Code review

Code review checklist/rubric

- Co-developed rubric here
- Based on Cook et al. (2023) “Implementing code review in the scientific workflow: Insights from ecology and evolutionary biology”

Assignment

AUTHOR (before code review)

1. Archive code in a publicly accessible GitHub repository
    a. For class: choose a project or specific script that can be run independently and reviewed in under an hour
2. Download and fill out the project description
3. Download and fill out the code review checklist for your project
4. Work through the checklist yourself and add comments for the reviewer as appropriate

REVIEWER

Remember that this is a judgment-free exercise! Code will be in various stages of completion. Sharing code has not been the norm in ecology, and adding this transparency is hard. In this review, we are not providing feedback on coding “style” or efficiency (unless requested). The goal is to make sure code follows the “4Rs” (Reported, Runs, Reliable, Reproducible).

1. Fork repository
2. Start a new project in RStudio on your computer for the forked repository
3. Make a new working branch to your local fork
4. Using peer review checklist:
    a. Assess repository organization and documentation
    b. Run code, assess readability and reproducibility
5. Add “Issues” on GitHub as appropriate
6. Submit “Pull Request” on GitHub if appropriate

Other potentially useful resources

A note on style/project management

- Style is not the goal of code review
- That said, if you *want* to think about style for your own code, the tidyverse style guide is a nice reference
    - Originally based off of google, now google is based off of tidyverse
- For project organization, this is a nice template/guide

Other resources

- More resources on code review here, including Rocker + GitHub (Quinn Thomas, FREC at VT)
- Implementing code review in the scientific workflow: Insights from ecology and evolutionary biology
- A call for clean code to effectively communicate science - Filazzola - 2022 - Methods in Ecology and Evolution - Wiley Online Library
- Ten simple rules on writing clean and reliable open-source scientific software | PLOS Computational Biology
- A Beginner's Guide to Conducting Reproducible Research
- GitHub - gchure/reproducible_research: A template repository for how I structure my scientific research
- A Guide to Reproducible Code in Ecology and Evolution
- Improving Your Statistical Inferences - 14 Computational Reproducibility
- An introduction to Docker for reproducible research. *ACM SIGOPS Operating Systems Review*, 49, 71–79.