Guidance at: https://pitherj.github.io/example_reproducible_workflow/index.html

Pre-Project Checklist

- create the following accounts:
  - GitHub (+ install Git on local computer)
  - ORCID
  - OSF
  - Zotero (+ install Zotero desktop app and Zotero connector in browser)
- install "R" and "RStudio"

A Project Setup

RStudio/GitHub

- create GitHub repository for project (optional: make private for now)
- create new RStudio project, enable version control (connect to GitHub repo)
- set up appropriate directory structure
- enable 'renv' option to facilitate package management
- initialize a _README.md file for project root directory (can be filled out later)

OSF

- create new OSF project (or component on existing project) for managing this project and for serving as a central "hub" for all project components (e.g. GitHub, google drive)
- bookmark project in your browser
- include all collaborators as contributors, order names appropriately, tailor their permissions
- provide useful keywords/tags to enhance discoverability
- edit the "metadata" entries appropriately
- include an informative project description on home Wiki page
- use another Wiki page to provide estimated project timelines
- this OSF project can be linked to pre-registration when it is submitted (see below)
-[optional] create component for administrative materials (restricted permissions)
-[optional] connect GitHub repo to your OSF project (using the "add-ons" feature)

Zotero

- create a Zotero library (or shared group library if collaborating)
  - store attachments (PDFs) on LOCAL or OneDrive (not on Zotero cloud)

Initiate Data Management Plan (https://assistant.portagenetwork.ca)

B Preregistration

I. Preparation

- lots of reading to formulate rough ideas / questions / hypotheses
- devise preliminary study / experimental design (see next step)

II. Analysis to inform preregistration [optional]

- create annotated RMarkdown script that walks through the process of generating simulated data for the purpose of working out the study design and analysis plan
- can use data from previous research to inform data generation
- prospective power analysis to inform study design
-finalize analysis plan, with example code for simulated data, can be linked in pre-registration (either through GitHub or via HTML or PDF file)

Complete Data Management Plan

III. Submission

- complete and submit OSF preregistration and optionally link to OSF project
  - optionally include knitted document showing power analysis etc...
- the preregistration can be kept private for a period (recommended if you wish to retain anonymity during review process); you can create an anonymized link to the preregistration for use during review process
-bookmark registration in your browser (it will have a DOI)

C Analysis / Writing

RStudio/GitHub

- Ideally use literate programming with R Markdown or Quarto for manuscript writing, otherwise see OSF section below
- ensure that only non-sensitive data and those with acceptable licenses get stored on GitHub
- any sensitive data only stored locally, backed up on private OSF component
- beware of storage limitations on GitHub and OSF
- regular versioning (push / pull) of coding work to GitHub
- keep the "renv" lock file up to date for package management
- [optional] RMarkdown + "trackdown" package for collaborative writing via google docs
  - using citation tools within RStudio (e.g. Zotero within visual editing mode)
  - versioning via push / pull to GitHub

OSF

- regular backup / versioning of binary files (e.g. Word docs) including manuscript (if not using literate programming)
- use Wiki pages to provide progress updates (referring to timeline Wiki)
- use other Wiki pages for any other relevant details
- use as a location for backup storage of data*
- [optional] keep all admin materials up to date

Zotero

- keep Zotero library up to date and clean regularly

- regularly check project reproducibility (can ask lab-mate to help)

* Follow best practices for sensitive data

D Project Dissemination

RStudio/GitHub

- knit the manuscript to PDF (journal may have markdown submission option)
- ensure it rendered correctly, including symbols, figures, formatting, citations, etc...
- create _DATA-DICTIONARY.md file for both raw data and outdata directories and ensure _README.md files in root and rawdata directories correct

OSF

- create new OSF private project that will eventually serve as the project archive
- add all relevant information as described in "Project Setup"
  - metadata, Wiki pages, etc.... (but don't put info in Wiki pages that could be used to identify authors)
- copy all directories and files (excluding any sensitive data) from local RStudio project folder (repo) into a SINGLE folder on the main OSF project storage (this makes it easier for someone to download materials)
- in settings, create a "view only" line, and select option to anonymize
  - this link is what you'll provide with manuscript submission to journal and preprint
- use different browser to double-check anonymity of OSF project

- double-check project reproducibility from OSF materials (can ask lab-mate to help)

Submission

- be sure to state that the study was pre-registered, and provide anonymized link
- explain any deviations from preregistered plans
- [optional] submit preprint to a preprint server like EcoEvoRxiv or OSF Preprints
  - note: this will preclude anonymity during review process
- submit manuscript to journal (preferably OPEN ACCESS, but if not, simply ensure the journal you submit to allows posting of a non-copy edited version)

Revisions

- complete revisions using versioning as usual
- update all project materials accordingly

Paper Accepted

(include the DOI for the OSF archive (step 5) in the final submission)

E Project Archiving

OSF

- make the OSF archive project public
- note it will create a permanent DOI for this archive
- choose appropriate copyright license
- ensure contributor (author) order on the archive is appropriate for the work done on the archived materials, e.g. scripts / data (not the manuscript itself)
- include clear statement illustrating how the archive should be cited
  - note: this archive should have its own unique citation (separate from paper)
- ensure all metadata are complete
- explain any sensitive data issues
- include link to published paper
- include link to GitHub repo
- ensure all components are view / read only
- maximize discoverability with useful tags
- can use home Wiki page as the landing page, and enrich the content (e.g. link to video abstract, photos, etc...)
- can use OSF analytics to track site visits and downloads
- can "link" this archive to the original OSF project
- optionally link the Zotero library to the archive
- provide a link to the public Zotero library associated with paper
- bookmark this archive in your browser

Borealis Dataverse [optional]

- additionally create a dataverse archive through your institution
- alternatively, rather than archiving the project materials, simply enter the metadata and then link to the OSF archive

F Cleanup

OSF

- remove any unnecessary files / components from your OSF project
- make sure all URL links are working
- in the home Wiki page of the hub project, put a clear statement of project status near the top (e.g. indicating the project has wrapped up, with date)
- sign out of OSF and double check that only those files / components that should be publicly visible are