

RESEARCH DATA BEST PRACTICES

DEFINITIONS USED

A *Data Management Plan* is a document that outlines how data will be managed from the point of data collection or acquisition at the start of a research project all the way through to what will happen to the data once the project finishes. Typically, a data management plan (DMP) will cover areas such as data collection strategy, backup and storage of data, ethical/legal requirements related to data, data sharing and archiving, and project roles and responsibilities.

Metadata is information that describes significant aspects of a dataset. For example, this may include authors, title, date of publication, unique identifier, a description of what the dataset contains and a reuse license. This provides other researchers with the information needed to understand and reuse the dataset as well as making the dataset more findable.

BEST PRACTICES

Ownership of and Responsibility for Research Data and Research Materials

1. In the case of externally sponsored research involving a grant, contract, or other agreement, the institution receiving the funding will own and be primarily responsible for the Research Data and Materials. The PI will be responsible for controlling storage, use, and distribution of Research Data and Materials arising from the research activity, subject to provisions of applicable agreements, university policies and laws. If multiple PIs are involved in the creation of Research Data and Materials, they should agree upfront, via a written data management plan on what rights and responsibilities each will have with respect to Research Data and Materials.
2. Where the research is performed without an agreement, such as in the case of institutionally sponsored research, or unsponsored activities, the individual primarily responsible for the conduct of the research will be responsible for the storage, use and distribution of the Research Data and Materials arising from the activity.
3. Creation of an appropriate data management plan is highly encouraged for all research that generate Research Data and Materials. When sharing Research Materials outside the University a material transfer agreement should be used.
4. Except as otherwise provided in a written agreement, in this Policy or in Section J of the Academic Faculty and Administrative Professional Manual, the University is the owner of Research Data and Materials, and the PI is the steward of the Research Data and Materials that are under their control. PIs are responsible for managing access to Research Data and Materials under their stewardship. PIs will select the vehicle(s) for publication or presentation of the data. PIs decide whether to share Research Data, including placing Research Data in public repositories, unless specific terms of sponsorship or other agreements limit this right. Responsibility for Research Data and Materials includes:
 - a. Development of a formal Research Data Management Plan and procedures where appropriate;

- b. Management of Research Data and Materials ensuring efficient and effective retrieval by the PI, other personnel within the research group, or appropriate administrative personnel or research sponsors;
 - c. Making reasonable and equitable decisions about the use of and access to Research Data and Materials by those involved in projects from which they arise including, without limitation, students;
 - d. Educating/advising individuals using or having access to the Research Data and Materials of the requirements of data management plans and procedures or other applicable controls, limitations or compliance requirements employing Data Use Agreements (DUA) and Data Transfer Agreements (DTA) as necessary;
 - e. Collection of Research Data, including production of defensible laboratory notebooks that are attributable, legible, contemporaneous, complete, original, and accurate;
 - f. Making reasoned decisions with respect to the need to retain raw and working data or records that are incorporated into the “final research data;”
 - g. Establishing a system for preserving Research Data and Materials in the event of a natural disaster or other emergency;
 - h. Retention of Research Data for the requisite period (see below); and
 - i. When significant elements of archival data are provided externally, in a federal or federally funded archive for example, appropriate references to those data resources must be provided in the publications, theses, and other forms of dissemination of the research;
 - j. Ensuring that data is protected in accordance with its level of sensitivity and any additional federal, state, local regulations.
5. Students own research data that they generate or acquire in their academic work, unless the research data are:
- a. Generated or acquired within the scope of their employment at the university;
 - b. generated or acquired through use of extraordinary university resources (see Section J of the Faculty Manual); or
 - c. subject to other agreements that supersede this right.

Retention of Research Data arising from Sponsored Projects

The supervising faculty member, PI, or laboratory/department head must preserve Research Data for a minimum of three (3) years after the final project close-out/completion, with original Research Data retained and/or made available where feasible. The following circumstances may require longer retention and may involve other offices or entities specific to the purpose for such retention:

1. Where Research Data supports a patent, such Research Data must be retained and/or made available as long as the patent and any derivative patents are pending or valid;
2. If allegations of scientific misconduct, conflict of interest, or other charges arise, Research Data must be kept and/or made available until such charges are fully resolved;
3. If a student is involved in the project(s) generating Research Data, the Research Data must be retained and/or made available at least until the degree is awarded or the student has unambiguously abandoned the work; and
4. Research Data must be kept and/or made available if required by the terms of a grant, contract, or other agreement, or applicable law.

After all retention periods have expired, destruction is at the discretion of the PI, Research Staff or Student, and in accordance with applicable regulations. Research Data may be kept in the

administrative unit where generated or elsewhere as appropriate but must in all cases remain accessible by appropriate parties at the University during these retention periods.

