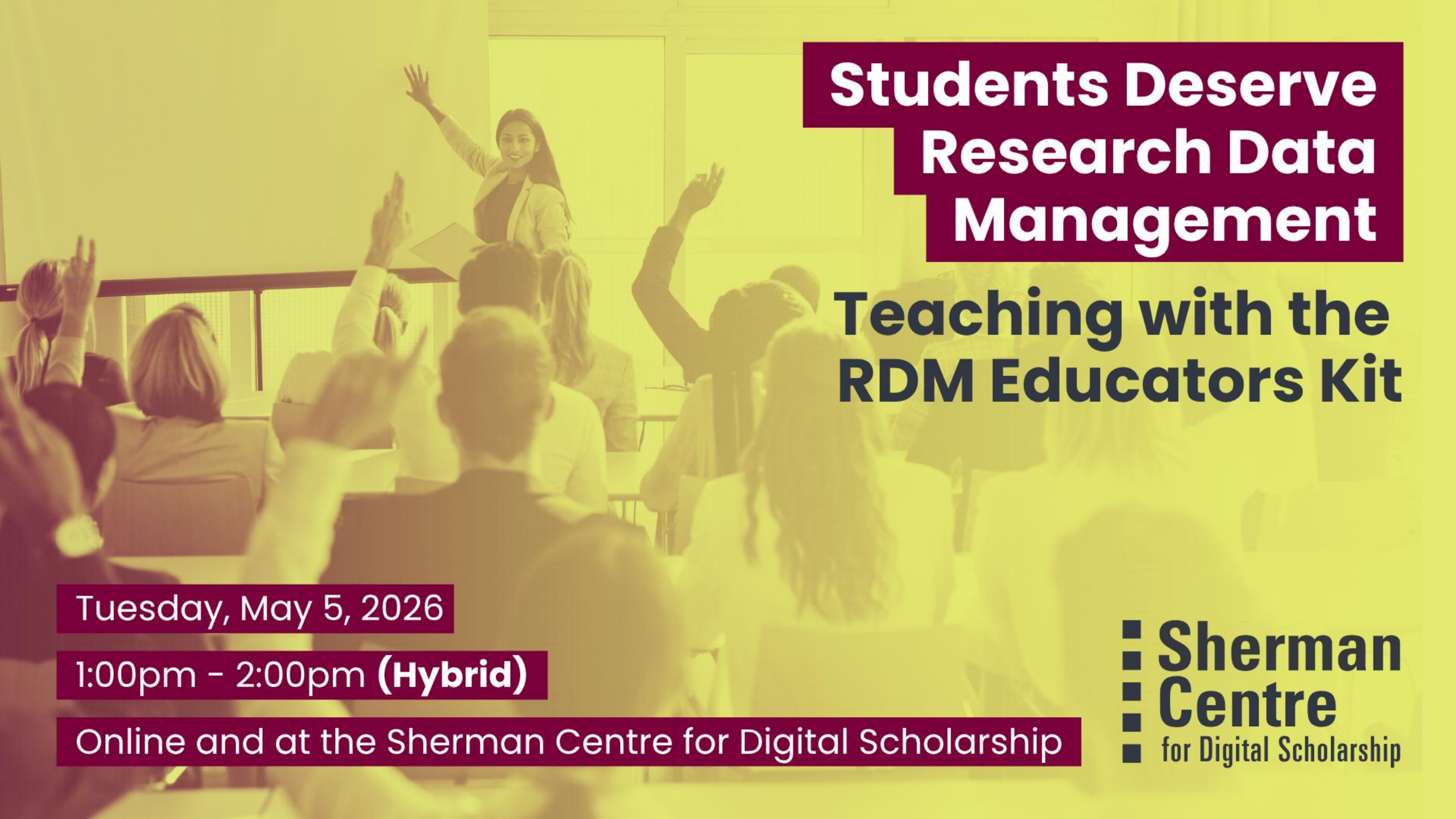


Students Deserve Research Data Management

Teaching with the RDM Educators Kit

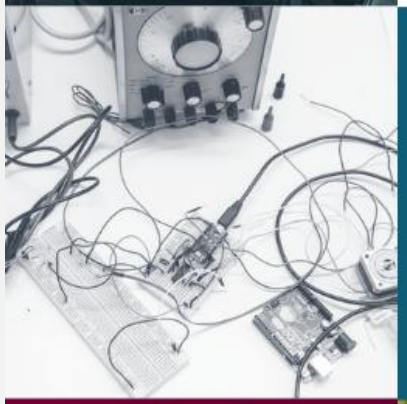
Tuesday, May 5, 2026

1:00pm - 2:00pm **(Hybrid)**

Online and at the Sherman Centre for Digital Scholarship

Sherman Centre for Digital Scholarship

Sherman Centre for Digital Scholarship



Students deserve Research Data Management!

Teaching with the RDM Educators Kit

Danica Evering, MA and Isaac Pratt, PhD, Research Data Management Specialists

2026-05-05

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Land Acknowledgement

McMaster University is located on the traditional territories of the Mississauga and Haudenosaunee Nations. Settlers have responsibilities under the Silver Covenant Chain Wampum, part of the 1764 Treaty of Niagara.

Georgia Kirkos, “Spring flowers behind University Hall,” May 3, 2024, McMaster University, Hamilton, Ontario, Canada https://mcmaster.assetbank.app/assetbank-mcmaster/action/viewAsset?id=76751&index=1&total=1000&view=viewSearchItem

Code of Conduct, Session Recording, & Privacy

Code of Conduct: The Sherman Centre and the McMaster University Library are committed to fostering a supportive and inclusive environment for its presenters and participants. Please refer to our code of conduct webpage for more information: scds.ca/events/code-of-conduct

Session Recording: This session is being recorded with the intention of being shared publicly via the web for future audiences. In respect of your privacy, participant lists will not be shared outside of this session, nor will question or chat transcripts. Questions asked via the chat box will be read by the facilitator without identifying you. Note that you may be identifiable when asking a question during the session in an audio or visual format.

Certificate Programs

The Sherman Centre for Digital Scholarship Certificate of Attendance

The Sherman Centre's certificate program recognizes attendance at our workshops. It complements degree training, supports the development of critical competencies in data analysis, research data management, and digital scholarship, and formalizes core skills fostered by our workshops.

Participants are invited to collect **seven** workshop points to receive a certificate of attendance. To verify your participation in today's workshop, we will provide a code and additional instructions at the end of the session.

You can learn more about the certificate program at **scds.ca/certificate-program**

The Canadian Certificate for Digital Humanities

This workshop is also eligible for the Canadian Certificate for Digital Humanities. To learn more about the certificate, visit **ccdhhn.ca**. You can also contact local liaison Alexis-Carlota Cochrane at scds@mcmaster.ca.

Learning Objectives

By the end of this workshop, you will be able to:

- Summarize RDM best practices and what Data Management Plans and Data Deposit look like in your field
- Locate available tools from RDM Services
- Prepare to implement Research Data Management tools in the classroom.

Outline

Setting the table: *How do we work with educators?*

Demo: *What is Research Data Management?*

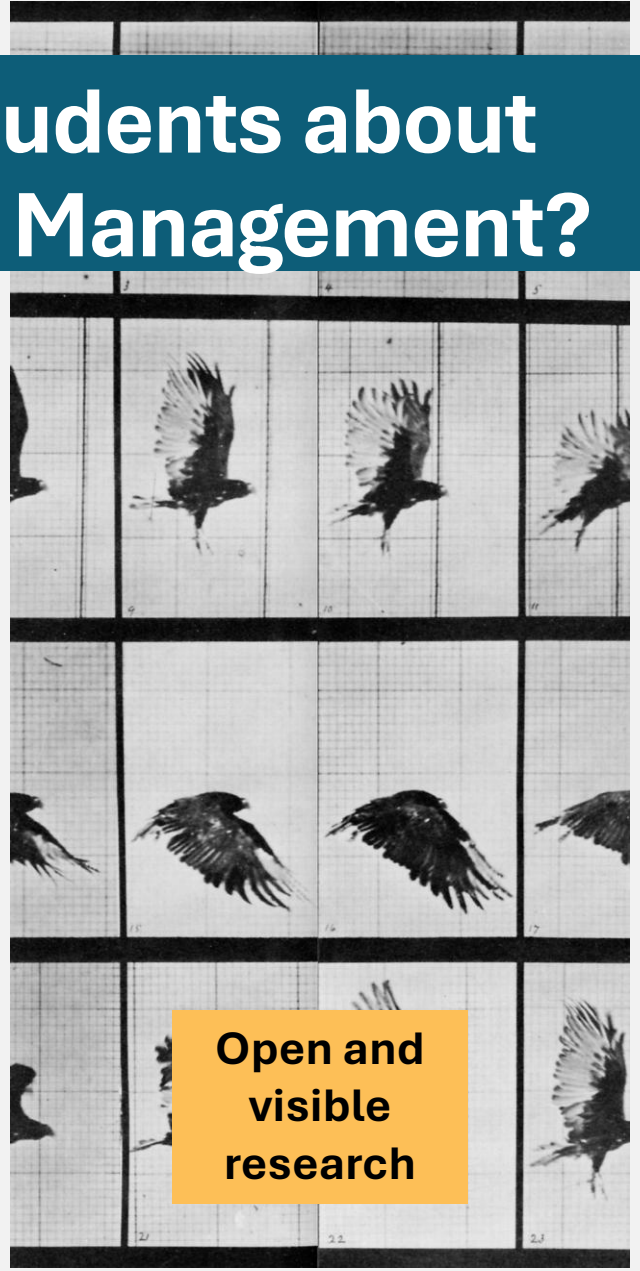
Lesson plans, slides, tools, activities, assessments

- [Graduate] Data Management Plans: an open hand of cards
- [Undergraduate] Super great excellent no problems Data Management Plan, what are you talking about, what's wrong with it? /s
- [Upper] Finding and Reusing Research Data

Customization: *What's happening in your discipline?*


WHAT KIND OF TEACHER ARE YOU?

