



Mount Royal University Research Data Management (RDM) Strategy

March 1, 2023

Introduction

Research Data Management (RDM) is the practice of collecting, organizing, protecting, and storing research data for reliability, security, accessibility, and scalability. In today's world, data are pervasive but not always unequivocal. Soundly managed research data is a critical concern for post-secondary research programs, with benefits including increasing researcher efficiency, ensuring data integrity, as well as enhancing the reach and impact of research by facilitating the opportunity to re-use or share data. Research is "*an undertaking intended to extend knowledge through a disciplined inquiry and/or systematic investigation*" (Tri-Agency Framework: Responsible Conduct of Research (2021)). A disciplined approach to research is necessary to ensure credibility. An institutional RDM strategy supports that rigour, by ensuring the tools, training and support needed to facilitate and encourage the adoption of RDM best practices by MRU researchers are in place. The Tri-Agency Research Data Management Policy requires that any post-secondary institutions holding funds from the Canadian Institutes of Health Research (CIHR), Natural Sciences and Engineering Research Council (NSERC), or Social Sciences and Humanities Research Council (SSHRC) have an institutional RDM strategy in place and publicly accessible by March 1, 2023. Given the success of Mount Royal faculty in securing Tri-Agency funding, we are committed to developing and maintaining a RDM strategy.

This strategy examines the current state of RDM at Mount Royal University (MRU) and strategically defines a path forward for continuing and expanding support of data management practices with a commitment to secure data repository approaches. This strategy was developed by the Associate Vice President Research, Scholarship and Community Engagement (AVP RSCE) with critical and significant contribution from the Research Data Management Working Group of the Research and Scholarship Committee of General Faculties Council. Several departments within the university were engaged with and provided input on information technology (IT) infrastructure, policy, processes, training and resourcing implications. The implementation of this strategy will be overseen by the AVP RSCE and reviewed and revised annually.

Current State

Mount Royal University researchers are supported in their commitment to adopt sound research data management principles in their work. Tri-Agency frameworks guide researchers in their approach outlining high level requirements for data archiving, inclusion of data management plans (DMPs) in select grant applications, and the development of institutional RDM strategies.

DMPs outline how data will be collected, stored, secured, accessed, shared, and potentially replicated. The DMP responds to broad calls for research to be verifiable and securely stored in the face of potential security risk.

This strategy guides MRU in the task of promoting and supporting the adoption of RDM best practices as well as promoting the development and expansion of MRU's research data management support services and infrastructure. This strategy is relevant to those involved in research and scholarship at MRU - whether employee, student, or community member, as well as encompassing the university departments and staff who support them. Development and implementation of this strategy also provides an opportunity for dialogue across MRU about the needs and challenges involved in achieving robust research data management.

Existing support for RDM is spread across various campus departments. The Office of Research, Scholarship, and Community Engagement (ORSCE) develops and updates policy related to research data management, provides grant development support, and manages some research software licenses. MRU researchers submitting Research Activity Forms (RAFs) to the ROMEO system, are required to adhere to Tri-Agency best practices.

The University Library (Library) manages the [Institutional Data Repository](#), which is part of the national [Borealis](#) network, an initiative of the Ontario Council of University Libraries' Scholars Portal service. The Data Repository is open to all MRU researchers, automates persistent identification and versioning of datasets with customizable terms of access and use, integrates with national and international discovery systems, and offers secure and redundant storage. While storage capacity is limited, MRU researchers also have access to the Federated Research Data Repository for larger datasets. The Data Repository is anticipated to be adequate for long-term use. Additionally, the Library faculty offer support for data management planning, including the provision of current information and resources on the Library website. The Library also provides learning opportunities via workshops and one-to-one consultations.

Information Technology Services (ITS) generally oversees data storage, computing and networking, and institutional software licensing; however, research software and computing are also provided by other campus departments. Google Drive is available for small-scale, non-sensitive data storage. H Drive is secure and managed internally but limited in capacity. Researchers requiring additional data storage may consult with ITS on customized or external storage options. A file transfer system is available for secure internal and external movement of data.

Training, practices, and policies related to the management of human research data are developed by the MRU Human Research Ethics Board (HREB). The HREB website contains guidance on the consent process for open data repository, use of web-based tools to collect and store data, collection of data using video software, use the MRU internal file transfer system, as well as guidance documents related to sensitive data from the Digital Research Alliance of Canada. The MRU HREB application form requires researchers to provide information on their data collection processes, data storage, and data security including:

- The collection of personal identifiers

- Safeguarding of personal information of participants
- Data access
- Physical and technical safeguards to securely store data
- Data retention parameters
- Data archiving processes

Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2) includes guidance, and interpretations on data management. Any Mount Royal faculty engaging in research involving human participants, their data or their biological materials, must comply with HREB requirements. Quality assurance and quality improvement studies, program evaluation activities, and performance reviews, do not constitute research (TCPS 2 [Article 2.5](#)) and do not fall within the scope of REB review. Ethics policy and procedures refer to expectations outlined in TCPS 2 (2022)

The most relevant sections of Tri-Council Policy are:

[Chapter 5](#): Privacy and Confidentiality

[Chapter 3](#): The Consent Process

[Chapter 9](#) : Research Involving the First Nations, Inuit and Métis Peoples of Canada

[Interpretation: Consent #8](#), requiring consent for open data

[Guidance](#): Depositing Existing Data in Public Repositories

Strategic Gaps

While there is a significant amount of research data management support available, it is often provided only upon request and may not be available to all MRU researchers. High performance computing, some research software, and large-scale storage options, for example, are provided by some academic departments and may not be widely available. Researchers who do have data management resources and training opportunities available to them may not be aware of how to access those supports.

