

Aurora College Research Data Management (RDM) Strategy

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Background

In March 2021, Canada's three federal research funding agencies (NSERC, SSHRC, and CIHR) jointly released the [Tri-Agency Research Data Management \(RDM\) Policy](#) ("the RDM Policy"). The goal of the RDM Policy is to promote sound research data management (RDM) and data stewardship practices at all research-focused Canadian institutions eligible to administer Tri-Agency funding.

The RDM Policy lays out a requirement for all eligible institutions to develop and publish an institutional RDM strategy that aligns with accepted best practices in data management, such as:

- the [Findable, Accessible, Interoperable, and Reusable \(FAIR\)](#) guiding principles,
- the [Collective Benefit, Authority to Control, Responsibility, and Ethics \(CARE®\)](#) principles for Indigenous data management,
- the [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans - TCPS 2 \(2018\)](#), and
- other best practices as applicable (e.g., those practices specific to a discipline or data format).

The Importance of RDM

Research data management (RDM) is critical to the responsible conduct of research and beneficial to both research producers (such as researchers, post-secondary institutions, research institutions, and research sponsors) and research consumers (such as members of the public, commercial organizations, governments, and regulatory agencies).

An institutional RDM strategy refers to the processes, often codified in policies, procedures, and protocols, applied throughout the research data lifecycle to guide the management of research data. A strong institutional RDM strategy incorporates accepted best practices to ensure that research:

- Is performed ethically, which includes protecting sensitive personal information and intellectual property when necessary.
- Is discoverable, reducing the likelihood of research duplication, accelerating new discoveries, and fostering new collaborations amongst researchers.
- Is accountable and makes good use of public research funding.
- Is reproducible, allowing research results to be independently verified.
- Is as widely and freely accessible as possible, which both maintains public trust in research and its outcomes and increases the impact and relevance of the research and its results.

As a Tri-Agency eligible institution, Aurora College is committed to developing a strong institutional RDM strategy and encouraging its faculty, staff, students, and affiliates to incorporate RDM into their research activities. Creating a culture of RDM best practices at Aurora College will promote research transparency, encourage scientific innovation, foster collaboration, and increase the impact of northern research. As Aurora College transitions into a polytechnic university and expands its research activities and outputs, formalized RDM practices and robust institutional supports will ensure that our institution maintains a high standard of research excellence.

Developing an RDM Strategy at Aurora College

Aurora College first identified the need for an RDM strategy in the 2018 Knowledge Management Plan, one of four core strategies that support the goals and objectives outlined in the current strategic plan that governs the College's Research Division¹. Also in 2018, the Government of the Northwest Territories committed to transforming Aurora College into a polytechnic university, which will have an increased focus on research and innovation that is beneficial to the communities and people of the NWT. This has made the development of an institutional RDM strategy a high priority for the College, along with the development of the policies and procedures required to guide institutional RDM.

The increased emphasis on research that will follow the polytechnic transformation requires the College to build awareness of RDM and best practices in data management in advance of the transformation. This presents an opportunity for both current research practitioners (e.g., staff researchers, Research Associates, and members of the Research Advisory Council) and RDM stakeholders to determine the ideal RDM state at Aurora College. To this end, representatives from the College's senior management, library, and research divisions came together to form the Aurora College RDM Working Group in the summer of 2021. The mandate of the RDM Working group was two-fold: to develop an institutional RDM strategy for the College and to work with members of the Aurora College research community to identify the College's ideal RDM state. To date, the RDM Working Group has conducted a preliminary assessment of RDM awareness and practices at the College² and has identified a number of areas where action must be taken for the College to both comply with the RDM Policy and reach its ideal RDM state. The resulting institutional RDM strategy will serve as a guide for the College to establish a robust RDM culture.

Vision

Aurora College will have an institutional culture of RDM best practices that promote openness, transparency, and the highest standards of data stewardship. The College will support researchers through every stage of the research lifecycle with access to resources, guidance, and tools.

Principles

1. Research excellence

Aurora College has committed to strengthening its research practices as it transitions into a polytechnic university. Robust RDM practices will support this goal by fostering innovation, collaboration, and transparency. As a result, Northern research will have a greater reach and impact.

Upholds Aurora College's value of Innovation in the current strategic plan³.

¹ Aurora Research Institute Strategic Plan 2016-2026, available at <https://nwtresearch.com/about/strategic-plan>.