Why teach students about Research Data Management?



L-R: NIAID, “Clinical Trial Volunteer Signs Informed Consent Form,” Wikimedia Commons, CC BY 2.0; Kevin Patrick Robbins, “Bertrand Russell Archives,” 2018; Eadweard Muybridge, “Fliegender Geier (0.19 Sekunden) (Zeno Fotografie),” Public Domain; Sukh Obhi Lab, 2017.

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Students deserve Research Data Management! *Lesson plans and resources for [McMaster] educators*

1. [All Levels] What is Research Data Management? (slide inserts into other course content)
2. [Graduate] Data Management Plan Bootcamp
3. [Undergraduate] Wrong Answers Only DMP
4. [Upper] Finding and Reusing Datasets

Let us help so you're not staring at a blank page: Creative Commons Attribution Share Alike 4.0 International (CC BY SA 4.0) License.

https://u.mcmaster.ca/rdm-educators

rdm.mcmaster.ca
rdm@mcmaster.ca

You can just bring us in!

- RDM Services has hands-on experience with research!
- We work with you to **tailor-make custom training** for graduate and undergraduate courses, departments, and research groups.
- In addition to what we're discussing today, we can offer sessions on organizing research photos, file and folder organization, sensitive data management and de-identification, and more.
- Send us an email at rdm@mcmaster.ca to start collaborating! You can also schedule an appointment with our team to discuss options.

What is Research Data Management?

Slide Sets of Varying Shortness for the Tightly Packed Course

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r/GradSchool • 4 yr. ago
[deleted]

I lost 2 years' worth

The title says it all..

I don't know how to process this rig

I've been doing astronomy research
on the computer in my office, until

At the time I thought it was just a m
and I actually used this time to take

Yesterday they got back to me, and
campus, and somehow something w
scared" mode, and they told me the
do a clean restart.

They haven't done it yet, because th
do it, because I'd lose 2 years' worth

I already know people are gonna sa
but it just never crossed my mind (fu
scheduled for next Wednesday). I ha
large chunk of my work will definite

The projects that I was working on w

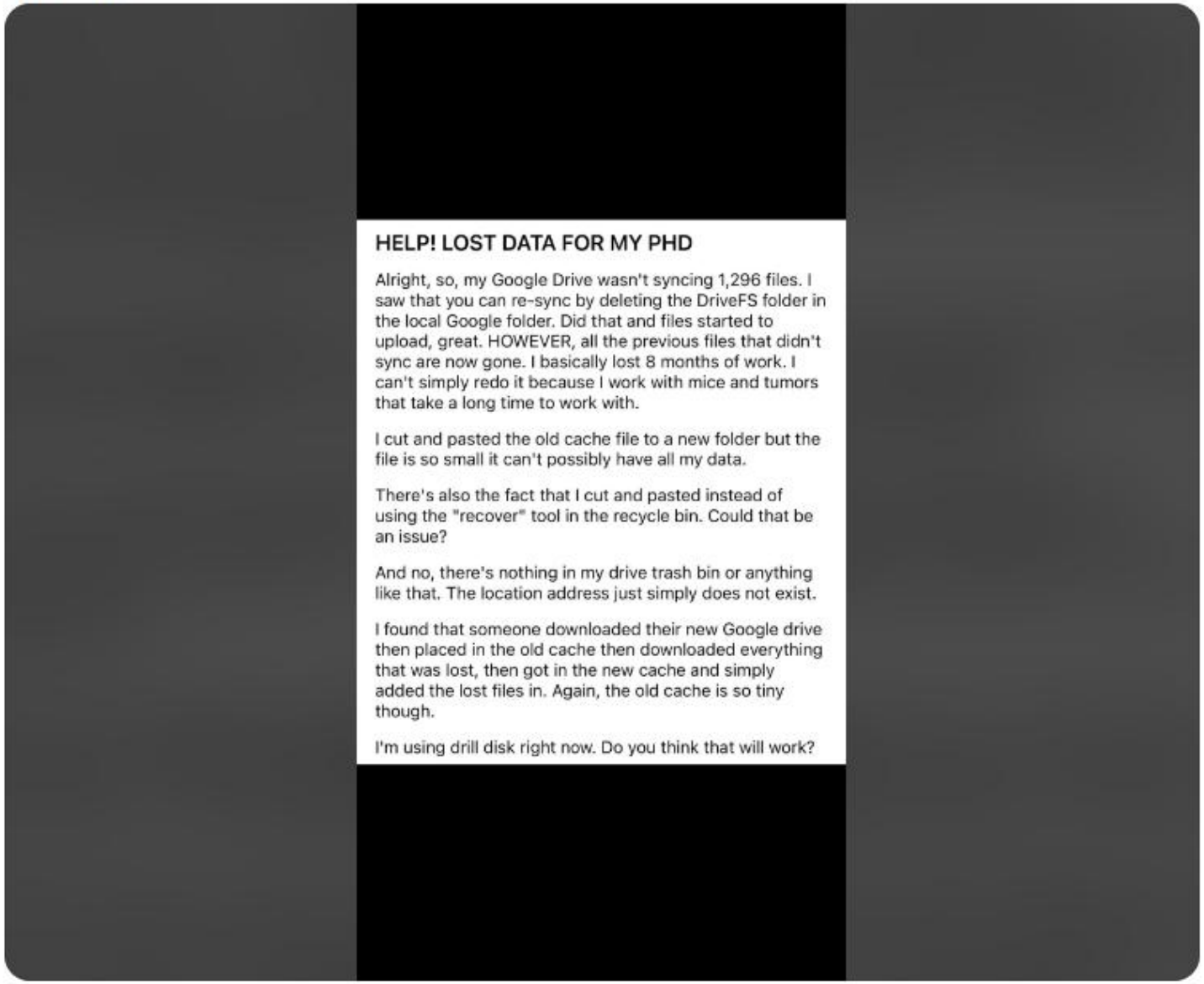
Read more

475 80

r/PhD • 1 yr. ago
JuriPlz

Lost a TON of data for my PhD and my PI is pissed. Does anyone have advice?

Need Advice



...

...

...y not checking if the

...nce I just defended my PhD today

...data, wrote the code, did all the

...l so they had to take my PC and wipe it
...l the files back.

...d send to me quickly.

...cup is done, and then I give it to them.

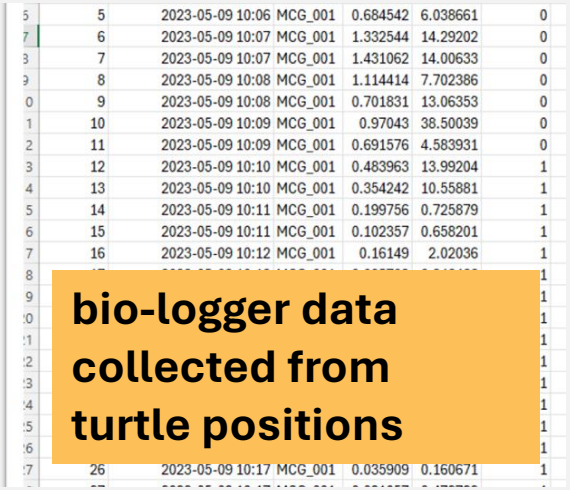
...). I just saw the tick mark, and in my
...handful of small files did get backed up,

...had a mini heart attack once I realized
...blished works, they were lost too.

...t wasn't published yet. Also, I actually
...rom memory, and thankfully I
...y work, but managed to replicate the

...it.

surveys and focus groups with women in tech



5	5	2023-05-09 10:06	MCG_001	0.684542	6.038661	0
7	6	2023-05-09 10:07	MCG_001	1.332544	14.29202	0
8	7	2023-05-09 10:07	MCG_001	1.431062	14.00633	0
9	8	2023-05-09 10:08	MCG_001	1.114414	7.702386	0
10	9	2023-05-09 10:08	MCG_001	0.701831	13.06353	0
11	10	2023-05-09 10:09	MCG_001	0.97043	38.50039	0
12	11	2023-05-09 10:09	MCG_001	0.691576	4.583931	0
13	12	2023-05-09 10:10	MCG_001	0.483963	13.99204	1
14	13	2023-05-09 10:10	MCG_001	0.354242	10.55881	1
15	14	2023-05-09 10:11	MCG_001	0.199756	0.725879	1
16	15	2023-05-09 10:11	MCG_001	0.102357	0.658201	1
17	16	2023-05-09 10:12	MCG_001	0.16149	2.02036	1
18						1
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21						1
22						1
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24						1
25						1
26						1
27	26	2023-05-09 10:17	MCG_001	0.035909	0.160671	1

bio-logger data collected from turtle positions

research-creation and community art zine project

EHR data from emergency rooms on wait times

battery charging data for training ML models

photos and metadata from archival records

What counts as “research data”?

Information or materials that are used as evidence in research and scholarly work.

Clockwise: Christina WOC in Tech via Unsplash; Rachel Glaves, "Collage party at Million Fishes," CC-BY 2.0; Kelton Adderley-Heron and Patricia Chow-Fraser, “Blanding's turtle (Emydoidea blandingii) behavioural states from multi-sensor biologger data,” McMaster Dataverse; Microsoft Stock Images.

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What **research data** do you work with?

What **data** do you regularly encounter?

