

Intro to git & GitHub

Miistakis Institute Workshop

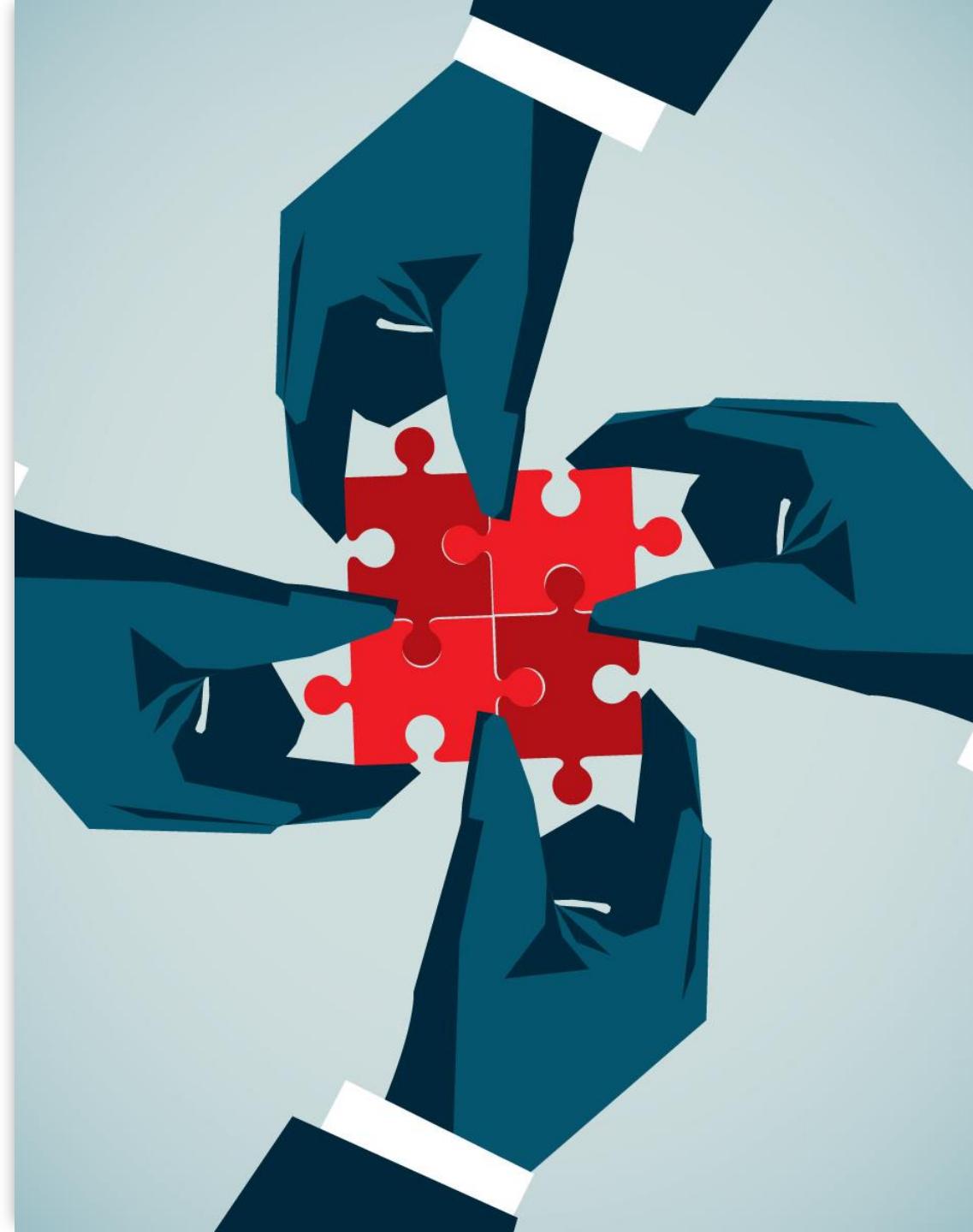
July 17, 2025

Sara Smith, MRU | ssmith6@mtroyal.ca

What is Git?



- A control system for coding project management
- Free & open source, widely distributed
- Uses: version control, code sharing, collaboration, development
- Connects remote services to desktop- and web-based interfaces



What is GitHub?



- A hosting company for software development & version control using git
- Web-based & free



What is GitHub?