² Aurora College Data Management Strategy - Environmental Scan, Step 1 - Assessment of Institutional Data Assets, Practices, and Needs. September 2021.

³ Aurora College Three Year Strategic Plan 2020-2023, available at https://www.auroracollege.nt.ca/wp-content/uploads/2021/02/aurora_college_-_strategic_plan-Web.pdf

2. Responsible data stewardship

Research data is a valuable output of the research process that must be protected from loss or compromise. Aurora College will ensure that researchers have access to the support and technology they need to manage their data ethically and responsibly throughout the research lifecycle. Researchers will have the knowledge and tools to secure data assets and maintain the anonymity of human subjects.

Upholds Aurora College's value of Academic Integrity in the current strategic plan.

3. Indigenous data sovereignty

The Tri-agency specifies that “data related to research by and with the First Nations, Métis, or Inuit whose traditional and ancestral territories are in Canada must be managed in accordance with data management principles developed and approved by these communities, and on the basis of free, prior and informed consent.”

Research practices at Aurora College will uphold principles that maintain Indigenous data sovereignty, such as the [National Inuit Strategy of Research Priority Area 4, CARE](#), and the First Nations Principles of [OCAP](#). In addition, Aurora College recognizes that research by and with Indigenous peoples must be governed by the specific and unique knowledge, practices, and needs of individual Indigenous communities and that these communities have the right to control and access data for or about them.

Upholds Aurora College's values of Respect, Inclusiveness and Diversity and the strategic pillar Connections in the current strategic plan.

Scope

The strategy will guide the development of an RDM community at Aurora College that supports researchers in upholding RDM best practices. It is relevant to Aurora College researchers across all disciplines, including faculty, students, staff, and affiliates who engage in research, to College staff, such as Librarians and Information Technologists, who support RDM activities.

The Current State of RDM

Aurora College is a small northern institution that began building in-house research capacity after attaining Tri-Agency eligibility in 2014. The College's research capacity is expected to increase following the ongoing transformation to a polytechnic university, anticipated to be completed by 2026. This growth in research will generate data assets requiring effective management by members of the College's research community. Some existing institutional supports are in place to guide researchers and assist the College in achieving its ideal RDM state. However, while drafting this version of the Aurora College RDM Strategy, the RDM Working Group noted a number of shortfalls and gaps that will need to be addressed for the institution to manage its research data going forward.

Existing Institutional Supports

- An Aurora College data management plan (DMP) and accompanying instructional guide were developed in 2018.

- An RDM Working Group was established in 2021.
- In 2022, work began on developing new RDM policies and procedures. These will outline standards and provide processes to ensure the College creates an environment that supports RDM best practices.
- The Aurora College Libraries joined COPPUL and Borealis (formerly Scholars Portal) in 2022 and licensed a Borealis institutional platform. This gives Aurora College researchers the opportunity to publish and share research data and an additional option for secure storage and preservation. Representatives from the College Libraries have since attended webinars to gain knowledge that will allow them to support researchers using this service.
- A new position (the Manager, Research Data Management) was created and positioned in the Research Services Office in 2023. This position will take the lead on day-to-day RDM activities, raise awareness of RDM amongst members of the College research community, and lead the various working groups that will develop institutional RDM strategies, policies, and procedures.

Identified Shortfalls and Gaps

- **Formalized policies and procedures:** At this time, the College has not finalized its policies, procedures, or processes related to RDM. Doing so will require a substantial effort and the involvement and cooperation of many members of the College research community.
- **Current RDM practices:** The 2021 environmental scan demonstrated that RDM practices are informal and inconsistent. Most College researchers have not yet adopted the Aurora College DMP and perform formal data management planning only when it is required by external funders. Although they recognize the benefits, researchers do not practice data sharing widely.
- **Capacity of current staff:** There will be a substantial education and training requirement for existing College staff, many of whom have little to no experience with RDM, to develop the in-house expertise needed to provide researchers with RDM support.
- **RDM specific staff:** Although the Manager, Research Data Management was hired in 2023, it is unclear at this time if additional staff will be required in the College libraries or IT department to support the development of RDM practices.
- **RDM supports:** Aside from the DMP and guide, RDM specific training, guidance, and services are still in the planning phase.
- **Resources:** It is unclear at this time what RDM related equipment is needed to support RDM effectively on behalf of the institution, particularly as research by faculty and other members of the College research community increases.
- **Financial support:** Although the Tri-Agencies have increased the RDM requirements for eligible institutions, it is not clear what long-term financial support is available for RDM at Aurora College. The College received funding under a two-year pilot program for a portion of the increased costs associated with RDM and developed one new position (the Manager, Research Data Management). However, it is currently unclear what long-term sources of funding will

offset the ongoing costs for the required personnel, equipment, or resources to manage the institution's data assets after that program concludes.