Research Data Management activities

Planning

- Creating a **data management plan**
- **Finding** existing data
- Obtaining systems and software for managing data

Data collection and analysis

- **De-identification** of information
- **Organizing** data efficiently
- **Documenting** data effectively
- **Storing** data securely

Knowledge Sharing

- Preparing data for **archival** and sharing
- **Publishing** data and providing access to participants and other researchers

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Data Management Plans

- A Data Management Plan (DMP) describes how you will create, store, organize, document, secure, preserve, and share your research data.
- Required for CIHR (assorted competitions), SSHRC Partnership Grants, NSERC: Subatomic Physics Discovery Grant, Canadian Foundation for Innovation (CFI) – Sustainability Section, Ontario Research Fund (ORF), Horizon Europe
- **DMP Assistant:** https://dmp-pgd.ca/
- **DMP Examples Database:** rdm.mcmaster.ca/dmps
- *RDM Services reviews DMPs!*

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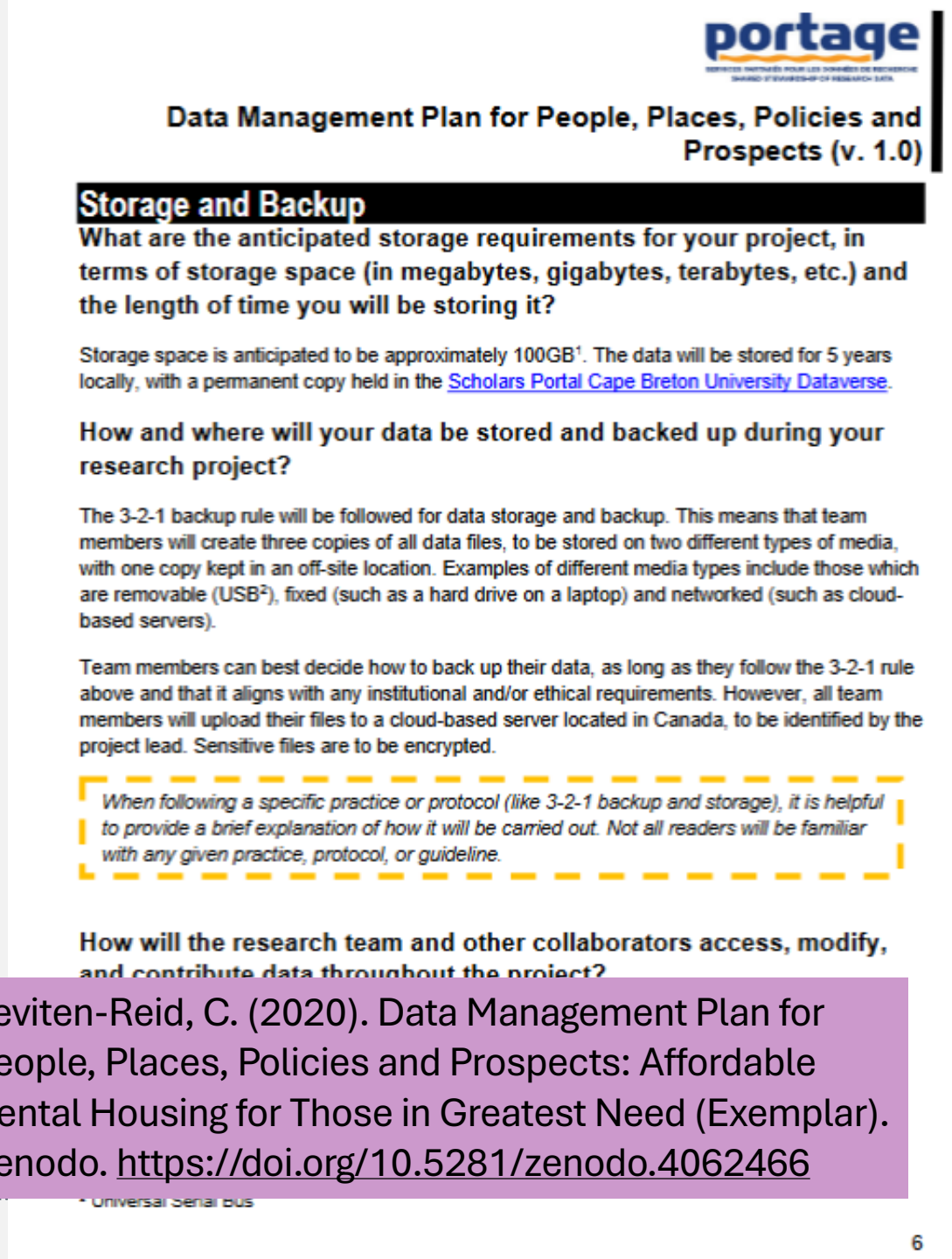


portage

Data Management Plan for People, Places, Policies and Prospects (v. 1.0)

Storage and Backup

What are the anticipated storage requirements for your project, in terms of storage space (in megabytes, gigabytes, terabytes, etc.) and the length of time you will be storing it?

Storage space is anticipated to be approximately 100GB[1]. The data will be stored for 5 years locally, with a permanent copy held in the Scholars Portal Cape Breton University Dataverse.

How and where will your data be stored and backed up during your research project?

The 3-2-1 backup rule will be followed for data storage and backup. This means that team members will create three copies of all data files, to be stored on two different types of media, with one copy kept in an off-site location. Examples of different media types include those which are removable (USB[2]), fixed (such as a hard drive on a laptop) and networked (such as cloud-based servers).

Team members can best decide how to back up their data, as long as they follow the 3-2-1 rule above and that it aligns with any institutional and/or ethical requirements. However, all team members will upload their files to a cloud-based server located in Canada, to be identified by the project lead. Sensitive files are to be encrypted.

When following a specific practice or protocol (like 3-2-1 backup and storage), it is helpful to provide a brief explanation of how it will be carried out. Not all readers will be familiar with any given practice, protocol, or guideline.

How will the research team and other collaborators access, modify, and contribute data throughout the project?

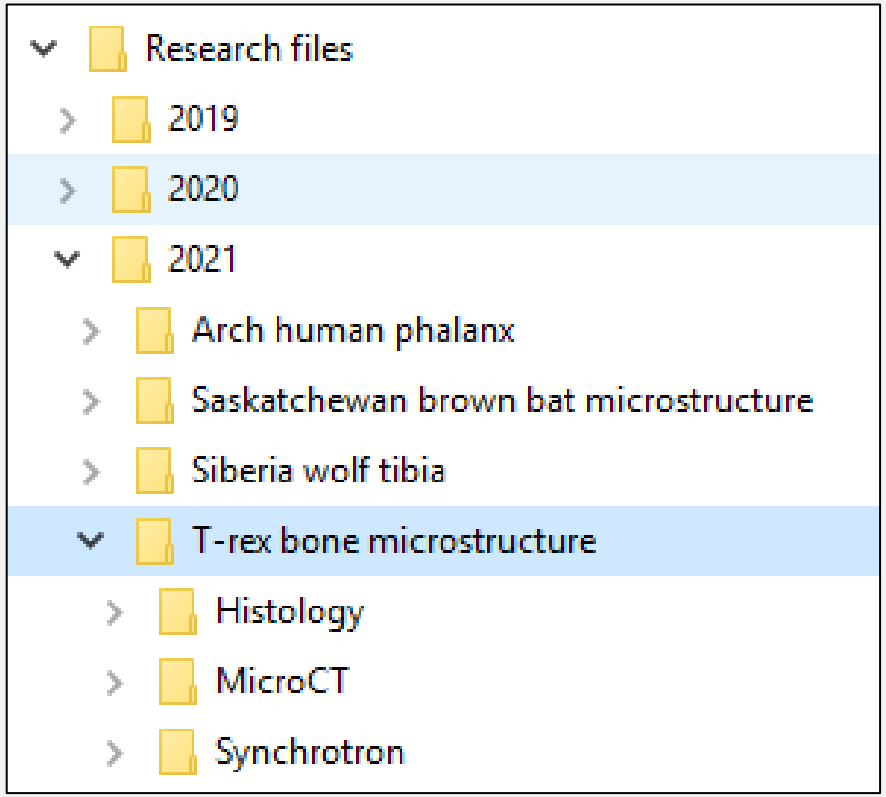
[1] Universal Serial Bus

6

Leviten-Reid, C. (2020). Data Management Plan for People, Places, Policies and Prospects: Affordable Rental Housing for Those in Greatest Need (Exemplar). Zenodo. https://doi.org/10.5281/zenodo.4062466

Documenting + Organizing

- **Folders:** Organize by project, researcher, experiment type, date, some combo (*year -> project)*
- **Files:** File names should be **descriptive**, **standardized**, and **implemented consistently**. *You should know what's in a file without opening it up!*
- **Notes**: Take notes as you do things. Don't rely on your memory. What went wrong? Keep track of your progress - when/where/who collected data and where is it kept.
- **Data Security**: Use a password manager (like Bitwarden), don't put off software updates, turn on Multi-Factor Authentication, and take care of sensitive data using encryption and removing identifiers.