Access control

Bug tracking

Feature requests

Project wiki pages

Issue forum

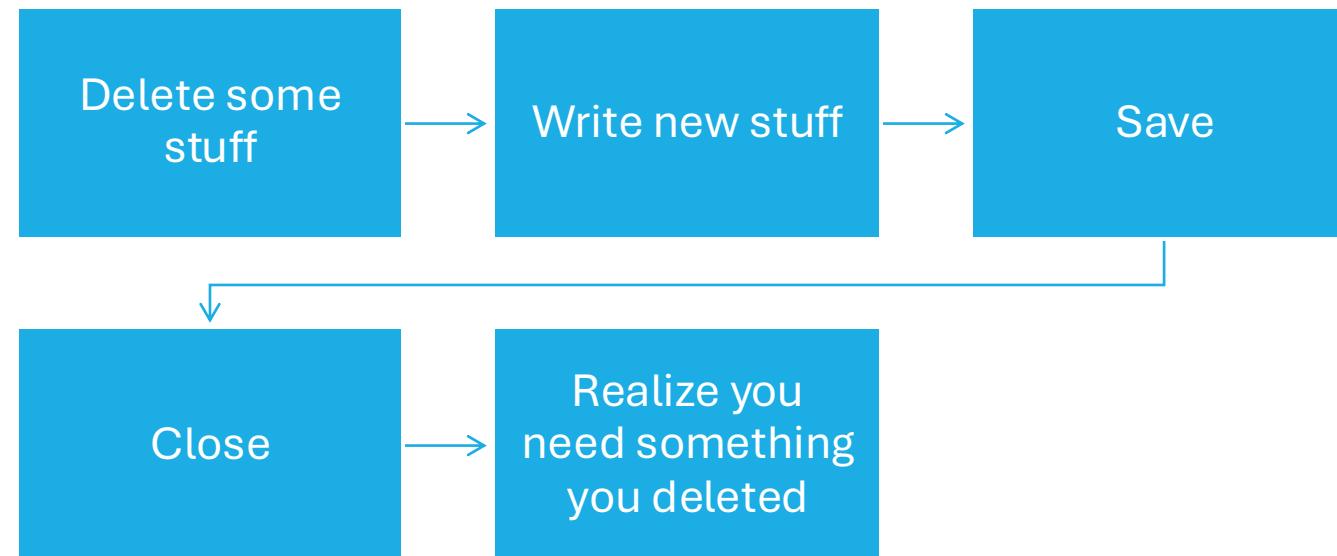
Version control



Version Control



- Many programs don't have version control e.g., Word:



- Imagine doing this with your code & losing a day/week/month of coding, analyses, data

Why do we use git & GitHub

- Track changes with a safety net through ‘commits’
- Share code between collaborators
- Get access to software
- Ask developers about issues directly



Sjswuitchik

Type / to search

Overview Repositories 14 Projects Packages Stars 3

Pinned

Customize your pins

duck_comp_gen Public

Comparative genomics of obligate brood parasite and closely related species in Anatidae

HTML ⭐ 8 📈 5

compPopGen_ms Public

Github repository for the manuscript associated with harvardinformatics/snpArcher

HTML ⭐ 4 📈 3

gasAcu_qtl_sdm Public

Scripts for the QTL analyses and mechanistic species distribution modelling from Smith et al. 2022 (Mol Ecol)

R 📈 1

harvardinformatics/snpArcher Public

Snakemake workflow for highly parallel variant calling designed for ease-of-use in non-model organisms.

Python ⭐ 80 📈 32

Sara J. Smith

sjswuitchik · she/her

Assistant Professor of Ecology & Evolutionary Biology at Mount Royal University

Edit profile

23 followers · 22 following

Mount Royal University

Moh-kíns-tsis/Calgary, AB

ssmith6@mtroyal.ca

<https://sarajaynesmith.weebly.com/>

@DrSaraSmith

in/sarajaynesmith

1,832 contributions in 2021

Contribution settings ▾

2025

2024

2023

2022

2021

2020

2019

Learn how we count contributions

Less More

Activity overview

Contributed to sjswuitchik/duck_comp_gen, sjswuitchik/compPopGen_ms, harvardinformatics/snpArcher and 5 other repositories

Code review

99% Commits

Issues

Achievements



sjswuitchik

Type / to search

[Overview](#) [Repositories 14](#) [Projects](#) [Packages](#) [Stars 3](#)**Sara J. Smith**

sjswuitchik · she/her

Assistant Professor of Ecology & Evolutionary Biology at Mount Royal University

[Edit profile](#)

23 followers · 22 following

- Mount Royal University
- Moh-kins-tsisi/Calgary, AB
- ssmith6@mtroyal.ca
- <https://sarajaynesmith.weebly.com/>
- @DrSaraSmith
- in/sarajaynesmith

[Achievements](#)

Type ▾

Language ▾

Sort ▾

New

[miistakis_workshop](#) Public

Repository for an introductory workshop to Compute Canada/Alliance with Miistikis Institute

Shell Updated 4 minutes ago

Star ▾

[ucr_stickles](#) Public

This repository contains the code and associated data access for a collaboration between University of California Riverside, University of Calgary, Bamfield Marine Sciences Centre, and Mount Royal ...

Shell Updated on May 26

Star ▾

[salmon_landslide_genomics](#) Private

Analyses and data associated with the British Columbia Salmon Restoration and Innovation Fund (BCSRIF) research on the impacts of natural earth surface processes on Fraser River salmon

R Updated on May 13

Star ▾

[duck_comp_gen](#) Public

Comparative genomics of obligate brood parasite and closely related species in Anatidae

HTML 8 5 Updated on Nov 7, 2023

Star ▾

[compPopGen_ms](#) Public

Github repository for the manuscript associated with [https://doi.org/10.1101/2023.09.01.553332](#)

Star ▾





Create a new repository Try the new experience

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Required fields are marked with an asterisk (*).

Owner *



sjswuitchik

Repository name *

Great repository names are short and memorable. Need inspiration? How about `bug-free-happiness` ?

Description (optional)

Public

Anyone on the internet can see this repository. You choose who can commit.

Private

You choose who can see and commit to this repository.

Initialize this repository with:

Add a README file

This is where you can write a long description for your project. [Learn more about READMEs](#).

Add .gitignore

.gitignore template: None

Choose which files not to track from a list of templates. [Learn more about ignoring files](#).

Choose a license

License: None

A license tells others what they can and can't do with your code. [Learn more about licenses](#).

You are creating a public repository in your personal account.

Create repository

git Vocabulary & Structure

Remote: the repository on GitHub

Local: anything you're doing on your laptop
in RStudio or on the Alliance HPC

Vocab (sub-commands) you'll use the most:

- Add
- status
- stage
- commit
- push
- pull



git Vocabulary: add

``\$git add``

- ``git add`` will inventory all of the changes you've made locally (on your computer) and get them ready to be added to your remote repository (on GitHub)