Goals and Roadmap

To date, the RDM Working Group has identified several areas where action must be taken for the College to both comply with the RDM Policy and reach its ideal RDM state. To this end, the RDM Working Group has established three main goals to guide the strategy (adapted from the Institutional Research Data Management Strategy Template⁴):

1. To raise awareness regarding research data management in the Aurora College research community.
2. To assess the current and ideal states of RDM at Aurora College.
3. To formalize RDM practices at Aurora College.

Several actions are required for the College to reach these goals over the three-year period leading to the transformation into a polytechnic university.

Goal 1: To raise awareness regarding research data management in the Aurora College research community.

Proposed Actions

- Determine the RDM-related training needs at the College using the results of the 2021 Aurora College Data Management Strategy Environmental Scan (research staff survey).
Timeline: 6 months
- Develop an in-house virtual collection of RDM guides and tools that is easily accessible to Aurora College researchers.
Timeline: 6 months-1 year
- Promote Aurora College's Borealis institutional platform and raise awareness of other data repositories amongst researchers. Support researchers to depositing existing datasets into appropriate data repositories for sharing and preservation.
Timeline: 6 months-2 years
- Create a communications and outreach strategy to increase knowledge and awareness of RDM best practices and available supports for Aurora College research practitioners.
Timeline: 1-2 years
- Identify and promote training and educational opportunities to develop RDM capacity in Aurora College researchers and connect Aurora College researchers with wider RDM communities. Develop in-house RDM training and awareness-raising activities for research practitioners, including a series of virtual workshops covering RDM and focused on research in the Northwest Territories.

⁴ The Institutional Research Data Management Strategy Template (version 2.0, published 1 March 2020) was developed by the Portage Institutional RDM Strategy Working Group to support institutions that are in the process of developing their own RDM strategies.

Timeline, 1-2 years, ongoing

Goal 2: To assess the current and ideal states of RDM at Aurora College.

Proposed Actions

- Create an RDM Advisory Committee of Aurora College staff and researchers to act as a community of data champions, advise on issues related to RDM at Aurora College, recommend updates to institutional RDM policies, and guide the development of the RDM strategy.
Timeline: 6 months
- Use the results of the environmental scan to inform future institutional planning and decision-making around RDM resources.
Timeline: 1 year- ongoing
- Create a working group to ensure Aurora College RDM practices align with NWT Indigenous data sovereignty and data management priorities.
Timeline: 2-3 years

Goal 3: To formalize RDM practices at Aurora College.

Proposed Actions

- Continue to develop institutional processes related to RDM, including completing and approving new policies that govern Aurora College's RDM practices and regularly reviewing and revising these policies as RDM practices evolve.
Timeline: 1-3 years
- Identify and communicate training opportunities and resources that will build RDM expertise in Aurora College staff who support researchers with effective RDM practices.
Timeline: 1 year- ongoing
- Expand Aurora College's DMP template into a collection of DMP templates that reflect best practices across various disciplines. Promote the use of DMP tools, such as the Digital Research Alliance DMP Assistant, that support researchers with preparing DMPs covering the research lifecycle.
Timeline: 1-2 years
- Engage with the Aurora College research community and RDM stakeholders to receive feedback on the effectiveness of institutional RDM processes.
Timeline: 2 years-ongoing
- Identify the infrastructure and equipment needs for RDM as College research increases. Develop guidelines for the secure storage and protection of research data.
Timeline: 2 years

Oversight and Review

The Aurora College RDM Institutional Strategy is a living document that will change as the institution, RDM practices, and Tri-agency requirements evolve. The RDM Advisory Committee is responsible for overseeing the progress and implementation of this strategy through quarterly reviews. The Committee, through the Vice President of Research, will recommend actions and updates to the strategy to the College's Executive Leadership team as needed.

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Appendices

Definitions

Data Management Plan (DMP): “A living document, typically associated with an individual research project or program that consists of the practices, processes and strategies that pertain to a set of specified topics related to data management and curation. DMPs should be modified throughout the course of a research project to reflect changes in project design, methods, or other considerations. DMPs guide researchers in articulating their plans for managing data; they do not necessarily compel researchers to manage data differently.”