There are no dedicated human resources for RDM. Support for RDM is part of the teaching and service workload of the Data Librarian. Staff in the Library, ITS, and ORSCE contribute to infrastructure and support for elements of RDM as issues arise.

Greater collaboration among stakeholders and service-providers across the University, along with efforts to raise awareness of research data management practices and supports, will help to develop a stronger culture of data management and sharing.

The Research Data Management Maturity Assessment (Appendix A) provides details on the maturity of: institutional policies and processes; IT infrastructure; support services; and, financial support. The Assessment informs the Strategic Path Forward.

Strategic Path Forward

MRU will continue to build capacity and strengthen collaborative support for research data management best practices through attention to the following activities. The implementation of

this strategy will be led by the AVP RSCE in collaboration with The Library, ITS, the ORSCE, HREB, Finance and with Provost engagement. This collective effort may result in a formalized Committee.

Institutional Engagement

- Seek guidance from the Offices of Indigenization and Decolonization and Equity, Diversity, and Inclusion in order to ensure that research data management practices, policies, and supports respond to diverse perspectives.
- Identify opportunities for collaboration between MRU researchers, the Office of Research, Scholarship, and Community Engagement, the Library, the Human Research Ethics Board, and Information Technology Services in supporting and promoting research data management activities.
 - Potential to survey University stakeholders, including Faculty researchers, on their Data Management needs.
- Consider RDM principles and practices during regular reviews of relevant institutional policies.
- Include RDM in the Research and Scholarship Plan 2023-2028.

Training and Awareness

- Explore opportunities to further incentivize and support data management planning, data archiving for preservation, and data sharing.
- Incorporate data management awareness initiatives into research programming, such as Research and Scholarship Days.
- Examine RDM communications strategies for opportunities to enhance awareness and community participation.
- Establish more comprehensive training opportunities through collaborations between of the Office of Research, Scholarship, and Community Engagement, the Library, the Human Research Ethics Board, and Information Technology Services
- Provide support for the integration of data management instruction into research-focused courses in undergraduate curricula.

Data Repository

- Offer opportunities for stakeholder engagement with and counsel on the Mount Royal University Data Repository.
- Regularly review the Mount Royal University Data Repository software for adequacy in supporting the evolving needs of researchers.
- HREB to create guidelines and procedures for wording on consent forms to support researchers who wish to pursue data repository participation.
- Support researchers requiring data sharing and storage options beyond the capacity of the Mount Royal University Data Repository.
- Regularly review data curation practices in order to ensure that deposited data adhere to the FAIR principles (findable, accessible, interoperable, and reusable).

Data Management Planning

- Provide direct support to researchers engaged in data management planning as a requirement of research funding processes.
- ORSCE to develop a Research Records Stewardship guidance document that might encourage DMPs in research activity forms, or as a requirement for internal research grants.
- Explore opportunities to incentivize data management planning for both funded and unfunded research.
- Offer training opportunities that address the data management planning process and its components.
- Support the use and customization of existing tools and software for data management planning.

Data Storage and Software

- Seek to enhance interoperability between MRU-supported research software and data management tools in order to streamline data management activities.
- Monitor adequacy of available collaborative software for both sensitive and non-sensitive active research projects.
- Support the use of advanced research computing tools and high-speed networks available through regional and national partnerships.
- Examine on-going resourcing of long-term, secure storage of research data.

Indigenous Data

Mount Royal University is committed to managing Indigenous Data in a culturally respectful and acceptable way. First Nations, Inuit, and Métis perspectives on data management plans will be integrated to the RDM strategy through engagement with the office of Indigenization and decolonization. Through this engagement, principles of Indigenous data sovereignty and self-determination in data management will inform the RDM strategy. Collaborating participants from the ORSCE, Library, HREB and other departments will also draw on the following resources to expand their knowledge:

- First Nations Information Governance Centre: <https://fnigc.ca/>
- Ownership, Control, Access, and Possession (OCAP): <https://fnigc.ca/ocap-training/>
- Research Involving the First Nations, Inuit, and Métis People of Canada: https://ethics.gc.ca/eng/tcps2-eptc2_2018_chapter9-chapitre9.html
- The CARE Principles for Indigenous Data Governance: <https://datascience.codata.org/articles/10.5334/dsj-2020-043/>
- National Dialogue on Data Management Plans and Indigenous Data

Other Relevant Strategies and Policies

Mount Royal University:

Procedure for the Collection, Storage and Authenticity of Research Data and the following Related Policies/Procedures:

- Animal Care Policy
- Code of Conduct - Employee
- Code of Student Academic Integrity Policy
- Code of Student Community Standards Policy
- Ethics of Research Involving Human Participants Policy
- Responsible Conduct in Research Policy
- Procedure for Addressing Allegations of Misconduct in Research
- Procedure for Conflict of Interest in Research

Tri-Agency:

- Tri-Council Agency Framework: Responsible Conduct of Research (2021)
- Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2022)
- Tri-Agency Research Data Management Policy

Related Legislation:

- Alberta Freedom of Information and Protection of Privacy Act.
- Canada's Food and Drugs Act.
- The Canadian Environmental Assessment Act.

Other:

- Digital Research Alliance of Canada RDM: <https://alliancecan.ca/en/services/research-datamanagement>
- Research Data Management Terminology <https://codata.org/initiatives/data-science-andstewardship/rdm-terminology-wg/rdm-terminology/>

Questions or Comments: Please contact Associate Vice President Research Scholarship and Community Engage Dr. Connie Van der Byl cvandebyl@mtroyal.ca