RI: Research Cyberinfrastructure

Create... Share... Discover

RCI is a UCSD-sponsored program that offers campus researchers facilities, storage, data curation, computing, and networking to facilitate their research using shared cyberinfrastructure services across campus.

The RCI program is designed to provide cost-effective, reliable services which can be utilized by UCSD principal investigators in their current research efforts and incorporated in proposals for future research. In general, these services are available to researchers at a reduced cost, supplemented by the RCI program.

RCI has a number of services which are described in more detail via the links below. Some of these services are already available now in production, while other services are in pilot phase to best determine researcher requirements and appropriate business models.

RCI Services

CENTRALIZED STORAGE

Centrally administered disk storage featuring high performance, accessibility, reliability, and scalability

COLOCATION SERVICES

Energy-efficient, centrally managed datacenter space for hosting computer equipment and related components

COMPUTING

High-performance computing with fast interconnect, large memory options, and high I/O bandwidth for data analysis

DATA CURATION

Consulting services that help researchers with data management plans and long-term curation of research data

NETWORKING

An uncongested, leading-edge network that facilitates research collaborations, data exchanges, and access to the colocation facility

TECHNICAL EXPERTISE

Human expertise to optimize utilization of RCI services in the context of individual research projects
Research Data Management

Many funding agencies, including the National Science Foundation (NSF), the National Institutes of Health (NIH), and the National Endowment for the Humanities (NEH), require a data management plan as a component of grant applications. This requirement encourages researchers to consider in greater detail how their data will be preserved and shared.

Depending on the particular research community, data can include spreadsheets, images, videos, audio files, text files, models, computer software and code, patient records, interview transcripts, survey results, field/lab notes, and physical objects such as artifacts and samples.

Benefits of Research Data Management

Organizing, preserving, and sharing data will . . .

- Improve data integrity.
- Prevent data loss due to workforce turnover or hardware/software transitions.
- Avoid unnecessary duplication of research efforts.
- Help validate research findings.
- Enhance the visibility of a researcher's work.
- Lead to repurposing of data beyond its original intended use.
- Ensure that the results of publicly-funded research become public property.

Research Data Lifecycle

Creating Data

RE-USING DATA

PROCESSING DATA

ANALYSING DATA

GIVING ACCESS TO DATA

PRESERVING DATA

Preserving data

- Migrate data to test format
- Migrate data to suitable medium
- Back-up and store data
- Create metadata and documentation
- Archive data
IRs and Data Archives
Academic Commons is Columbia University's digital repository where faculty, students, and staff of Columbia and its affiliate institutions can deposit the results of their scholarly work and research. Content in Academic Commons is freely available to the public.

New in Academic Commons:

- Do Politics Matter to this Watchdog? The Effects of Ideology on Civil Enforcement at the U.S. Securities and Exchange Commission
  - Kallmer, Jonathan S.

- Citizen-Subjectivity, Experiential Evaluation, and Activist Strategies: Explaining Algerian Violence and Polish Peace under Authoritarian Rule
  - Elia, Anthony J.

- Cosmology with Weak Lensing Peaks
  - Rudy, Sayres Steven

- Leveraging Human-environment Systems in Residential Buildings for Aggregate Energy Efficiency and Sustainability
  - Xu, Xiaoqi

- Imagining a New Belfast: Municipal Parades in Urban Regeneration
  - Sivolella, John Joseph

- Essays in Financial Economics
  - Shtauber, Assaf Aharon

- A Comparative Analysis of the Revised Children's Manifest Anxiety Scale Scores of Traumatized Youth With and Without PTSD Relative to Non-Traumatized Controls
  - Yang, Xiuyuan

- Divided Loyalties and Shifting Perceptions: The Jokyu Disturbance and Courtier-Warrior Relations in Medieval Japan
  - Keenan, Katharine

- Imagining a New Belfast: Municipal Parades in Urban Regeneration
  - Xu, Xiaoqi

- Essays in Financial Economics
  - Shtauber, Assaf Aharon

- A Comparative Analysis of the Revised Children's Manifest Anxiety Scale Scores of Traumatized Youth With and Without PTSD Relative to Non-Traumatized Controls
  - Yang, Xiuyuan

- Divided Loyalties and Shifting Perceptions: The Jokyu Disturbance and Courtier-Warrior Relations in Medieval Japan
  - Keenan, Katharine
The Institutional Repository at the University of Florida is the digital archive for the intellectual output of the University of Florida community, and includes research, news, outreach, and educational materials.