``\$git add -all ./``

```
(base) [sjsmith@cedar1 miistikis_workshop]$ ls  
data README.md resources scripts  
(base) [sjsmith@cedar1 miistikis_workshop]$ touch test.txt  
(base) [sjsmith@cedar1 miistikis_workshop]$ git add --all ./  
(base) [sjsmith@cedar1 miistikis_workshop]$
```

git Vocabulary: status

`` \$git status ``

- Shows everything that has been staged/prepared to be added/deleted/changed/moved in your repository

```
(base) [sjsmith@cedar1 miistakis_workshop]$ touch test.txt
(base) [sjsmith@cedar1 miistakis_workshop]$ git add --all ./
(base) [sjsmith@cedar1 miistakis_workshop]$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   test.txt

(base) [sjsmith@cedar1 miistakis_workshop]$ |
```

git Vocabulary: commit

``\$git commit``

- Making the actual changes to your local repository that you've staged with add
- Includes a descriptive message about what the changes are

```
(base) [sjsmith@cedar1 miistakis_workshop]$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:  test.txt

(base) [sjsmith@cedar1 miistakis_workshop]$ git commit -m 'create new file called test.txt'
[main 77490c7] create new file called test.txt
  1 file changed, 0 insertions(+), 0 deletions(-)
  create mode 100644 test.txt
(base) [sjsmith@cedar1 miistakis_workshop]$ |
```

git Vocabulary: push, pull

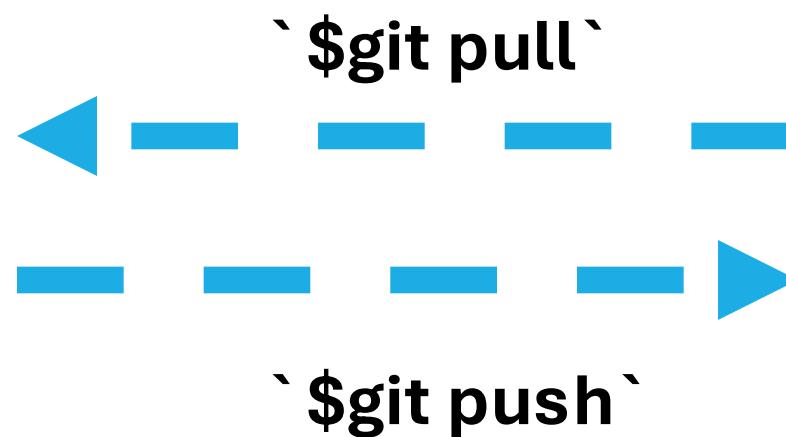
- `\\$git push`
- `\\$git pull`

- Push will take all of the committed changes in your local repository & *push* them to the remote repository (on GitHub)
- Pull will access your remote repository (on GitHub) & *pull* any changes you made on the website to your local repository
- Requires username and password entry with every push – can configure this so you don't have to do this if you want to

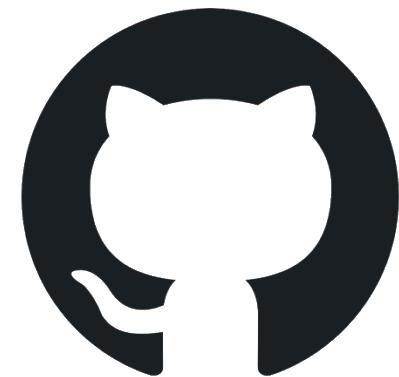
`\$git push`

```
(base) [sjsmith@cedar1 miistakis_workshop]$ git commit -m 'create new file called test.txt'
[main 77490c7] create new file called test.txt
 1 file changed, 0 insertions(+), 0 deletions(-)
   create mode 100644 test.txt
(base) [sjsmith@cedar1 miistakis_workshop]$ git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 64 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 279 bytes | 10.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/sjswuitchik/miistakis_workshop.git
 79a75ff..77490c7  main -> main
(base) [sjsmith@cedar1 miistakis_workshop]$
```

Local repository



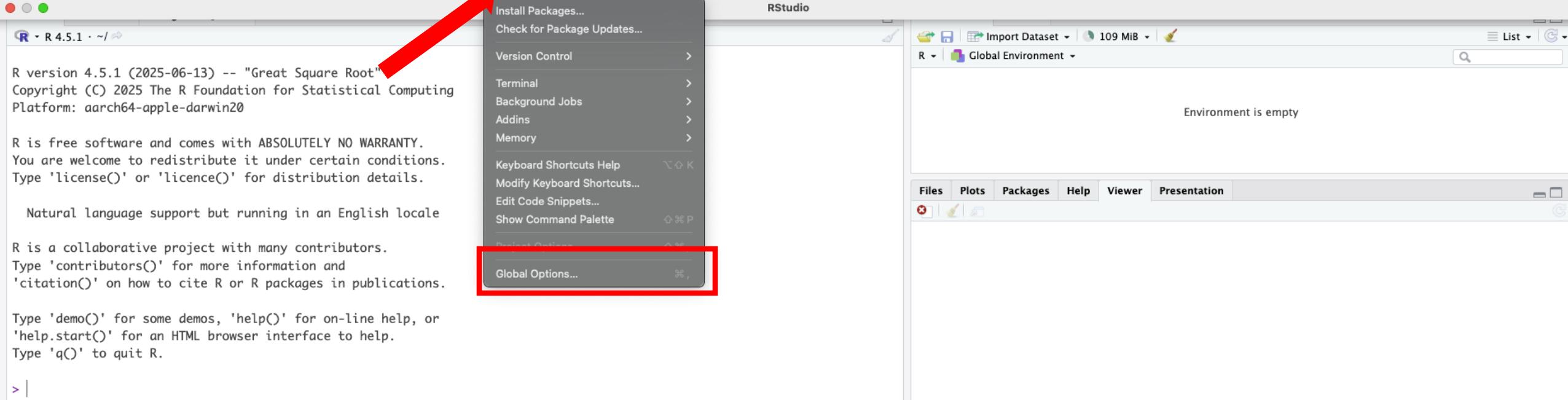
Remote repository



GitHub



 git
&
 Studio[®]



The screenshot shows the 'Version Control' section of the RStudio Options dialog. On the left is a sidebar with icons for various settings: General, Code, Console, Appearance, Pane Layout, Packages, R Markdown, Python, Sweave, Spelling, Git/SVN (which is selected and highlighted in blue), Publishing, Terminal, Accessibility, and Copilot. The main area has a title 'Version Control' with two checkboxes: 'Enable version control interface for RStudio projects' (checked) and 'Sign git commits' (unchecked). Below these are three input fields: 'Git executable' containing '/usr/bin/git' with a 'Browse...' button; 'SVN executable' containing '(Not Found)' with a 'Browse...' button; and 'SSH key' containing '(None)' with a 'Create SSH Key...' button. At the bottom is a link 'Using Version Control with RStudio'. At the very bottom are 'OK', 'Cancel', and 'Apply' buttons.