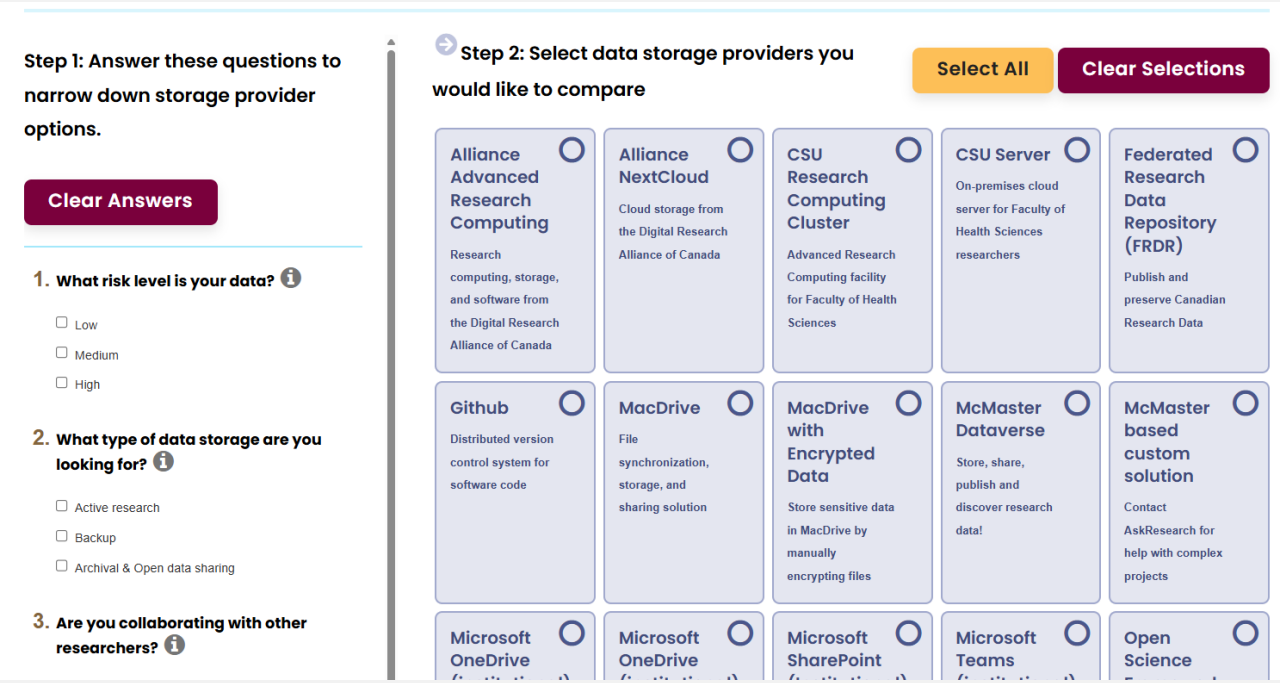


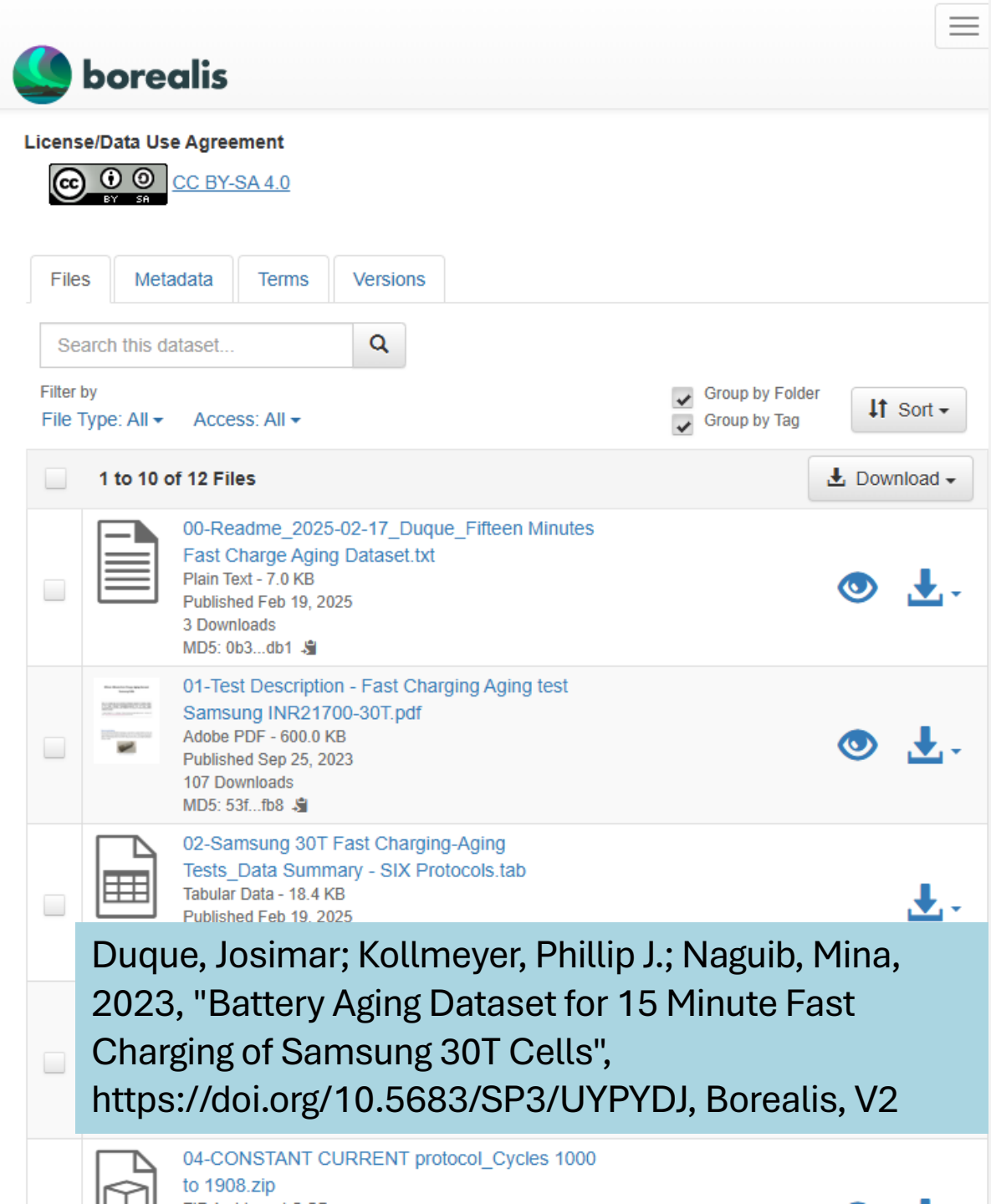
2027-10-30_LakeMercury_TestData3_TM.wav
***Date**: 2027_10_30 (collection date)*
***Project Name**: LakeMercury*
***Short Description**: Test Data 3*
***Name**: TM (Tracy MacDern)*

Basics: Data Storage

- If your data fits in the cloud, try **OneDrive**
  - Available to all campus users for free – **until you leave the institution**
- If you need data to be portable, use **local storage**. Make sure local storage drives are encrypted with passwords.
- Use both if you can! Whatever you do, **make sure you make backups.**
- Research Data Storage Finder lets you compare options: **https://rdm.mcmaster.ca/finder**

Example:
1 copy stored locally on **hard drive** for analysis
1 copy stored on **cloud storage** platform
1 copy stored in a **secure campus drive**





Data Deposit

- A **data repository** is a web platform and storage space for researchers to deposit data sets associated with their research. This can be a place to store and archive data, support open research, and **share data you've gathered**.
- Required for: Tri-Agency RDM Policy, Horizon Europe, NIH
- McMaster Dataverse is our data repository - https://borealisdata.ca/dataverse/mcmaster
- *RDM Services can also workshop ideas for how and where to deposit data – rdm@mcmaster.ca.*

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Looking for help managing your research data?

Robbins, K.P. (2018). Gerry Wright in the Field - The Wright lab is engaged in efforts to discover new antibiotic and antibiotic alternatives such as adjuvants as well as exploring the mechanism, diversity, and evolution of antibiotic resistance. McMaster University, Hamilton ON, Canada.

McMa
anitie
McMaster University Lib

Research Data Management Services supports:

- Caring for data through the research lifecycle
- Creating Data Management Plans (DMPs)
- Data deposit and sharing
- Secure data storage and backup
- Ethical and sensitive data management
- Documentation and metadata

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Checkpoint: What in this intro would you adjust for your students?

Lesson plans, slides, tools, activities, assessments for all levels

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[Graduate] **Data Management Plans**: an open hand of cards

Embed for graduate research methods.

- Exercise 1: Data Management Plan Bootcamp (Early Semester)
- Exercise 2: Peer Review - DMP Exchange (Mid-Semester)
- Exercise 3: Data Management Plan Final Draft (End of Semester)

Assessment: Peer review, supervisor review, submission of completed Data Management Plan

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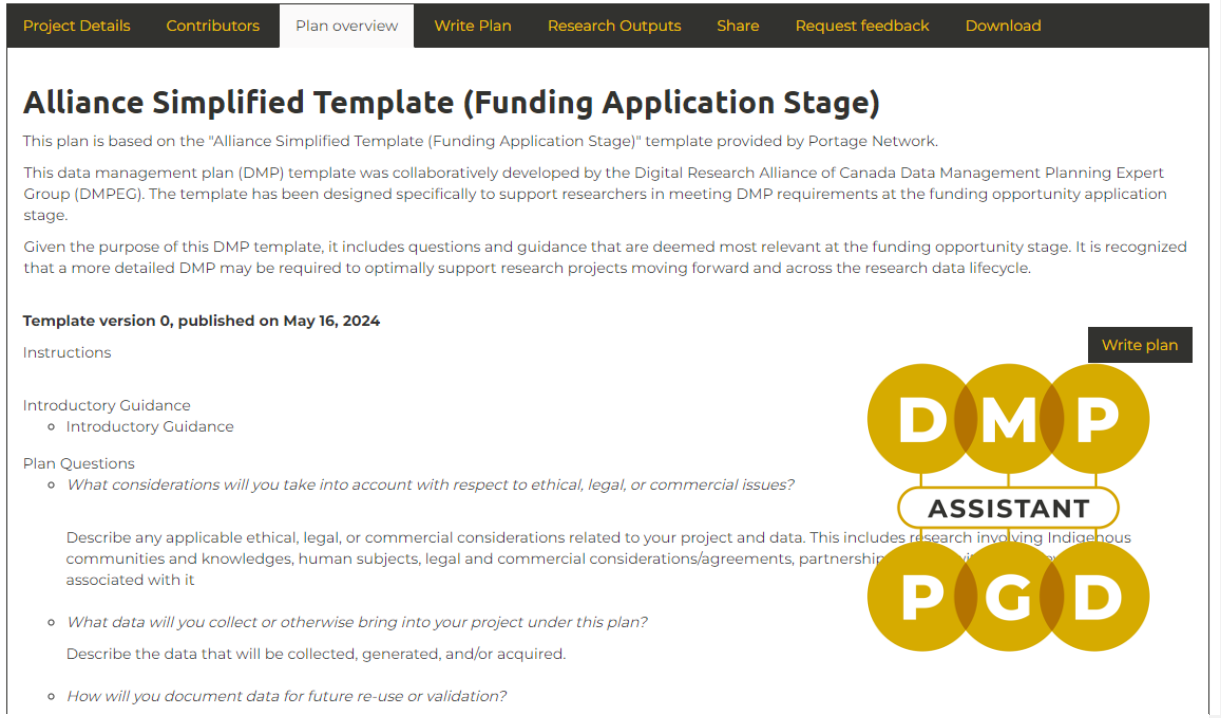