Innovation, Science and Economic Development Canada. (2021). *Tri-Agency research data management policy: Frequently asked questions*. Government of Canada. https://science.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a

Data stewardship: “The management and oversight of data to ensure fitness for use and compliance with policies, directives, and regulations.”

Statistics Canada. (2022). *Data stewardship: An introduction*. Government of Canada. <https://www.statcan.gc.ca/en/wtc/data-literacy/catalogue/892000062020013>

Indigenous Data Sovereignty:

- “First Nations authority, right, power to govern as sovereign Nations and make decisions or laws on the ownership, control, collection, access, analysis, application, possession and use of their own data.”

First Nations Information Governance Centre. (2020). *A First Nations data governance strategy: A response to direction received from First Nations leadership, funded through federal budget 2018 in support of the new fiscal relationship*. https://fnigc.ca/wp-content/uploads/2020/09/FNIGC_FNDGS_report_EN_FINAL.pdf

- “Ensuring Inuit access, ownership, and control over data and information gathered on our population, wildlife, and environment.”

Inuit Tapiriit Kanatami. (2018). *National Inuit Strategy on Research*. <https://www.itk.ca/wp-content/uploads/2020/10/ITK-National-Inuit-Strategy-on-Research.pdf>

- Data will be produced with processes agreed upon by Métis people, gathered voluntarily with informed consent from Métis individuals, and Métis regions will have ongoing ownership and control of research data involving their communities or citizens.

Métis Nation Saskatchewan. (2022). *Memorandum of understanding: Measuring and reporting on Métis-Specific health and wellbeing between Métis Nation Saskatchewan and Canadian Partnership against cancer*. <https://metisnationsk.com/wp-content/uploads/2022/03/Measuring-and-Reporting-on-Metis-Specific-Health-and-Wellbeing-CPAC.pdf>

Indigenous Research: “Research in any field or discipline that is conducted by, grounded in or engaged with First Nations, Inuit, Métis or other Indigenous nations, communities, societies or individuals, and their wisdom, cultures, experiences or knowledge systems, as expressed in their dynamic forms, past and present.”

Social Sciences and Humanities Research Council. (2021, May 4). *Definitions of terms*. Government of Canada. <https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/definitions-eng.aspx#a11>

Research data management (RDM): “The storage of, access to and preservation of data produced from one or more investigations, or from a program of research. Research data management practices cover the entire lifecycle of the data, from planning the investigation to conducting it, and from backing up data as it is created and used to preserving data for the long term after the research has concluded. It also includes data-sharing, where applicable.”

Social Sciences and Humanities Research Council. (2021, May 4). *Definitions of terms*. Government of Canada. <https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/definitions-eng.aspx#a29>

Relevant Aurora College Policies

[Policy B17: Indigenous Knowledge](#)

[Policy I.02 Research Administration](#)

[Policy I.03: Integrity in Research and Scholarship](#)

[Policy I.04: Ethical Conduct for Research Involving Human Subjects](#)

[Policy I.06 Intellectual Property](#)

Relevant External Policies, Principles, or Legislation

[Access to Information and Protection of Privacy Act](#), (1996), Government of the Northwest Territories

[Bill C-15: An Act respecting the United Nations Declaration on the Rights of Indigenous Peoples](#), (2020), Government of Canada.

[CARE Principles for Indigenous Data Governance](#), (2020), Global Indigenous Data Alliance

[FAIR Guiding Principles for scientific data management and stewardship](#), (2016), Wilkinson, Dumontier, Aalbersberg et al.

[First Nations Principles of OCAP](#), First Nations Information Governance Centre

[GNWT Knowledge Agenda: Northern Research for Northern Priorities](#), (2017), Government of the Northwest Territories

[GNWT Traditional Knowledge Policy](#), (2005), Government of the Northwest Territories.

[Guidance on Depositing Existing Data in Public Repositories](#), (2021) Government of Canada

[National Inuit Strategy on Research](#), (2018), Inuit Tapiriit Kanatami

[Principles of Ethical Métis Research](#), (2010), Métis Centre @ National Aboriginal Health Organization.

[Tri-Agency Framework: Responsible Conduct of Research](#), (2021), Government of Canada

[Tri Agency Research Data Management Policy](#), (2021), Government of Canada

[Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2](#) (2022),
Government of Canada

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