

The University of St. Michael's College Institutional Research Data Management Strategy

The Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC) launched the *Tri-Agency Research Data Management Policy* in March 2021. This policy requires that all institutions eligible to administer Tri-Agency funds create an institutional RDM strategy reflective of the institution's size, research activity, and current RDM capabilities.

The Tri-Agency RDM Policy also introduces new data management criteria for researchers seeking federal funding. In specific funding competitions, applicants will need to submit data management plans (DMPs) as part of their application process, with the quality of these plans factored into the merit review. Additionally, following a review of institutional strategies and alignment with the Canadian research community's readiness, the agencies will gradually introduce a data deposit requirement.

The University of St. Michael's College is federated with the University of Toronto, and has decided to adopt applicable components of its Research Data Management Strategy. The University of Toronto developed its strategy in collaboration with federated hospitals, and the University of St. Michael's College shares similar commitments to and expectations of responsible Research Data Management.

Institutional Commitment to Research Data Management

The University of St. Michael's College is committed to achieving excellence in all research activities. Data are valuable research outputs, and the proper management and handling of data are fundamental to research integrity.

The University of St. Michael's College Research Data Management Strategy outlines the institutional commitment to responsible practices for the management of data created, collected, and utilized throughout the research process at St. Mike's.

The University of St. Michael's College is committed to providing supports for researchers to implement research data management (RDM) practices ensuring the proper care, stewardship, and leverage the potential of data. Supports developed respect the diverse and distinct approaches required for RDM activities across disciplines, types of data, and project partner requirements.

Importance of Research Data Management

For the value of data to be fully realized, specific treatment of data is needed throughout the course of research and beyond. RDM refers to the processes and actions throughout a project which guide the collection, documentation, storage, sharing, and preservation of research data. Responsible RDM practices help to ensure the quality, reliability, security and integrity of research data, which can enhance the credibility and impact of research findings. What constitutes research data will differ by project. Further, different kinds of data, research

methodologies, and the characteristics of individual datasets will require distinct practices to maximize the utility of data. Therefore, it is beneficial to plan how data will be managed at the start of a research project through the creation of a data management plan (DMP), which helps to conceptualize and develop consistent actions for data across project stages. Datasets should be prepared, deposited, and retained in an appropriate repository to ensure the preservation of research data. Making datasets and documentation available for reuse as a research output and enabling the recognition of contributors responsible for the data production, potentially furthers the reach and impact of the research investment are all important components of research data management and DMPs. Well-managed data and supporting documentation made available to others makes it easier for studies to be replicated and results to be validated. Data supporting research findings should also be made available for reuse when possible, following the FAIR Principles guidelines of making data Findable, Accessible, Interoperable, and Reusable. This can open new channels for collaboration, discovery, and reuse, and contribute to global understanding, knowledge building, and innovation.

The University of St. Michael's Principles regarding Research Data Management:

Promote Research Integrity and Excellence

Providing support that promotes and integrates the responsible conduct of research is essential to building and maintaining an environment that fosters research and innovation excellence. Well-managed data is fundamental to the research process and advances discovery and knowledge mobilization. Responsible research data management actions align with the objectives of institutional, national, and international strategic directions for research. RDM practices should foster equity, diversity, and inclusiveness, and provide flexibility for distinction-based approaches. Research data managed with integrity and in an ethical and transparent manner strengthens outputs, facilitates excellence and innovation, and increases our global impact in both scholarship and society beyond academia.

Recognize the Value of Data

Research data underpins institutional knowledge building. There is value in data as a distinct research output. Proper documentation and stewardship of data results in the ability to validate results and the replication of studies to support research findings. Well-managed data enables data sharing and reuse, which increases access to results (including the reporting of negative results) and can lead to further discovery and greater reach and impact. In pursuit of research and scholarship, variation in the interpretation of data between researchers is expected.

Encourage the Implementation of Data Management Plans

A data management plan (DMP) is an essential part of designing and executing effective research approaches, from the inception to completion of a project. Proper planning improves data stewardship. A DMP provides direction and guidance for consistent actions across a project, increasing the reproducibility, visibility, and reuse of the research outputs. The creation and

maintenance of DMPs should reflect best practices for managing data, improving project efficiencies, and mitigating risk.

Facilitate Long-Term Access Through Data Deposit

There is value in maintaining long-term access to data which supports research findings and serves as the basis for further inquiry. Data should be properly prepared, documented, and retained with assigned custodianship and, when possible, under the care of a designated repository. This facilitates the availability of results, and that data should be ‘as open as possible, and as closed as necessary’.