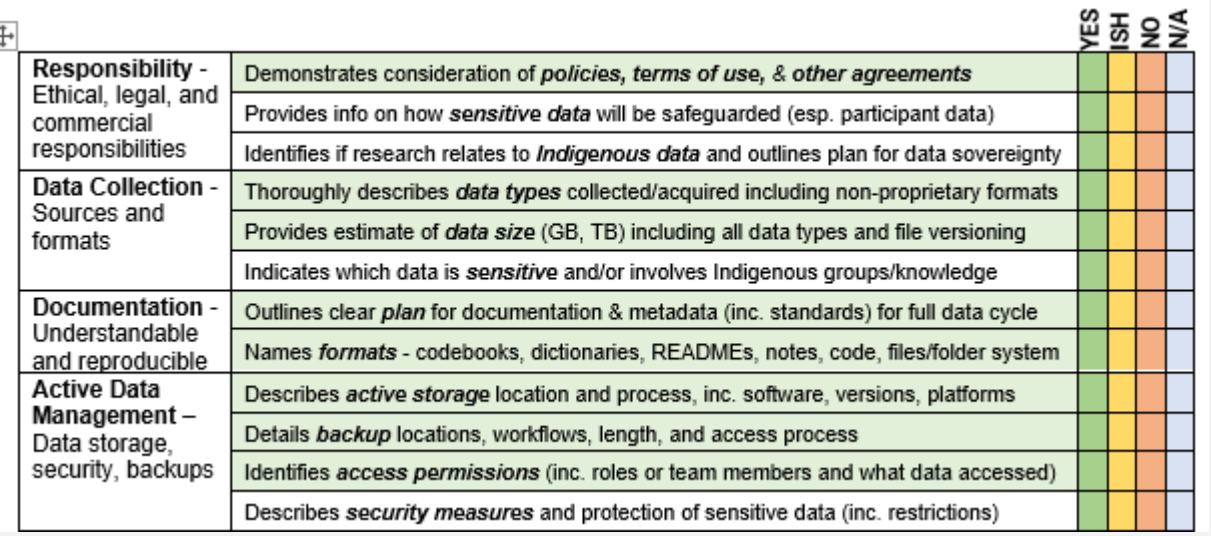

		YES	ISH	NO	N/A
Responsibility - Ethical, legal, and commercial responsibilities	Demonstrates consideration of ***policies, terms of use, & other agreements***				
	Provides info on how ***sensitive data*** will be safeguarded (esp. participant data)				
	Identifies if research relates to ***Indigenous data*** and outlines plan for data sovereignty				
Data Collection - Sources and formats	Thoroughly describes ***data types*** collected/acquired including non-proprietary formats				
	Provides estimate of ***data size*** (GB, TB) including all data types and file versioning				
	Indicates which data is ***sensitive*** and/or involves Indigenous groups/knowledge				
Documentation - Understandable and reproducible	Outlines clear ***plan*** for documentation & metadata (inc. standards) for full data cycle				
	Names ***formats*** - codebooks, dictionaries, READMEs, notes, code, files/folder system				
Active Data Management – Data storage, security, backups	Describes ***active storage*** location and process, inc. software, versions, platforms				
	Details ***backup*** locations, workflows, length, and access process				
	Identifies ***access permissions*** (inc. roles or team members and what data accessed)				
	Describes ***security measures*** and protection of sensitive data (inc. restrictions)				

Teaching Tools + Customization

- **DMP Assistant:** Free tool with McMaster-specific guidance **dmp-pgd.ca/plans**
- **DMP Database:** 450+ example DMPs across disciplines **rdm.mcmaster.ca/dmps**
- **Rubric**: Data Management Planning Expert Group. (2025). Alliance Simplified Template (Funding Application Stage) Rubric. Zenodo. https://doi.org/10.5281/zenodo.15740791

Slides: 2026_DMPs-Graduate.pptx

Potential Reading Assignment: Maria Praetzellis, "DMP Competition Winners: DMPs so good they go to 11," Qualitative Data Repository, DMP Tool, Princeton Research Data Service, May 19, 2021

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2. Data Collection

Data collected will consist of **project data, survey data, semi-structured interviews and focus groups**. We estimate collecting 200 surveys, 30 interviews (~30 min in length each), and 3 focus groups (~90 min in length each). Magnitude of data, accounting for file versions (raw, master, analytic) is estimated to be under 16 GB. Other accompanying **documentation**, including transcriptions and project management is estimated to require 2 GB of storage. **Estimated total storage requirements: 18 GB**. Project data includes identity lists of participants, working documents and other project work. The research data collected will produce **tabular data, video audio, and text-based data** (including transcriptions for all interviews and focus groups).


Guidance

In light of the introductory guidance provided, if there are any related points of consideration with respect to your proposed research project and which will help with the development of your DMP in the following Question section, you may initially capture them here.

The introductory guidance provided with respect to funder/institutional requirements, guiding best practice principles, Indigenous data governance, and roles and responsibilities for managing the research data was very helpful. We have considered these all applicable, and this is reflected in the details of our data management plan and the larger funding application.

Questions

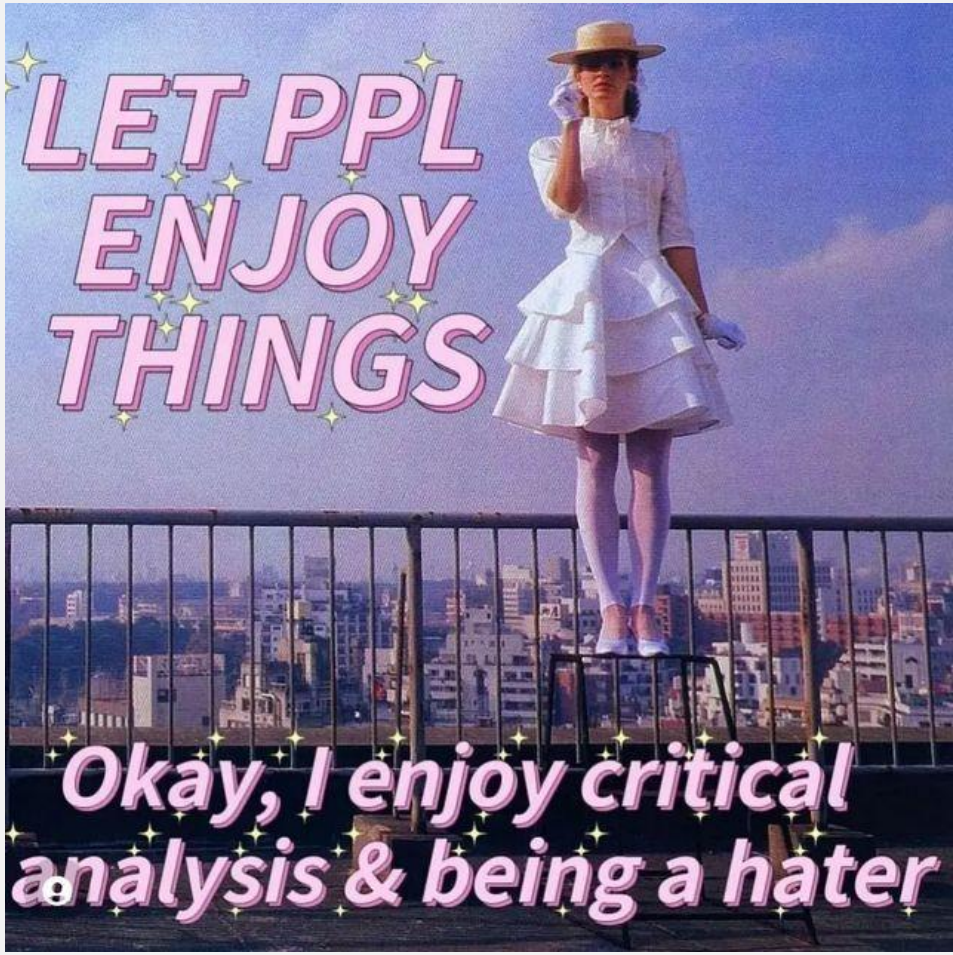
What considerations will you take into account with respect to ethical, legal, or commercial issues?

Describe any applicable ethical, legal, or commercial considerations related to your project and data. This includes research involving Indigenous communities and knowledges, human subjects, legal and commercial considerations/agreements, partnerships or data with a high level of risk associated with it.

[Undergraduate] **Super great excellent no problems Data Management Plan, what are you talking about, what's wrong with it? /s**

Created by Danica Evering (RDM Specialist) and Alexis-Carlota Cochrane (Digital Scholarship Coordinator) for HUM2DH3: Approaches to Digital Scholarship.

- Research Data Management as a Practice of Care
- Data Management Plans (DMPs): What goes into a DMP?
  - Ethical, legal, and commercial issues
  - Data Collection – Describe sources and formats
  - Documentation – Make data understandable and reproducible
  - Storage and security– Store, secure, and back up data
  - Sharing and deposit – Preservation, discovery, accessibility
- Activity: Wrong Answers Only DMP – tear it to shreds!