If Git executable shows (None)

On Mac, likely in:

/usr/bin/git

/usr/local/bin/git

/use/local/git/bin/git

On Windows, likely in:

Program Files > git.exe

Click Apply > OK

Console Terminal × Background Jobs ×

R 4.5.1 · ~/

R version 4.5.1 (2025-06-13) -- "Great Square Root"
Copyright (C) 2025 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> |

Environment Tutorial

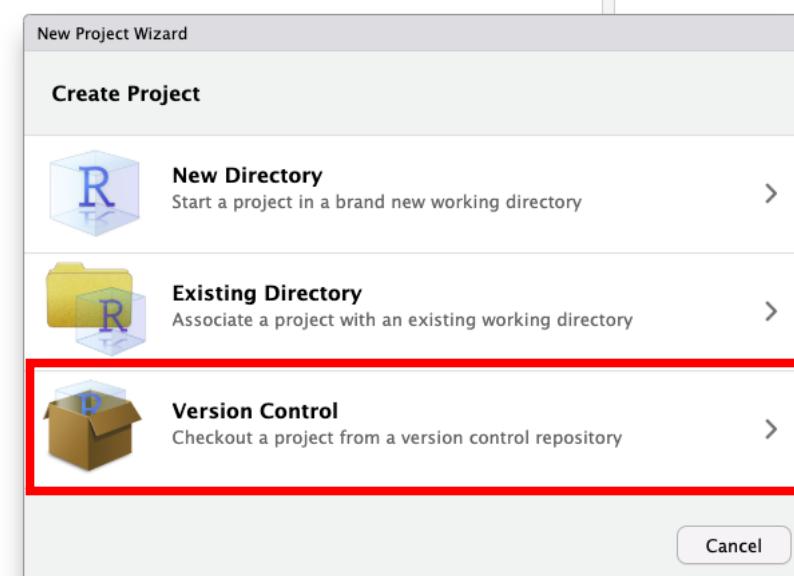
Import Dataset 109 MB

R Global Environment

Environment is empty

Files Plots Packages Help Viewer Presentation

Cancel



Go to file/function Addins Project: (None)

Console Terminal Background Jobs

R 4.5.1 ~/

R version 4.5.1 (2025-06-13) -- "Great Square Root"
Copyright (C) 2025 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

>

New Project Wizard

Create Project from Version Control

Back Git Clone a project from a Git repository >

SVN Subversion Checkout a project from a Subversion repository >

Cancel

Environment Tutorial Import Dataset 109 MiB Global Environment

Environment is empty

Files Plots Packages Help Viewer Presentation

Console Terminal × Background Jobs ×

R 4.5.1 ~/

R version 4.5.1 (2025-06-13) -- "Great Square Root"
Copyright (C) 2025 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

>

Environment Tutorial

Import Dataset 109 MiB

R Global Environment

Environment is empty

Files Plots Packages Help Viewer Presentation



New Project Wizard

Clone Git Repository

Back

Repository URL:

Project directory name:

Create project as subdirectory of: ~/Desktop/UCalgary_PhD/Main_publication/Subm

Open in new session

sjswuitchik / miistakis_workshop

Type ⌘ to search

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

miistakis_workshop Public

main 1 Branch 0 Tags

Go to file Add file Code

Local Codespaces

Clone

HTTPS SSH GitHub CLI

https://github.com/sjswuitchik/miistakis_w Clone using the web URL.

Add files via upload Removed placeholder Create example_w Update README.n

data resources scripts README.md

README

Workshop for Miistakis

Repository for i) an introductory workshop to Compute Canada/Alliance, and ii) an introductory workshop to git & GitHub with Miistakis Institute

Date: June 6, 2025 (Alliance) & July 25, 2025 (git & GitHub)

Facilitator: Dr. Sara J. Smith (Assistant Professor, Mount Royal University, ssmith6@mtroyal.ca)

What you'll find in this repository:

- `data` : contains `sample1.txt`, `sample2.txt`, `sample3.txt`, and `minData.csv` for script demonstrations
- `resources` : slides from workshop
- `scripts`
 - `01_wordcount.sh` : a basic bash script to count lines in `.txt` files
 - `02_slurm_test.sh` : a SLURM job script that schedules and runs the `wordcount.sh` script
 - `03_pkgInstall.R` : an R script containing the command to install `tidyverse` non-interactively

About

Repository for an introductory workshop to Compute Canada/Alliance with Miistakis Institute

Readme Activity 0 stars watching 0 forks

Releases

No releases published [Create a new release](#)

Packages

No packages published [Publish your first package](#)

Languages

Shell 96.6% R 3.4%

A screenshot of a GitHub repository page for 'miistakis_workshop'. The 'Code' dropdown menu is open, showing options like 'Local', 'Codespaces', 'Clone', 'HTTPS', 'SSH', and 'GitHub CLI'. The 'Clone' option is highlighted with a red box and an arrow points to the 'https://github.com/sjswuitchik/miistakis_w' link. The 'About' section on the right describes the repository as an introductory workshop for Compute Canada/Alliance with Miistakis Institute. It includes links for 'Readme', 'Activity', '0 stars', 'watching', '0 forks', 'Releases', 'Packages', and 'Languages'.