Reflect Institutional Practices and Standards

It is essential that data practices abide by legal and ethical frameworks, adhere to institutional policies and procedures, and consider expectations of sponsors and research partners. Approaches to RDM will be diverse and should reflect the distinct needs and practices required for different types of data and projects. This involves reflecting institutional guidance, ethical standards, community principles, disciplinary standards, and established best practices in RDM decisions.

Honour Indigenous Community-Driven Principles

Meaningful and respectful research honours Indigenous cultures and knowledge and data should be managed in a way that leads to beneficial change and the rebuilding of trust. All research developed and conducted should support Indigenous data sovereignty and be in alignment with community-driven principles (such as CARE [<https://www.gida-global.org/care>] and OCAP® principles [<https://fnigc.ca/ocap-training/>]). There is recognition that each community is distinct, and relationships and research approaches will reflect these differences. Approaches should promote Indigenous perspectives, incorporate more holistic Indigenous methodologies, give special concern to artifacts, and minimize bias stemming from other cultural frameworks. The outcomes of such research should enable capacity development and community empowerment. Developing institutional direction and guidance requires engagement with Indigenous leaders, researchers, and communities.

Foster a Culture of Inclusive Representation and Public Trust

The analysis and use of data can be influential and impactful. Public trust is built through engagement and through the assurance that data has been collected, analyzed, and reported in an ethical, unbiased, and transparent manner. There is a social responsibility to ensure representation and engagement with equity-seeking communities. Principles of equity, diversity, and inclusion should be incorporated into data collection, analysis, and dissemination to prevent bias, discrimination, and harm and ensure representation in research design.

Observe Jurisdiction and Legalities

Data are subject to legal and organizational frameworks. It is important that data management actions ensure that data adhere to the conditions to which they are subject. It is acknowledged that laws and regulations will differ by region and country and could govern data that crosses jurisdictional boundaries. Data that fall under organizational and governance structures may also be subject to policies and standards that outline acceptable actions. In research, the reuse of third-party data must respect intellectual property right and contractual provisions outlined in licenses, agreements, and terms of use.

Strengthen Partnership and Collaboration

Tremendous value is placed in fostering meaningful collaborations and research partnerships. Research is strengthened through relationships and engagement with communities, not-for-profits, government entities, the private sector, and academic researchers – local and global. Mutually beneficial research relationships outline the division of responsibilities related to data actions and ownership.

Mitigate Risk Related to Sensitive and Confidential Data

Confidential data are those that have the potential to cause harm due to unintended access or release. This can include data that may have geopolitical or economic implications or that may compromise research endeavours if released prior to publication. The protection of research includes assessing the level of risk associated with data in order to make appropriate data management decisions and to secure the data from unauthorized access and modification.

Safeguard Human Data

Sensitive data, including information about individuals, communities, and groups, are subject to specific ethical, legal, and contractual obligations. Research conducted must be aligned with the [Tri-Council Responsible Conduct of Research \(RCR\)](#) and the [Policy Statement on Ethical Conduct for Research Involving Human \(TCPS 2\)](#) including core principles of respect for persons, concern for welfare, and justice. There must be adequate levels of infrastructure, security, and guidance in place to assist in mitigating any risk of harm and ensure the ethical treatment of data.

Integrate Excellence in all Disciplinary Approaches

Scholars engage in diverse research and scholarly endeavours which represent a variety of subject areas and research methodologies. Decisions around the treatment of data should reflect the best practices and standards appropriate for the types of data that a project includes. Flexibility in distinct approaches to data should be recognized and supported, and that research both benefits from and contributes to disciplinary communities of practice.

Connect through Communication and Engagement Opportunities

The research data landscape is dynamic and constantly evolving. There is a commitment to continuous engagement and communication with both our research community and external

stakeholders. Ongoing learning from research communities will inform supports that are representative of diverse needs and practices. It is a priority to raise awareness and increase researcher knowledge of the evolving expectations of research data management practices.

Provide Infrastructure that Supports Diverse and Complex Programs of Research

Robust and coordinated infrastructure is vital to practices throughout the research data lifecycle and should be secure and bring consistency, interoperability, and equitable access. Infrastructure resources should be reflective of needs, scalable to meeting growth efficiently, and evolve in response to engagement with stakeholders.

