

Research Data Services

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What is “data”?

The recorded factual material commonly accepted in the scientific community as necessary to validate and replicate research findings including, but not limited to, data used to support scholarly publications. (NIH)

...individual level and summary or aggregate data, as well as metadata.

NIH expects that reasonable efforts should be made to **digitize all scientific data.**

[Proposed Provisions for a Draft NIH Data Management and Sharing Policy](#)

For the purposes of data sharing and preservation, it is not:

graphs, charts, tables, figures or other summaries or visualizations that might be included in a publication.

Why is data management important?

- Protect data integrity
- Protect human subjects
- Reduce risk of mistakes, data loss, wasted time

Longer term:

- Increase rate of research progress and research impact
- Comply with requirements (funders, institutions, publishers...)
- Data is a public good
- Reproducibility

Who cares about data?

The public –

A Pew research survey found that open access to data and independent review inspire more trust in research findings by the public.

Research participants –

Many [clinical trial participants understand and support data sharing](#) (within confidentiality and privacy protections) in order to advance medical research and improve patient outcomes.

Funders –

Research funders strongly encourage or require data sharing, and require that research proposals include data management plans describing data sharing.

Other researchers –

Many research disciplines, professional societies and associations require data to be shared in support of reproducibility, transparency, and accelerating research.

For example: [American Geophysical Union](#), [earth and space sciences](#), [social sciences](#), and [American Psychological Association](#).

Journals/Publishers –

Many journals also have requirements that data be shared and preserved via repositories.

For example: [International Committee of Medical Journal Editors](#), [PLOS](#), [Wiley](#), [Nature](#), and [Sage](#).

UI Policies

Division of Sponsored Programs

- Research Data Policy: <https://dsp.research.uiowa.edu/file/1856/download?token=K1RApa7Y>
- Data Use Agreements: <https://dsp.research.uiowa.edu/data-use-agreements>
- Responsible Conduct of Research: <https://research.uiowa.edu/researchers/policies-and-compliance/responsible-conduct-research>

Researcher Handbook

- 5h. Data management: Research Records – <https://researcherhandbook.research.uiowa.edu/5h-data-management-research-records>
- See full text. Excerpt: “At Iowa, researchers are encouraged to retain research data and records for a period of at least five years following publication to provide verification of the validity of the reported results, according to [27.6 of the University of Iowa Operations Manual](#).”
- 7g. Data ownership and transfer – <https://researcherhandbook.research.uiowa.edu/7g-data-ownership-and-transfer>

IT Security and Policy Office

- Institutional Data Policy: <https://itsecurity.uiowa.edu/institutional-data>
- Managing University Data (links to Data Classification Guidelines, Personally Identifiable Information, System Risk Analysis, Export Controls) – <https://itsecurity.uiowa.edu/managing-university-data>
- Privacy Rules and HIPAA at The University of Iowa – <https://itsecurity.uiowa.edu/university-it-policy/hipaa>
- Computer Equipment Disposal – <https://itsecurity.uiowa.edu/computerequipmentdisposal>
- Policy Roles and Responsibilities (Data Steward, Data Custodian, Authorized User...): <https://itsecurity.uiowa.edu/policy-roles-and-responsibilities>
- Institutional Data Access Policy (includes data classification): <https://itsecurity.uiowa.edu/policy-institutionaldataaccess>

<http://www.lib.uiowa.edu/data/plan/funder-and-ui-requirements/#ui>

What can RDS do for you?

Data Management and Sharing Plans

Skill-building and Infrastructure

Curating data for sharing and preservation

Data repository for UI data sets

Collaboration and partnerships across UI

External collaborations and services

Data Management and Sharing Plan

Describe how research data will be:

- ***Managed*** during and after the research
- ***Annotated/described***
- ***Preserved*** for future use, reuse
- ***Made accessible*** to others, as appropriate

Preparing a Plan

Take advantage of [UI resources](#), infrastructure, expertise:

- Assistance with your plan:
 - Contact lib-data@uiowa.edu , IT (data backup), IRB (i.e., consider data sharing when creating consent forms)
- Budget for data management
- Activate the plan (publish on a wiki for the team)

Planning ahead to share data

IRB: Does the consent form allow data sharing?

Any provisions/restrictions?

Clinical Trial requirements - register

Anonymization/deidentification

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Skill Building and Infrastructure

Best practices for managing data

- Workshops, consultations, [website](#)
- Courses – [CEE 5110](#) this Spring

Responsible Conduct of Research

Tools for managing data

- OpenRefine for cleaning up data
- Electronic lab notebooks

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Curating data

Data curators work with authors to prepare and enrich datasets to make research data:

findable,

accessible,

interoperable and

reusable ([FAIR](#)).

Check files and read documentation (risk mitigation, file inventory, appraisal/selection)

Understand the data (or try to), if not... (run files/environment, QA/QC issues, readmes)

Request missing information or changes (tracking provenance of any changes and why)

Augment metadata for findability (DOIs, metadata standards, discoverability)

Transform file formats for reuse (data preservation, conversion tools, data visualization)

Evaluate for FAIRness (transparent usage licenses, responsibility standards, metrics for tracking use)

Sharing Data

Which data repository should I use?

Domain repositories (NIH list...)

UI Repository

Sharing Data

Outcomes and benefits of data repositories:

- Citable (has a unique ID, such as a DOI)
- Accessible record about the data
- Accessible data
- Broader impact (higher article citation rates, data reuse,
- Meets funder and publisher requirements

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Data repository for UI data sets

Collaboration and partnerships across UI

External partnerships, coordination, services

Resources and Assistance

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