Go to file/function Addins

Console Terminal × Background Jobs × R 4.5.1 ~/

R version 4.5.1 (2025-06-13) -- "Great Square Root"
Copyright (C) 2025 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

>

Environment Tutorial Import Dataset 107 MiB Global Environment

Environment is empty

Files Plots Packages Help Viewer Presentation

New Project Wizard

Clone Git Repository

Back Repository URL: https://github.com/sjswuitchik/miistakis_workshop

Project directory name: miistakis_workshop

Create project as subdirectory of: ~/Desktop/MRU_Faculty/Conferences_Seminars/2 Browse...

Open in new session Create Project Cancel

The screenshot displays the RStudio interface integrated with GitHub, illustrating a workflow for managing R code and its associated files.

Top Left (RStudio Editor):

- Title Bar:** Shows the file name `06_githubDemo.Rmd`.
- Toolbar:** Includes icons for Knit on Save, ABC, Knit, Publish, Run, and Outline.
- Source View:** Displays the R Markdown code, including a line from the user: "This is my first line in the test Rmd. I'm writing this line of code from my laptop in RStudio."

Top Right (GitHub Environment):

- Environment Tab:** Shows the current repository: `miistikis_workshop — GitHub`.
- Git Tab:** Shows the commit history with options for Diff, Commit, Pull, Push, History, and More.
- Status:** Shows the staged and untracked files in the repository, including `.gitignore`, `miistikis_workshop.Rproj`, and `scripts/06_githubDemo.Rmd`.

Bottom Left (Console and Terminal):

- Console:** Shows the R environment details: R version 4.5.1 (2025-06-13) -- "Great Square Root".
- Terminal:** Shows the command: `R 4.5.1 · ~/Desktop/MRU_Faculty/Conferences_Seminars/2025/Miistikis_workshops2025/GitHub/miistikis_workshop/`.
- Output:** Displays the standard R startup messages, including the license information and natural language support.

Bottom Right (File Browser):

- File Browser:** Shows the directory structure under the path `p > MRU_Faculty > Conferences_Seminars > 2025 > Miistikis_workshops2025 > GitHub > miistikis_workshop > scripts`.
- Content:** Lists the files in the `scripts` folder, including `01_wordcount.sh`, `02_slurm_test.sh`, `03_pkg_install.R`, `04_addCol.R`, `05_run_r_test.sh`, `06_githubDemo.Rmd`, `example_config`, and `example_workflow.sh`.

Go to file/function Addins Environment Git Tutorial

06_githubDemo.Rmd x Knit on Save ABC Knit Outline Staged Status Path

1 ---
2 title: "Miistakis Workshop - GitHub"
3 author: "Dr. Sara J. Smith"
4 date: "`r Sys.Date()`"
5 output: html_document
6 ---
7
8 ``{r setup, include=FALSE}
9 knitr::opts_chunk\$set(echo = TRUE)
10 ---
11
12
13 This is my first line in the test Rmd. I'm writing this line of code from my laptop in RStudio.

13:97 (Top Level) R Markdown

Console Terminal Background Jobs R 4.5.1 · ~/Desktop/MRU_Faculty/Conferences_Seminars/2025/Miistakis_workshops2025/GitHub/miistakis_workshop/

R version 4.5.1 (2025-06-13) -- "Great Square Root"
Copyright (C) 2025 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

Diff Commit Pull Push History More New Branch main C miistakis_workshop — GitHub

Stage your changes by clicking the check boxes

Then click the Commit button

Files Plots Packages Help Viewer Presentation

New Folder New File Delete Rename More

p > MRU_Faculty > Conferences_Seminars > 2025 > Miistakis_workshops2025 > GitHub > miistakis_workshop > scripts R ...

	Name	Size	Modified
<input type="checkbox"/>	..		
<input type="checkbox"/>	01_wordcount.sh	127 B	Jul 16, 2025, 4:19 PM
<input type="checkbox"/>	02_slurm_test.sh	265 B	Jul 16, 2025, 4:19 PM
<input type="checkbox"/>	03_pkg_install.R	68 B	Jul 16, 2025, 4:19 PM
<input type="checkbox"/>	04_addCol.R	146 B	Jul 16, 2025, 4:19 PM
<input type="checkbox"/>	05_run_r_test.sh	213 B	Jul 16, 2025, 4:19 PM
<input type="checkbox"/>	06_githubDemo.Rmd	284 B	Jul 16, 2025, 4:21 PM
<input type="checkbox"/>	example_config	1.8 KB	Jul 16, 2025, 4:19 PM
<input type="checkbox"/>	example_workflow.sh	3.5 KB	Jul 16, 2025, 4:19 PM

Go to file/function Addins

06_githubDemo.Rmd x

Knit on Save ABC Knit

Source Visual

```
1 ---  
2 title: "Miistikis Workshop - GitHub"  
3 author: "Dr. Sara J. Smith"  
4 date: "`r Sys.Date()`"  
5 output: html_document  
6 ---  
7  
8 ```{r setup, include=FALSE}  
9 knitr::opts_chunk$set(echo = TRUE)  
10 ---  
11  
12  
13 This is my first line in the test Rmd. I'm writing this line of code from my laptop in RStudio.  
No newline at end of file
```

13:97 (Top Level) ▾

Console Terminal Background Jobs

R 4.5.1 · ~/Desktop/MRU_Faculty/Conferences_Seminars/2025/Miistikis_workshops2025

```
R version 4.5.1 (2025-06-13) -- "Great Square Root"  
Copyright (C) 2025 The R Foundation for Statistical Computing  
Platform: aarch64-apple-darwin20  
  
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.  
  
Natural language support but running in an English locale.  
  
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

RStudio: Review Changes

Changes History main Stage Revert Ignore Pull Push

Staged Status Path
.gitignore
miistikis_workshop.Rproj
scripts/06_githubDemo.Rmd

Commit message 74 characters
Created a new Rmd and wrote a line of prose on my local machine in RStudio

Amend previous commit Commit

Show Staged Unstaged Context 5 lines Ignore Whitespace Unstage All

@@ -0,0 +1,13 @@

Unstage chunk

Unstaged changes