Meme by @thefemmemoon

Assessment: Annotated DMP section, Experiment Log

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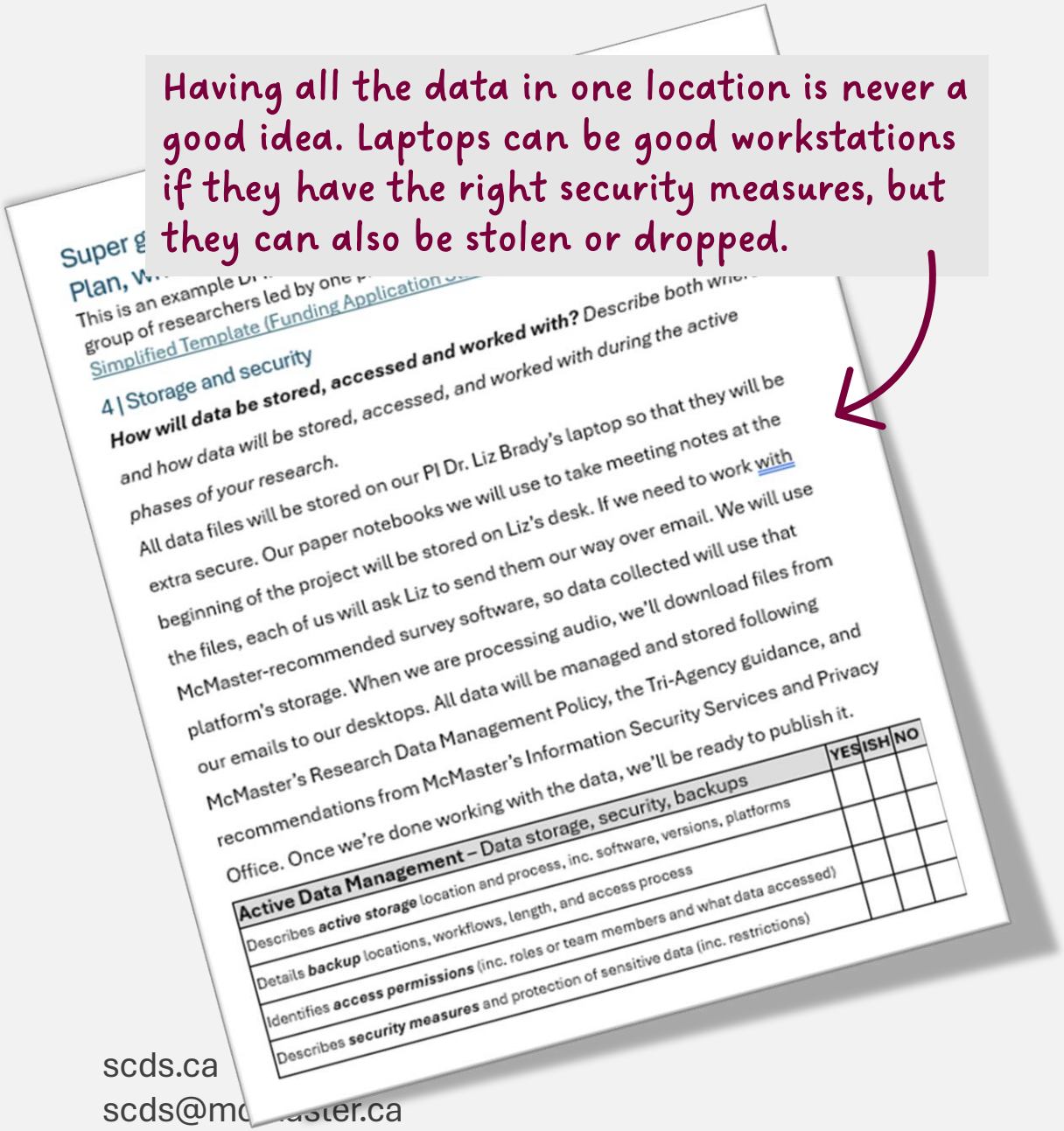

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Teaching Tools + Customization

- **Wrong Answers Only DMP:** Split into 5 sections with rubric at the bottom! Print off for students or give them a copy of the fie
- **Instructor Edition:** Marked-up version with comments so instructors can understand the errors.
- **Update Example:** This example is for a podcasting project. Good for SSH students, could be adapted for others.

Slides: *2026-RDM_UndergradDMP.pptx*

Recommended Reading: The Information Maintainers. (2019). Information Maintenance as a Practice of Care. Zenodo. https://doi.org/10.5281/zenodo.3251131

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Image by Taylor Vick on Unsplash

4. Storage and security

All data files will be stored on our PI Dr. Liz Brady's laptop so that they will be extra secure. Our paper notebooks we will use to take meeting notes at the beginning of the project will be stored on Liz's desk. If we need to work with the files, each of us will ask Liz to send them our way over email. We will use McMaster-recommended survey software, so data collected will use that platform's storage. When we are processing audio, we'll download files from our emails to our desktops. All data will be managed and stored following McMaster's Research Data Management Policy, the Tri-Agency guidance, and recommendations from McMaster's Information Security Services and Privacy Office. Once we're done working with the data, we'll be ready to publish it.

	YES	ISH	NO
Describes **active storage** location and process, inc. software, versions, platforms			
Details **backup** locations, workflows, length, and access process			
Identifies **access permissions** (inc. roles or team members and what data accessed)			
Describes **security measures** and protection of sensitive data (inc. restrictions)			

[Upper] **Finding and Reusing** Research Data

For graduate research courses and upper year undergraduate courses

- **Context**: Data reuse, reproducibility, ethics, integrity
- **Overview + Exercise 1:** Find a Dataset using OpenAIRE or a Discipline-specific repository
- **Overview + Exercise 2**: Reusing Data – unpacking a dataset, documentation, quality checking, metadata

Assessment: Students are submit their chosen dataset with a reflection on opportunities and limitations.

Steven Damron, "Warning! Buried Communication Cable Sign" 17 December, 2008, Wikimedia Commons https://commons.wikimedia.org/wiki/File:Warning!_buried_communication_cable_sign_%283120060005%29.jpg

Participant	Sex	Age	Edinburgh	PANAS_Negativ	TAS_Tota	TAS_TERTILE
1	1	23	100	6	29	1
2	1	23	100	6	47	2
3	1	20	100	5	38	1
4	1	19	70	7	48	2
5	1	21	29	7	50	2
6	1	22	43	5	43	1
7	1	22	43	5	36	1
8	1	18	71	6	53	3
9	1	20	85	5	40	1
10	1	22	100	5	57	3
11	1	20	40	6	53	3
12	1	25	82	5	69	3
13	1	25	100	16	55	3
14	1	23	50	6	49	2
15	2	21	52.94	9	50	2

Teaching Tools + Customization

- **Discipline-Specific Repositories:** Where do you and your colleagues look for data?
- *National Library of Medicine Data Repository Finder*
- *NIH Domain-Specific Repositories*
- ***re3data**: Global Registry of Research Data Repositories*
- *SpringerNature Data repository guidance (repository examples by data type & discipline*
- **Example Datasets:** Alexithymia and scene perception

Slides: 2026_DataReuse-Upper.pptx
Potential Reading Assignment: Blois, A. K. T., John W. Williams, Simon Goring, Jessica L. (2025, March 20). The Valuable, Vulnerable, Long Tail of Earth Science Databases. *Eos*. https://eos.org/opinions/the-valuable-vulnerable-long-tail-of-earth-science-databases

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Customization

What's happening in your discipline?

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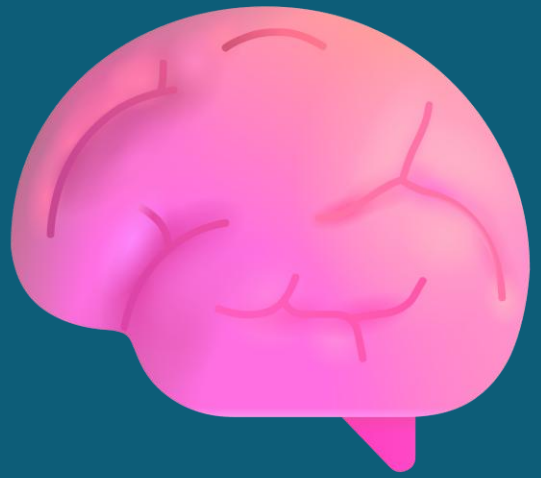
Checkpoint: What (if any) research data management practices do you and your colleagues follow? What does RDM look like in ***your*** discipline?



~~Best~~ Good Enough Practices for Managing Data in Your Research

(share your own research mistakes and practices to make it approachable)

Photo by National Cancer Institute on Unsplash

"Dave" is a graduate student working in Biomedical Science, using x-ray imaging. One of his external drives fails and is unrecoverable. The data loss is not discovered for several weeks. There is no back up of this data because there was no documentation on where data was stored.

"Alice" is a graduate student working in Media Studies studying the practices of artist-researchers. One interview is in a café. When Alice finally sits down to listen to her recordings, that one is unusable. Instead of the responses, she instead hears the chaos of the coffee shop, the steamer hissing, the portafilter slamming, people catching up.

