MiCM GitHub Workshop Outline

Summary:

This workshop will cover the basic theory and skills needed to use Git and GitHub in projects. Students will learn what a version control system is and how they facilitate project management and efficiency. Students will also learn how to use git in local projects and how to use GitHub to collaborate on larger projects. The first module will focus on theory whereas the subsequent modules will have small theory segments followed by hands-on activities.

Modules:

Note: subsections followed by an asterisk include a hands-on activity.

1. **Intro to Git and version control systems**
   a. What is a VCS and why should we use them?
   b. What is Git?
   c. Git vs. GitHub
   d. Git Pipeline
   e. Review Questions
2. **Basic features of Git**
   a. Creating a new project *
   b. Adding, modifying, and removing files *
   c. Commits and good practices *
   d. Reverting Changes
   e. Review Questions
3. **More advanced features of Git**
   a. Branching *
   b. Merging *
   c. Rebasing and Conflicts *
   d. Review Questions
4. **Working with remote repositories through GitHub**
   a. Collaboration and Open Science
   b. Pushing commits to GitHub *
   c. Pulling commits from GitHub *
   d. Cloning and Forking repositories (time allowing) *
   e. Pull Requests (time allowing) *
   f. Review Questions
5. **Conclusions and next steps**
   a. What have we learned?
   b. GitHub Project ideas to hone skills

Extra: If time allows, will show students how to use git through the command line prior to the conclusion of the workshop