

# Version control with git

## Objective

- Understand the concept and motivation of version control
- Set up git on their machine (email address linked to their GH account; `--global` config)
- Understand that repos == folders == `.Rproj`.
- Initialize a git repo associated with an RStudio project called `pilot-analyses`.
- Understand the modify-add-commit progression. Apply this by making modifications to some R code and then committing it to the `pilot-analyses` repo (git commands: `status`, `log`, `diff`, `add`, `commit`)
- Use `.gitignore` to selectively exclude files from git.

## Lesson outline

- Review of last week
  - Ask folks to share the diagram of their file system
  - Warm-up with review question from the slide deck
- Slides/lecture: Intro to version control with git
  - What is version control?
  - Why should I learn this? When will I need it?
- Live coding: git config
  - SW Carpentry Git lesson 2 <https://swcarpentry.github.io/git-novice/02-setup>
  - Setting up git using git config
    - Make sure participants use their GH email/intended GH email
    - `git verb options`
    - `git config --global core.editor "vim"`
    - `git verb --help`
- Live coding: git init
  - SW Carpentry Git lesson 3 <https://swcarpentry.github.io/git-novice/03-create.html>
  - Introduce the concept of a repository
  - Go over 3 ways to init a git repo and when to use each
  - Break to all create a project + repo called `pilot-analyses`
- Live coding: git status
  - Use git status to check that git init worked
  - Talk about git status as a bridge to tracking changes.
- Live coding: Tracking changes
  - SW Carpentry Git lesson 4 <https://swcarpentry.github.io/git-novice/04-changes>
  - Visualize in slides
  - Create a blank R file (using RStudio point and click)
  - Make comments/pseudocode changes.

- git status
- Go through git add/commit cycle
- Repeat with additional changes, use git diff
- Repeat with multiple files
- Undo saved changes to a file using git restore
- Use git reset HEAD~ to undo the git add and git commit commands
- Live coding: .gitignore
  - SW Carpentry Git lesson 6 <https://swcarpentry.github.io/git-novice/06-ignore>
  - .gitignore:
    - DS\_Store
    - Create a file and then ignore it.
- (Time permitting): SW Carpentry Git lesson 5
  - <https://swcarpentry.github.io/git-novice/05-history>
  - Navigating git history
- Homework:
  - Create a GitHub account if you don't have one.
  - (Optional) identify an existing folder and turn it into a repository.

## Installation & materials

1. Slides
2. Software Carpentry Version Control with Git episode #2
3. Software Carpentry Version Control with Git episode #3
4. Software Carpentry Version Control with Git episode #4
5. Software Carpentry Version Control with Git episode #6
6. (optional) Software Carpentry Version Control with Git episode #5