```
1 ---  
2 title: "Miistikis Workshop - GitHub"  
3 author: "Dr. Sara J. Smith"  
4 date: "`r Sys.Date()`"  
5 output: html_document  
6 ---  
7  
8 ```{r setup, include=FALSE}  
9 knitr::opts_chunk$set(echo = TRUE)  
10 ---  
11  
12  
13 This is my first line in the test Rmd. I'm writing this line of code from my laptop in RStudio.  
No newline at end of file
```

Unstaged changes

Unstage chunk

File History More

miistikis_workshops2025 > GitHub > miistikis_workshop > scripts

	Size	Modified
	127 B	Jul 16, 2025, 4:19 PM
	265 B	Jul 16, 2025, 4:19 PM
	68 B	Jul 16, 2025, 4:19 PM
	146 B	Jul 16, 2025, 4:19 PM
	213 B	Jul 16, 2025, 4:19 PM
	284 B	Jul 16, 2025, 4:21 PM
	1.8 KB	Jul 16, 2025, 4:19 PM
	3.5 KB	Jul 16, 2025, 4:19 PM

Go to file/function Addins

06_githubDemo.Rmd x Knit on Save ABC Knit Addins

Source Visual

```
1 -  
2 title: "Miistakis Workshop - GitHub"  
3 author: "Dr. Sara J. Smith"  
4 date: "`r Sys.Date()`"  
5 output: html_document  
6 --  
7  
8 ```{r setup, include=FALSE}  
9 knitr::opts_chunk$set(echo = TRUE)  
10 --  
11  
12  
13 This is my first line in the test Rmd. I'm writing this line to see if it shows up in the commit history.
```

13:97 (Top Level) ▾

Console Terminal Background Jobs

R 4.5.1 · ~/Desktop/MRU_Faculty/Conferences_Seminars/2025/Miistakis_workshops2025/GitHub/miistakis_workshop/scripts

```
R version 4.5.1 (2025-06-13) -- "Great Square Root"  
Copyright (C) 2025 The R Foundation for Statistical Computing  
Platform: aarch64-apple-darwin20  
  
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.  
  
Natural language support but running in an English locale.  
  
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

RStudio: Review Changes

Git Commit

>>> /usr/bin/git commit -F /var/folders/_j/0wysl28d7r19vlnpvzwh7yr0000gq/T/main f934ff3] Created a new Rmd and wrote a line of prose on my local machine
3 files changed, 30 insertions(+)
create mode 100644 .gitignore
create mode 100644 miistakis_workshop.Rproj
create mode 100644 scripts/06_githubDemo.Rmd

Pull Push Close

Show Staged Unstaged

Commit

Commit pending changes (^⌘M)

miistakis_workshops2025 > GitHub > miistakis_workshop > scripts

	Size	Modified
06_githubDemo.Rmd	127 B	Jul 16, 2025, 4:19 PM
.gitignore	265 B	Jul 16, 2025, 4:19 PM
miistakis_workshop.Rproj	68 B	Jul 16, 2025, 4:19 PM
scripts	146 B	Jul 16, 2025, 4:19 PM
scripts/06_githubDemo.Rmd	213 B	Jul 16, 2025, 4:19 PM
scripts/.gitignore	284 B	Jul 16, 2025, 4:21 PM
scripts/.Rproj	1.8 KB	Jul 16, 2025, 4:19 PM
scripts/Rproj.user	3.5 KB	Jul 16, 2025, 4:19 PM

The screenshot shows the RStudio interface with the following components:

- Code Editor (Top Left):** An R Markdown file titled "06_githubDemo.Rmd". The code includes a title block and a note from line 13.
- Git Tab (Top Right):** Shows a red box around the "Staged" tab, indicating changes ahead of the origin/main branch by one commit.
- File Explorer (Bottom Right):** A file browser showing a directory structure under "scripts".
- Console (Bottom Left):** Displays the R startup message, license information, and a note about natural language support.

Text Content from R Markdown:

```
1 ---  
2 title: "Miistakis Workshop - GitHub"  
3 author: "Dr. Sara J. Smith"  
4 date: "`r Sys.Date()`"  
5 output: html_document  
6 ---  
7  
8 ```{r setup, include=FALSE}  
9 knitr::opts_chunk$set(echo = TRUE)  
10 ```  
11  
12  
13 This is my first line in the test Rmd. I'm writing this line of code from my laptop in RStudio.
```

Text Content from Console:

```
R version 4.5.1 (2025-06-13) -- "Great Square Root"  
Copyright (C) 2025 The R Foundation for Statistical Computing  
Platform: aarch64-apple-darwin20  
  
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.  
  
Natural language support but running in an English locale  
  
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

The screenshot shows the RStudio interface with several panes:

- Code Editor (Source View):** Displays an R Markdown file with code and a comment. A red arrow points from the status bar at the bottom of the editor area towards the top right corner of the RStudio window.
- Git Status:** Shows a message: "Your branch is ahead of 'origin/main' by 1 commit." This message is highlighted with a red arrow pointing upwards from the bottom of the Git pane.
- File Explorer:** Shows a directory structure under "scripts".
- Console:** Displays the R startup message and license information.

```
1  ---  
2  title: "Miistakis Workshop - GitHub"  
3  author: "Dr. Sara J. Smith"  
4  date: "`r Sys.Date()`"  
5  output: html_document  
6  ---  
7  
8  ```{r setup, include=FALSE}  
9  knitr::opts_chunk$set(echo = TRUE)  
10 ````  
11  
12  
13 This is my first line in the test Rmd. I'm writing this line of code from my laptop in RStudio.
```

13:97 (Top Level) R Markdown

Console Terminal Background Jobs

R 4.5.1 · ~/Desktop/MRU_Faculty/Conferences_Seminars/2025/Miistakis_workshops2025/GitHub/miistakis_workshop/

```
R version 4.5.1 (2025-06-13) -- "Great Square Root"  
Copyright (C) 2025 The R Foundation for Statistical Computing  
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

Environment Git Tutorial

Diff Commit Pull Push History More

New Branch main

Your branch is ahead of 'origin/main' by 1 commit.