Photo by Maxim Ilyahov on Unsplash

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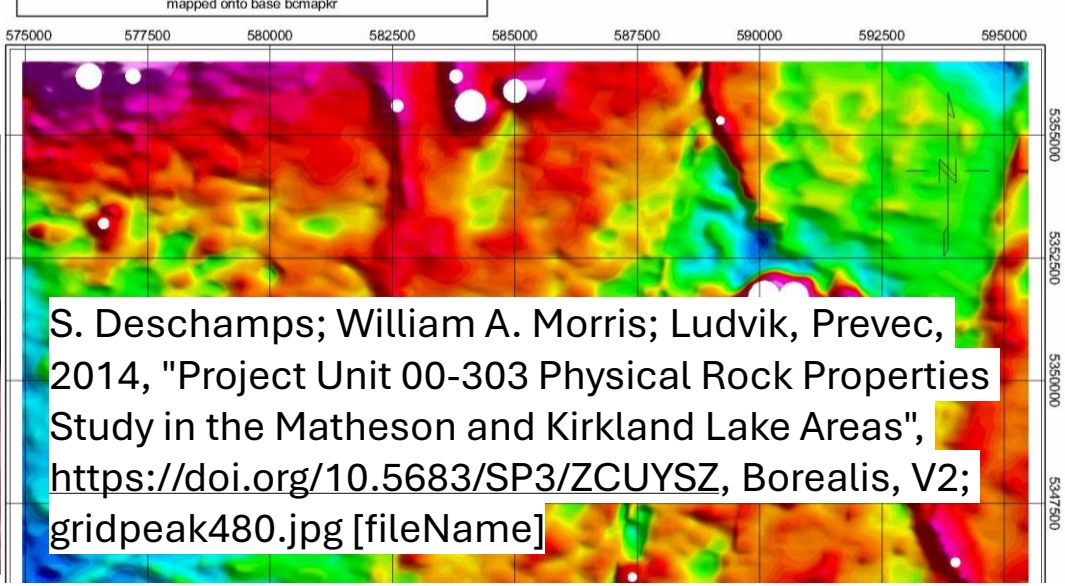
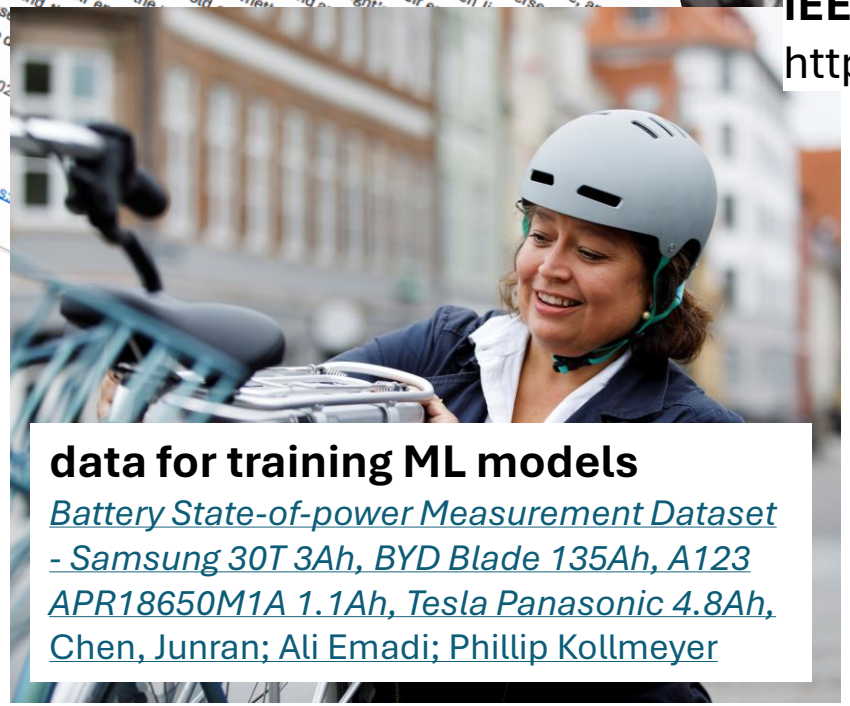
Engineering RDM Starter Pack

DMP: Canada Excellence Research Chair (CERC) in Light-Matter Interactions

IEEE datasets and practices
https://www.ieee.org/



S. Deschamps; William A. Morris; Ludvik, Prevec, 2014, "Project Unit 00-303 Physical Rock Properties Study in the Matheson and Kirkland Lake Areas", https://doi.org/10.5683/SP3/ZCUYSZ, Borealis, V2; gridpeak480.jpg [fileName]



data for training ML models
Battery State-of-power Measurement Dataset - Samsung 30T 3Ah, BYD Blade 135Ah, A123 APR18650M1A 1.1Ah, Tesla Panasonic 4.8Ah, Chen, Junran; Ali Emadi; Phillip Kollmeyer

You'll never believe what happened in that last experiment (paper notebooks)

Leaving M365 entirely and backing up to a NAS device

sensitive technology and industry partnerships

https://rdm.mcmaster.ca/disciplines#tab-engineering

Health Science RDM Starter Pack

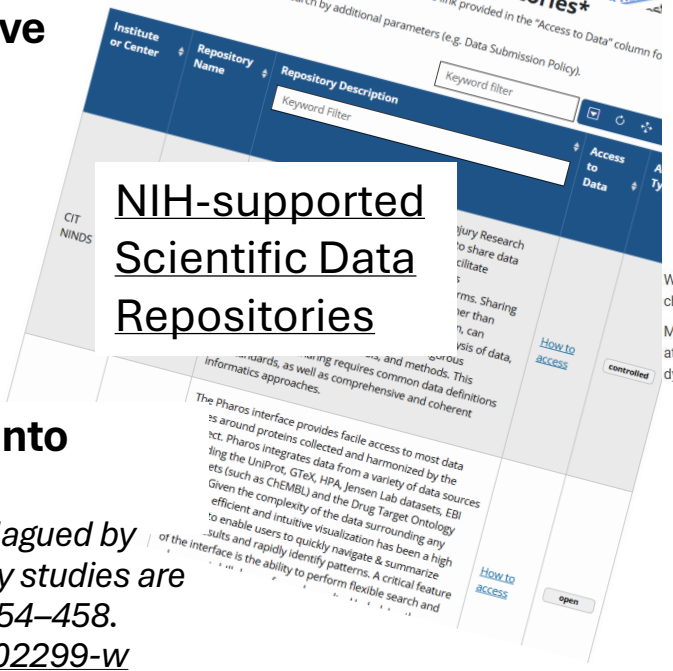
Take care of your data bc rural and remote nurses don't have time to redo a focus group

Undead data shuffling back into systematic reviews like

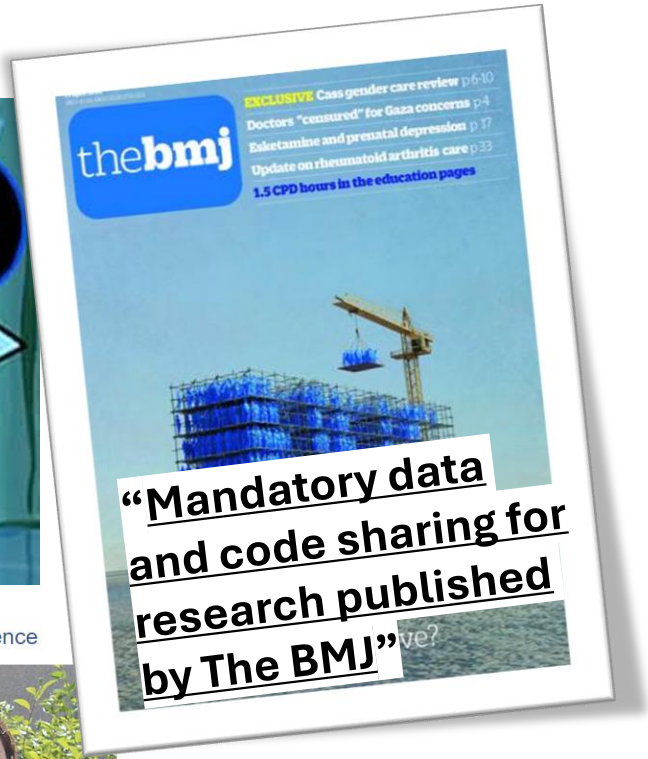
Van Noorden, R. (2023). Medicine is plagued by untrustworthy clinical trials. How many studies are faked or flawed? Nature, 619(7970), 454–458. https://doi.org/10.1038/d41586-023-02299-w

"As open as possible… as closed as necessary" *(aka meeting PHIPA requirements)*

Women's Advanced Risk-Assessment in Manitoba (WARM) Hearts DMP



NIH-supported Scientific Data Repositories



"Mandatory data and code sharing for research published by The BMJ"

Patient gets life-changing diagnosis thanks to Open Science

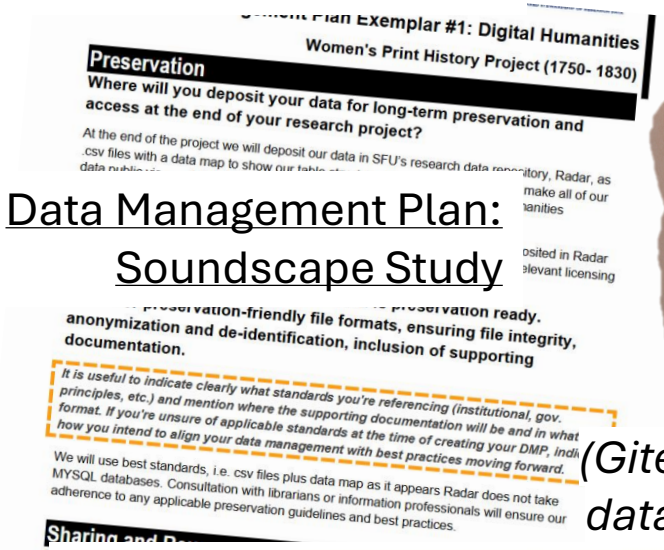
Patients get answers and medicine advances faster with open science

https://www.ottawahospital.on.ca/en/healthy-tomorrows/patient-gets-life-changing-diagnosis-thanks-to-open-science/

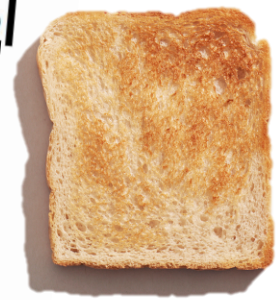
https://rdm.mcmaster.ca/disciplines#tab-health-science