Data Transfer When a Researcher Leaves the University or a Grant is Transferred

If a faculty member or PI leaves the University, and a research project is to be moved to another institution, custody of the Research Data or Research Materials may be transferred with the approval of the Associate Vice President for Research, and with written agreement from the former employee's new institution that guarantees: a) acceptance of custodial responsibilities for the Research Data and/or Research Materials, and b) Colorado State University will be given access to the Research Data should that become necessary. In all cases, copies of the Research Data must be kept by and/or made available to the University. CSU may require that at least a portion of Research Materials remain at the University or impose other conditions or restrictions on such transfer.

When employees involved in research projects who are not PIs at the University leave the University, they may request permission to take copies of Research Data or take Research Materials for projects on which they have been materially involved with the creation of the Research Data or Materials. This request should be made in writing to the supervising faculty member or PI and approval of such request will not be unreasonably withheld, although it may be subject to reasonable conditions. The PI must, however, keep the original Research Data and, if relevant, a portion of the Research Materials at the University or ensure they are available if archived/stored elsewhere unless specific permission to do otherwise is granted by the Vice President for Research (or designee).

In all cases, when Research Data or Materials are to be utilized by Research Staff or Students after leaving the University, any future publication utilizing the Research Data or Materials, in whole or in part, must be approved by the University PI who oversaw creation of the Research Data, which approval shall not be unreasonably withheld or conditioned. Proper credit and attribution, including authorship, must be given in all such publications.

Any other requests for data or material transfers will be considered on a case-by-case basis by the Vice President for Research.

Note that the University will retain its ownership rights in Research Data and Materials developed at the University absent a written agreement to the contrary.

Disputes involving Research Data or Materials

While the PI is responsible for the use and disposition of Research Data and Materials, there may be occasions where a dispute arises with respect to such data or materials. If there is a concern about access to or use of Research Data or Materials and the PI is unable to resolve this concern to the satisfaction of all parties, this may be referred to the Research Integrity Officer (RIO) for resolution. Where the person raising the complaint is a graduate student, the dispute may be raised by the student with the Dean of the Graduate School (the "Dean"). The RIO, in consultation with the Vice Provost for Faculty Affairs (VPFA) and/or the Dean, shall decide the proper resolution of the dispute. If the party that has raised the dispute is unsatisfied with the resolution, an appeal may be made in writing to the Vice President for Research and the Provost who will make a final disposition.

Research Data Associated with Theses and Dissertations

To preserve the complete scholarly record of the author, a student depositing their thesis or dissertation is encouraged to make available their associated data sets and metadata in the [Dryad data repository](#) through [CSU's institutional membership](#), or in another appropriate data repository. See resources linked in the References below for additional guidance.

Export Controlled Data

Before sharing Research Data or Materials or making it accessible to a foreign national, whether in the United States or abroad, it is critical for researchers and scholars to familiarize themselves with the [CSU Policy on Export Control](#) and request assistance with reaching a determination as to the applicability of export control regulations. Contact the OVPR for assistance.

Protected and/or controlled unclassified and classified data

Data Related to Patent Filings

Where working data sets or raw data sets support a patent application/filing, they may need to be preserved. This should be determined by the Colorado State Research Foundation during the disclosure and patenting process.

Sensitive, Restricted and/or Private Data

Data used in Research may require certain protections under federal, state, tribal and/or university regulations, including Controlled Unclassified Information, information covered by Nondisclosure Agreement, or other types of protected data such as Personally Identifiable Information or Personal Health Information. It is important for researchers and scholars to consult with their college or department IT Department, the Division of IT, and OVPR to ensure that appropriate safeguards are in place to protect such data during research and for data sharing and archiving purposes.

Because research data is a rapidly evolving area, all university stakeholders are invited to submit updated information for this document to the office of the Vice President for Research.

REFERENCES

[University Libraries, Data Management Resource Page](#)

[University Libraries, Publishing Data in Dryad](#)

[University Libraries, Open Data Guide](#)

[Mountain Scholar Digital Repository](#)

[CSU Policy: Information Technology Security](#)

[CSU Policy: Information Collection and Personal Records Privacy](#)

[CSU Policy: Central Administrative Data Governance](#)

[CSU Policy: Export Control](#)

Federal Regulations and Policies:

Researchers should confirm sponsor/agency specific guidance and regulations.

[SPARC list of Research Funder Data Sharing Policies](#)

[NSF Data Management Plan Requirements](#)

[NIH Data Sharing Policy](#)

2 CFR 200.315; 45 CFR 75.322: Rights in intangible property acquired under federal awards belong to the institution as the grantee.

NIH Grants Policy Statement §8.2.1: “In general, [grant] recipients own the rights in data resulting from a grant supported project.”