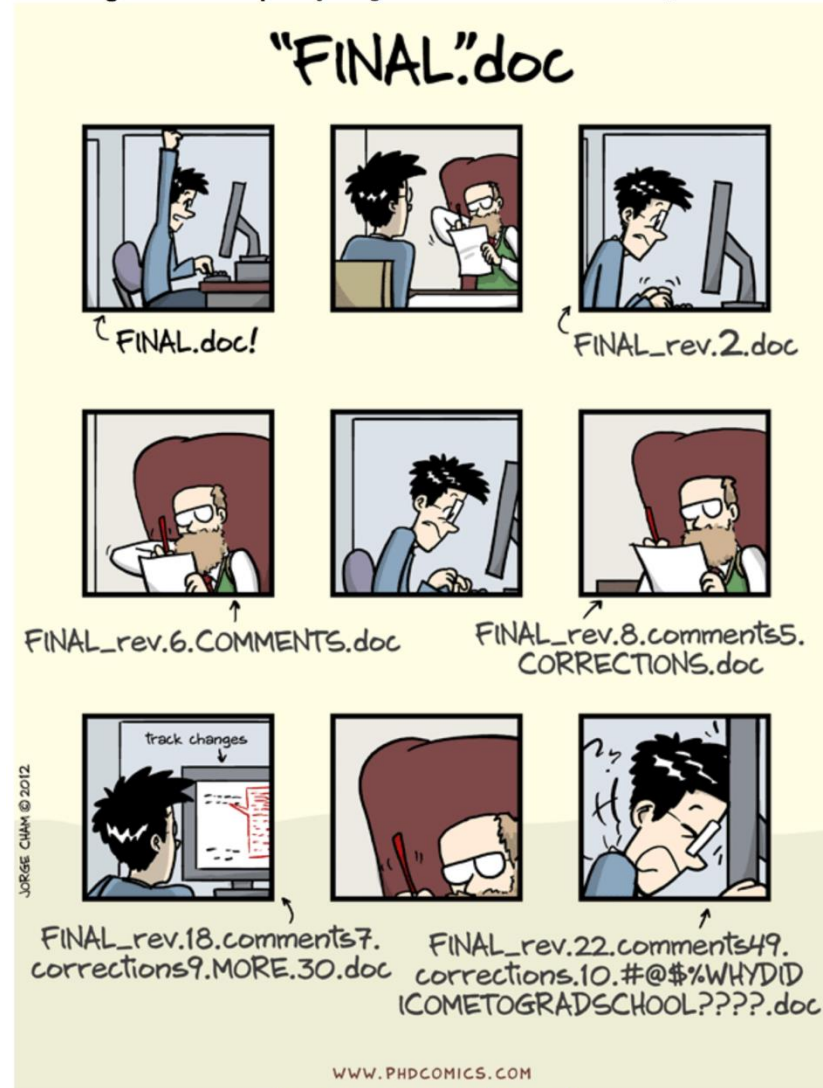
For the research community

- Faster progress and development
 - New and learning scientists
 - Follow-up studies
 - Learn from mistakes
- Enhances transparency and trust in research

Reproducible research starts with good coding practices

Piled Higher and Deeper by Jorge Cham

www.phdcomics.com













Version control with git

- Keeps a complete history of changes to a file
- Allows to change between versions
- Keeps track of who contributed what
- Revisions must be explicitly created with a message



Commits on Jun 21, 2025

move plotting script to SCRIPT directory mariannedehasque committed 3 weeks ago	78bf6c0		
Move girnock demo data to development folder mariannedehasque committed 3 weeks ago	8642be7		
Remove baddoch demo dataset mariannedehasque committed 3 weeks ago	87e038f		
Merge branch 'main' of https://github.com/mariannedehasque/GONE2-tutorial mariannedehasque committed 3 weeks ago	3e8ba5a		
install plink on setup mariannedehasque committed 3 weeks ago	37b652a		

Version control with GitHub

- Cloud-based platform
- Hosts git repositories online
- Remote backup
- Facilitates development and collaboration
- Web interface – can be used even without command line





The Philippines PIRE Project

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Pinned

🔒

[process_sequencing_metadata](#) Private

Tools to summarize sequencing metadata generated when following [pire_fq_gz_processing] (https://github.com/philippinespire/pire_fq_gz_processing)

●

 R

🔒

[pire_lcwgs_data_processing](#) Private

●

 Shell

📄

[pire_ssl_data_processing](#) Public

SHOTGUN DATA PROCESSING & ANALYSIS

●

 HTML 1

📄

[pire_fq_gz_processing](#) Public

Pre-Processing PIRE Data

●

 Shell 2

📄

[pire_cssl_data_processing](#) Public

●

 HTML 1

📄

[Welcome-README](#) Public

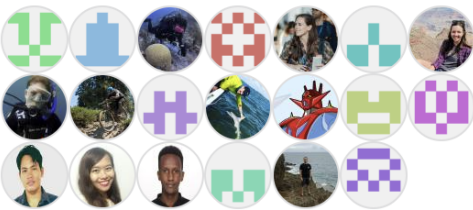
More info and news

👁 View as: Member ▾

You are viewing the README and pinned repositories as a member of the The Philippines PIRE Project organization.

You can [create a README file](#) visible only to members of the organization.

People



[View all](#)

GitHub – additional tools

Today

- Classroom: coding assignments
- Codespaces: cloud-based development

Other

- Actions: automate testing, building, and deploying code
- Pages: host website
- Copilot: AI code suggestions

Further reading

- Alston, Jesse M., and Jessica A. Rick. "A beginner's guide to conducting reproducible research." *Bulletin of the Ecological Society of America* 102.2 (2021): 1-14.
- Stoddart, Charlotte. "Is there a reproducibility crisis in science." *Nature* 3 (2016).
- <https://docs.github.com/en/get-started/start-your-journey/about-github-and-git>