Humanities RDM Starter Pack

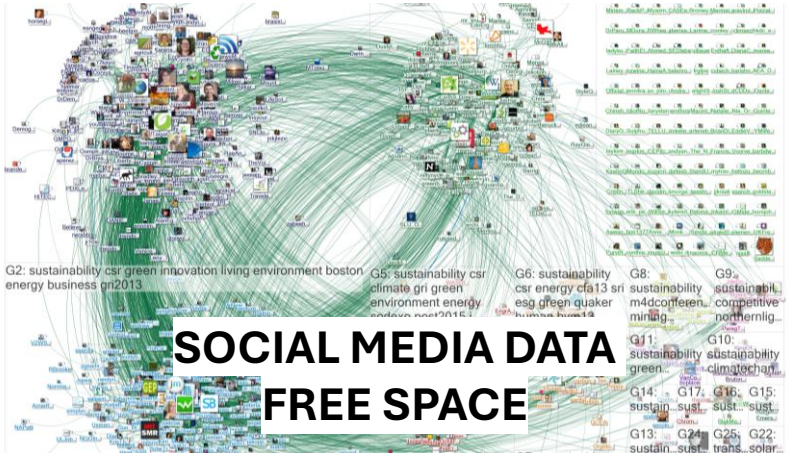
“We have data, it just looks different” (research-creation)



Data Management Plan: Soundscape Study



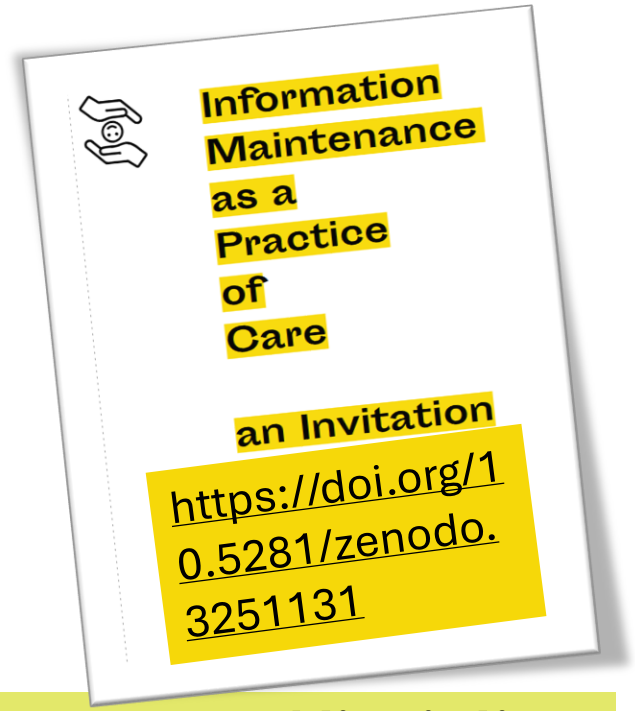
data are cooked *(Gitelman 2013 – “raw data” is an oxymoron)*



“Archives are a love letter to the future”

Lesbian and Gay Liberation in Canada (LGLC) - https://lglc.ca/

Cause cloud storage is what?! Someone else’s server!”
(critical data)



https://rdm.mcmaster.ca/disciplines#tab-humanities

Science RDM Starter Pack

Open science and taking data further than you can on your own

Reproducibility and avoiding retractions

that time our colleague's field truck was broken into and they left her fancy equipment… but stole her laptop and hard drives

Digital Research Alliance of Canada High-Performance Computing resources

FRDR
Federated Research Data Repository

Sharing bigger data

Reptile traffickers trawl scientific literature, target newly described species

Current Best Practices for Generalizing Sensitive Species Occurrence Data

writing code

writing commit message

Dr. Antonio Paez – Reproducible Research Workflow with GitHub and R

https://rdm.mcmaster.ca/disciplines#tab-science

Social Sciences RDM Starter Pack

Taking care of people, making the world better

Conversational data management plans, community control over sharing data

You don't really want to have to redo that focus group, right?

Data Management Plan for People, Places, Policies and Prospects: Affordable Rental Housing for Those in Greatest Need

Storage and Backup

What are the anticipated storage requirements for your project, in terms of storage space (in megabytes, gigabytes, terabytes, etc.) and the length of time you will be storing it?

Storage space is anticipated to be approximately 100GB[1]. The data will be stored for 5 years locally, with a permanent copy held in the Scholars Portal Cape Breton University Dataverse.

How and where will your data be stored and backed up during your research project?

The 3-2-1 backup rule will be followed for data storage and backup. This means that team members will create three copies of all data files, to be stored on two different types of media, with one copy kept in an off-site location. Examples of different media types include those which are removable (USB[2]), fixed (such as a hard drive on a laptop) and networked (such as cloud-based servers).

Team members can best decide how to back up their data, as long as they follow the 3-2-1 rule above and that it aligns with any institutional and/or ethical requirements. However, all team members will upload their files to a cloud-based server located in Canada, to be identified by the project lead. Sensitive files are to be encrypted.

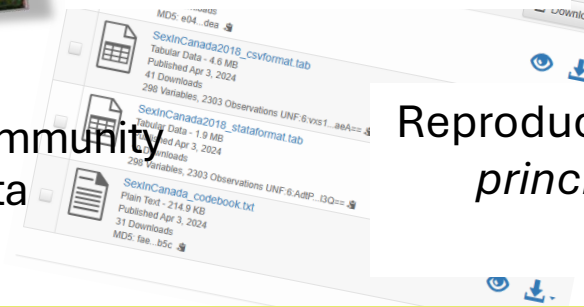
When following a specific practice or protocol (like 3-2-1 backup and storage), it is helpful to provide a brief explanation of how it will be carried out. Not all readers will be familiar with any given practice, protocol, or guideline.

How will the research team and other collaborators access, modify, and contribute data throughout the project?

Since the research team is spread across Canada, cloud servers with encryption capabilities are being used to collaborate. Lo

DMPs help you survive research ethics

Sex in Canada Dataset



Reproducible data + code: *Dr. Jeremy Freese – Key principles for transparent social science code:* https://www.boydetective.net/workflow/

https://rdm.mcmaster.ca/disciplines#tab-social-sciences

Other Teaching Resources

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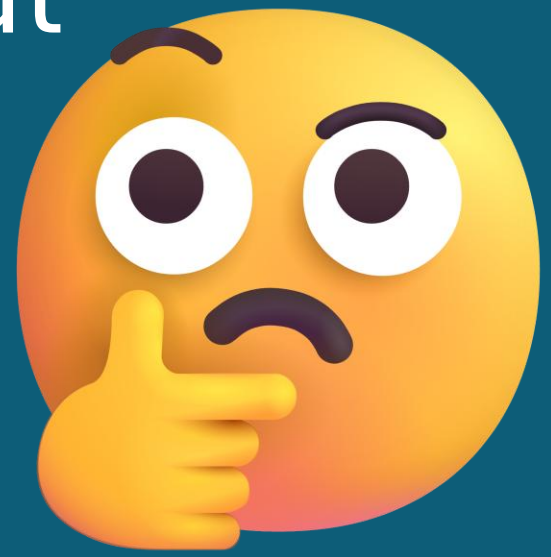
Training Materials + Resources

- **Workbook:** Kristin Briney, “The Research Data Management Workbook,” Cal Tech Library, 2024-07-16, https://caltechlibrary.github.io/RDMworkbook/
- **Textbook:** Thompson, Kristi, Elizabeth Hill, Emily Carlisle-Johnston, Danielle Dennie, et Émilie Fortin, éd. 2023. Research Data Management in the Canadian Context: A Guide for Practitioners and Learners. English. Western University, Western Libraries. https://doi.org/10.5206/ZRUV7849.
- **Training Resources:** Digital Research Alliance of Canada: Training Resources, Explora (Synchronous Training), and External Training Resources Library
- **Handbook:** *How to be FAIR with your data: A teaching and training handbook for higher education institutions*, https://fairsfair.gitbook.io/fair-teaching-handbook
- **Research on why RDM training works with bonus file naming exercise:** Rod, A., Hervieux, S. & Lee, N. (2024). Evaluating an Instructional Intervention for Research Data Management Training. *Evidence Based Library and Information Practice*, 19(1), 114–131. https://doi.org/10.18438/eblip30439

Training Materials + Resources

- **Engineering:** NFDI4ING RDM Basics for Engineers
- **Health Sciences**: CIHR Research Data Management learning module
- **Humanities**: Higgins, Stefan, Lisa Goddard, et Shahira Khair. 2024. « Research Data Management in the Humanities: Challenges and Opportunities in the Canadian Context ». Digital Studies / Le champ numérique 14 (1). https://doi.org/10.16995/dscn.9956; Felicity Tayler, Marjorie Mitchell, Chantal Ripp and Pascale Dangoisse, "Data Primer: Making Digital Humanities Research Data Public."
- **Science**: FAIRagro, "How to learn and teach RDM – a collection"; DataONE Data Management Skillbuilding Hub; Microscopy Australia RDM Module
- **Social Science + Business:** ICPSR Teaching & Learning website; Data Tree

Checkpoint: What thing are you the most **excited** to bring into the classroom? What are some of the **hesitations** you still have about teaching RDM?



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Research Data Management Links

Send RDM Services an email:

rdm@mcmaster.ca

Review resources on our webpage:

https://rdm.mcmaster.ca

Join our Community of Practice:

https://u.mcmaster.ca/rdm-community

Make an appointment:

https://u.mcmaster.ca/rdm-appointments

SCDS Links

Send SCDS an Email:

scds@mcmaster.ca

Subscribe to our Newsletter:

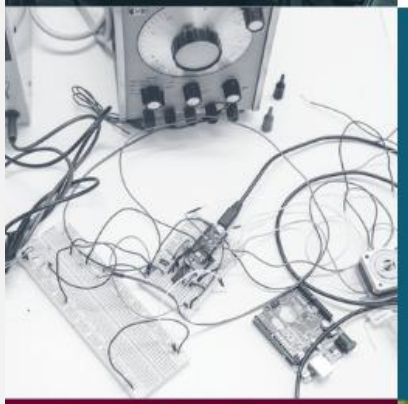
https://u.mcmaster.ca/sign-up

Register for a Workshop:

https://u.mcmaster.ca/scds-workshops

Schedule a Consultation:

https://libcal.mcmaster.ca/appointments



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