Staged Status Path

Files Plots Packages Help Viewer Presentation

New Folder New File Delete Rename More

p > MRU_Faculty > Conferences_Seminars > 2025 > Miistakis_workshops2025 > GitHub > miistakis_workshop > scripts

	Name	Size	Modified
	..		
	01_wordcount.sh	127 B	Jul 16, 2025, 4:19 PM
	02_slurm_test.sh	265 B	Jul 16, 2025, 4:19 PM
	03_pkg_install.R	68 B	Jul 16, 2025, 4:19 PM
	04_addCol.R	146 B	Jul 16, 2025, 4:19 PM
	05_run_r_test.sh	213 B	Jul 16, 2025, 4:19 PM
	06_githubDemo.Rmd	284 B	Jul 16, 2025, 4:21 PM
	example_config	1.8 KB	Jul 16, 2025, 4:19 PM
	example_workflow.sh	3.5 KB	Jul 16, 2025, 4:19 PM

After committing ...

A box will pop up asking for:

- Username (e.g., I would type sjswuitchik)
- Password – except it doesn't want your GitHub account password!
It wants your personal access token instead
 - This is a change from 2021 and lots of GUIs (like RStudio) haven't fixed their entry boxes yet
 - Paste your access token here

github.com/sjswuitchik/miistakis_workshop/blob/main/scripts/06_githubDemo.Rmd

Comp Biol Res Salmon GDrive GMail GCalendar MRU D2L Home | MyMRU.ca MRU Crit Dates Academic Calenda... GitHub Anaconda Managing conda e... R for Data Science IGI graphics

sjswuitchik / miistakis_workshop

Type to search

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Files

main + Q Go to file t

data resources scripts 01_wordcount.sh 02_slurm_test.sh 03_pkg_install.R 04_addCol.R 05_run_r_test.sh 06.githubDemo.Rmd example_config example_workflow.sh .gitignore README.md miistakis_workshop.Rproj test.txt

miistakis_workshop / scripts / 06.githubDemo.Rmd

sjswuitchik Created a new Rmd and wrote a line of prose on my local machine in RS... f934ff3 · 8 minutes ago History

Code Blame 13 lines (10 loc) · 284 Bytes Code 55% faster with GitHub Copilot

1 ---
2 title: "Miistakis Workshop - GitHub"
3 author: "Dr. Sara J. Smith"
4 date: ``r Sys.Date()``
5 output: html_document
6 ---
7
8 ```{r setup, include=FALSE}
9 knitr::opts_chunk\$set(echo = TRUE)
10 ...
11
12
13 This is my first line in the test Rmd. I'm writing this line of code from my laptop in RStudio.

Raw



The screenshot shows the RStudio interface with GitHub integration. The top navigation bar includes tabs for Environment, Git, and Tutorial. The Git tab is highlighted, and a red arrow points upwards from the GitHub icon in the top bar towards it. The main workspace displays an R Markdown file named "06_githubDemo.Rmd". The code includes setup instructions and a comment about writing from a laptop. The bottom-left pane shows the R console output, which is the standard R startup message. The bottom-right pane is a file browser titled "Files" showing a directory structure under "scripts".

Environment Git Tutorial

Diff Commit Pull Push History More

New Branch main

Staged Status Path

Source Visual

1 ---
2 title: "Miistakis Workshop - GitHub"
3 author: "Dr. Sara J. Smith"
4 date: "`r Sys.Date()`"
5 output: html_document
6 ---
7
8 ```{r setup, include=FALSE}
9 knitr::opts_chunk\$set(echo = TRUE)
10 ```
11
12
13 This is my first line in the test Rmd. I'm writing this line of code from my laptop in RStudio. |

13:97 (Top Level) R Markdown

Console Terminal Background Jobs

R 4.5.1 · ~/Desktop/MRU_Faculty/Conferences_Seminars/2025/Miistakis_workshops2025/GitHub/miistakis_workshop/

R version 4.5.1 (2025-06-13) -- "Great Square Root"
Copyright (C) 2025 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

Files Plots Packages Help Viewer Presentation

New Folder New File Delete Rename More

p > MRU_Faculty > Conferences_Seminars > 2025 > Miistakis_workshops2025 > GitHub > miistakis_workshop > scripts

	Name	Size	Modified
..			
	01_wordcount.sh	127 B	Jul 16, 2025, 4:19 PM
	02_slurm_test.sh	265 B	Jul 16, 2025, 4:19 PM
	03_pkg_install.R	68 B	Jul 16, 2025, 4:19 PM
	04_addCol.R	146 B	Jul 16, 2025, 4:19 PM
	05_run_r_test.sh	213 B	Jul 16, 2025, 4:19 PM
	06_githubDemo.Rmd	284 B	Jul 16, 2025, 4:21 PM
	example_config	1.8 KB	Jul 16, 2025, 4:19 PM
	example_workflow.sh	3.5 KB	Jul 16, 2025, 4:19 PM

The screenshot shows the RStudio interface with several windows open:

- Top Left:** An R Markdown editor window titled "06_githubDemo.Rmd". It contains R code for setting up a GitHub document and a note about writing from a laptop.
- Middle Left:** A "Git Pull" dialog box showing the output of a git pull command from the repository "https://github.com/sjswuitchik/miistakis_workshop".
- Bottom Left:** An R console window showing the R environment details and the start of the R help system.
- Right Side:** A file browser window showing the directory structure under "MRU_Faculty/Conferences_Seminars/2025/Miistakis_workshops2025/GitHub/miistakis_workshop/scripts".