Ensure Support Services are Available

There is a commitment to provide comprehensive and coordinated support services for data management in collaboration with the University of Toronto. These services aim to increase the implementation of best practices for conducting effective research by engaging researchers and enhancing organizational expertise.

Commit to Advocacy and Support for Researchers' Needs

The institution should be a voice representing the needs and values of the research community as well as advocating to protect the rights of individual researchers and those participating in research. This involves a commitment to the betterment of research practices through continuous reflection, acting as leaders to influence change, and building mechanisms to assist researchers to practice standards and meet obligations – both at the University of St. Michael's College, and when applicable, with its federated partner, the University of Toronto.

Expectations for Research Data Management Practices

Institutional Practices

It is expected that research conducted at the University of St. Michael's College adheres to institutional policies, guidelines, and recommendations for proper data handling. Researchers should treat data with rigour and operate within institutional frameworks.

Researchers must ensure security requirements and guidelines are implemented. The appropriate selection and use of infrastructure should align with established standards, (e.g., the University of Toronto's *Information Security Standard* [<https://security.utoronto.ca/framework/standards/data-classification-standard/>]), best practices, and project needs. Approved and vetted resources should be considered first. If other resources are used, they must be in compliance with relevant policies, procedures, and security guidelines.

Researchers should be aware of the supports available through St. Mike's and its federated partner, the University of Toronto. Researchers should leverage opportunities to increase the understanding of RDM and utilize resources that aid in the implementation of responsible data management practices. Institutional communication channels should also be used to stay abreast

of developments, supports, and opportunities for feedback and engagement. All researchers, research team members, and students should be encouraged to build capacity and skills in data management activities and practices, and RDM concepts should be integrated into training and teaching when possible.

Data Management Plans

Research at the University of St. Michael's College should reflect best practices in the planning and execution of projects, which includes the creation of a data management plan (DMP) to support research projects. DMPs are living documents that can be modified to accommodate changes in practices as the research evolves. Documenting processes in the planning stage of a project maintains data integrity and project efficiencies and helps to prepare data in ways that enable preservation and data sharing. Data management decisions are impacted by funding and project timelines and planning helps to ensure that necessary supports and resources are in place and included in budgets. When creating a DMP, researchers should note all ethical, legal, cultural, and intellectual property considerations, adhering to best practices, standards, disciplinary processes, and requirements or expectations outlined by sponsors, project partners, or publishers. DMPs in the context of Indigenous research must be co-developed and designed with community members and in consideration of community-driven principles.

Data Deposit

DMPs should include considerations and mechanisms to care for data after a project. Data that underpin research and publications should be prepared and packaged (along with any accompanying documentation, code, metadata, and supplementary materials) in a way that facilitates their long-term access and reuse. Researchers should retain these data with a designated custodian, repository, or archive for a defined period, determined by the researcher or as specified by a sponsor, project partner, or publisher requirement. Additionally, data retention periods should consider the need for the data to potentially verify findings, serve as inputs for future scholarly research, and support the public interest.

When possible, data should be deposited into an appropriate repository or archive and, when appropriate, made available to others. When depositing and sharing data, researchers should strive to adhere to standards and have datasets embody the FAIR Principles (making data Findable, Accessible, Interoperable, and Reusable) to enhance discovery and reuse. Research publications should link to data outputs or include information about where and how to access data and any conditions of use.

The University of St. Michael's College Research Data Management Goals:

Goal 1: Continued leadership in national RDM conversations, providing support and contributions to national frameworks and services with and/or through our federated partner, the University of Toronto

Goal 2: Ensure the institutional coordination and integration of RDM supports

Goal 3: Alignment and clarity of processes to enhance collaboration and streamline administrative procedures and requirements

Goal 4: Recognize our internal structures, and the need for both support within the University of St. Michael's College and the University of Toronto

Goal 5: Provide training and upskilling opportunities to the University of St. Michael's College at the internal level as well as through the University of Toronto

Goal 6: Support the creation of robust Data Management Plans

Goal 7: Develop and/or promote user-centered resources for RDM that reflect the diversity of our research

Goal 8: Work with the Indigenous Research Network to identify supports and gaps related to research done in partnership with First Nations, Métis, and Inuit communities

Goal 9: Explore internally and work with our federated partner, the University of Toronto, to provide infrastructure and computing solutions, including systems and networks for storage, computing and processing resources, and software, tools, and applications

Goal 10: Provide advice on security and technical best practices through available expertise at the University of St. Michael's College and the University of Toronto

Goal 11: Provide appropriate data deposit offerings internally or through the University of Toronto

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