Git Pull Dialog Content:

```
>>> /usr/bin/git pull
From https://github.com/sjswuitchik/miistakis_workshop
  f934ff3..9d63f38  main      -> origin/main
Updating f934ff3..9d63f38
Fast-forward
  scripts/06_githubDemo.Rmd | 5 +----
  1 file changed, 4 insertions(+), 1 deletion(-)
```

R Markdown Editor Content:

```
1 ---  
2 title: "Miistakis Workshop - GitHub"  
3 author: "Dr. Sara J. Smith"  
4 date: "`r Sys.Date()`"  
5 output: html_document  
6 ---  
7  
8 ``{r setup, include=FALSE}  
9 knitr::opts_chunk$set(echo = TRUE)  
10 ````  
11  
12  
13 This is my first line in the test Rmd. I'm writing this line from my laptop in RStudio.  
14  
15 This is the second line of my test Rmd. I'm writing this line from the GitHub browser.  
16 I also deleted 'of code' from line 13.  
17
```

R Console Output:

```
13:89 (Top Level)   
Console Terminal Background Jobs   
R 4.5.1 · ~/Desktop/MRU_Faculty/Conferences_Seminars/2025/Miistakis_workshops2025/GitHub/miistakis_workshop/  
R version 4.5.1 (2025-06-13) -- "Great Square Root"  
Copyright (C) 2025 The R Foundation for Statistical Computing  
Platform: aarch64-apple-darwin20  
  
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.  
  
Natural language support but running in an English locale  
  
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

File Browser Content:

Name	Size	Modified
..		
01_wordcount.sh	127 B	Jul 16, 2025, 4:19 PM
02_slurm_test.sh	265 B	Jul 16, 2025, 4:19 PM
03_pkg_install.R	68 B	Jul 16, 2025, 4:19 PM
04_addCol.R	146 B	Jul 16, 2025, 4:19 PM
05_run_r_test.sh	213 B	Jul 16, 2025, 4:19 PM
06_githubDemo.Rmd	406 B	Jul 16, 2025, 4:37 PM
example_config	1.8 KB	Jul 16, 2025, 4:19 PM
example_workflow.sh	3.5 KB	Jul 16, 2025, 4:19 PM



git

&

Digital Research
Alliance of Canada



git & Compute Canada

Our changes are on GitHub and are in RStudio, so why aren't they on the cluster?

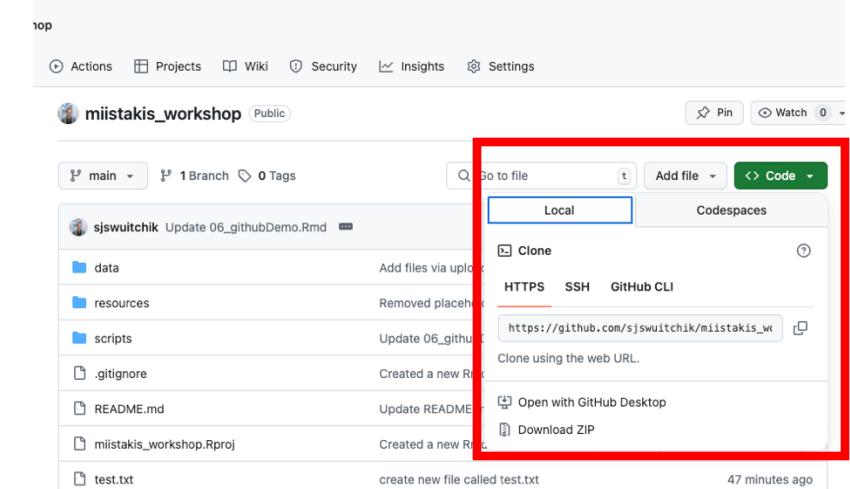
```
(base) [sjsmith@cedar1 miistakis_workshop]$ ls
data README.md resources scripts test.txt
(base) [sjsmith@cedar1 miistakis_workshop]$ cd scripts/
(base) [sjsmith@cedar1 scripts]$ ls
01_wordcount.sh 02_slurm_test.sh 03_pkg_install.R 04_addCol.R 05_run_r_test.sh example_config example_workflow.sh
(base) [sjsmith@cedar1 scripts]$ |
```

We need to *pull* our changes from GitHub to the cluster

```
(base) [sjsmith@cedar1 scripts]$ ls
01_wordcount.sh  02_slurm_test.sh  03_pkg_install.R  04_addCol.R  05_run_r_test.sh  example_config  example_workflow.sh
(base) [sjsmith@cedar1 scripts]$ git pull
remote: Enumerating objects: 12, done.
remote: Counting objects: 100% (12/12), done.
remote: Compressing objects: 100% (8/8), done.
remote: Total 10 (delta 4), reused 4 (delta 1), pack-reused 0 (from 0)
Unpacking objects: 100% (10/10), 1.97 KiB | 12.00 KiB/s, done.
From https://github.com/sjswuitchik/miistakis_workshop
  77490c7..9d63f38  main      -> origin/main
Updating 77490c7..9d63f38
Fast-forward
 .gitignore          |  4 +++
 miistikis_workshop.Rproj | 13 ++++++
 scripts/06_githubDemo.Rmd | 16 ++++++
3 files changed, 33 insertions(+)
create mode 100644 .gitignore
create mode 100644 miistikis_workshop.Rproj
create mode 100644 scripts/06_githubDemo.Rmd
(base) [sjsmith@cedar1 scripts]$ |
```

Some tips

- Before making any changes in your local (cluster or RStudio) repository, start with `git pull` or clicking the Pull button with the blue down arrow in RStudio
- If you want to use a program hosted on GitHub, you can get it onto the cluster with:
`\$git clone <URL from the GitHub Code button>`



Some tips

- Your code does not need to be in its final/polished version before you post it
- Stay organized – initiate a new repository with a README.md file, add comments to your code explaining steps, number directories and scripts in order of use
- ‘Forking’ your repository branches can be a great way to code collaboratively

Other Resources

<https://guides.github.com/>

<https://happygitwithr.com/>