Submit your research (FAQ and video of the process)

The University of Florida Libraries established and supports the IR@UF in order to offer a central location for the collection, preservation, and dissemination of scholarly, research, and creative production alongside historical materials from the University of Florida. The historical materials provide context for research and researchers, enabling insight into the history, nature, and culture of the University. The IR@UF includes the following open access materials from UF authors and UF colleges:

- Journal Articles
- Conference Papers and Proceedings
- Monographs and Monograph Series
- Technical Reports
- Theses and Dissertations
- White Papers
- Data and data sets (standalone or with publications)
- Journals and Other Publications of UF Colleges
- Grant Proposals
- Materials from the University Archives, such as graduation programs, photographs, audio and video of recent and historic campus events and people, campus directories and some yearbooks

The IR@UF encourages university units to contribute their open access research, reports and other materials to the IR@UF for archiving and dissemination free of commercial cost.

If you don't have a GatorLink account yet, you can create an account from the sign on page of the myUFL Portal. Create a new account >

An RSS feed from the IR@UF keeps subscribers up to date on all new submissions. To subscribe, click here.
The Harvard Dataverse Network is open to all scientific data from all disciplines worldwide. It includes the world’s largest collection of social science research data. If you would like to upload your research data, first create a dataverse and then create a study. If you already have a dataverse, log in to add new studies. Learn more about the Dataverse Network.

**RECENTLY RELEASED DATAVERSES**
- Kimlong Chheng: Jul 19, 2013
- Urban Institute Data Repository: Jul 16, 2013
- Kyle Cranmer: Jul 12, 2013
- Greg Snyder: Jul 11, 2013
- Dan Pemstein: Jul 10, 2013

**STUDIES**
- Trees for Food Security Project by Muthuri, Catherine; Iiyama, Miyuki; Betemariam, Ermias; Kindt, Roeland; Gyau, Amos; Kiptot, Evelyn; Kuria, Anne; Luedeling, Elise; Mohan, Sel: Jul 22, 2013
- Replication data for: Regime Legacies and Levels of Democracy by Perez-Linan, Anibal; Mainwaring, Scott: Jul 19, 2013
- Replication data for: Relying on the Ground Game: The Placement and Effects of Campaign Field Offices by Darr, Joshua; Levendusky, Matthew: Jul 19, 2013
- The Spanish Sovereign Debt Crisis: The Impact of Politics on Fiscal Outcomes in Subnational Governments by Haswell, Ethan: Jul 19, 2013

**MOST DOWNLOADED STUDIES**
- Replication data for: A Multivariate Model of Strategic Asset Allocation by John Y. Campbell; Yeung L. Chan; and Luis Viceira: 10,005
- Replication data for: Asset Prices, Consumption, and the Business Cycle by John Y. Campbell: 17,011
- 10 Million International Dyadic Events by Gary King; Will Lowe: 16,817
- Measuring the impact of microfinance in Hyderabad, India by Akhtij Serajuddin; Esther Duflo; Rachel Glennerster; Cynthia Kinnan: 14,934
- Textbooks and Test Scores by Paul Glewwe; Michael Kremer; Sylvie Moulin: 14,666
UNIVERSITY OF NEBRASKA–LINCOLN

UNL Data Repository
https://dataregistry.unl.edu/

Home

UNL Libraries and Information Services created the UNL Data Repository to provide for the growing requirements by external funding agencies for data management and data sharing. This repository, designed to provide researchers with a secure site for storage of data collections that are no longer actively in use, allows the researcher to stably retain data for future use and/or sharing with other interested parties. The UNLDR exists to manage data in a manner that facilitates research and scholarly activities, and that simplifies access to vital and unique research data.

The data and project information deposited by researchers maintains its value over time with information (known as metadata) that outlines its importance, its long-term usability, and the dedicated efforts of those who were involved.

Questions about depositing data may be directed to DeeAnn Allison, Professor, University Libraries at dallison@unl.edu or 402-472-3944

Costs

Proposers should include a line item in their project budget to cover the costs of data storage. This one-time charge should be requested during the final year of project support to ensure data storage and maintenance for a minimum of five years beyond the award period. Please use the following figures in your budget:

<table>
<thead>
<tr>
<th>Gigabytes</th>
<th>Storage Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>$500</td>
</tr>
<tr>
<td>200</td>
<td>$1,250</td>
</tr>
<tr>
<td>500</td>
<td>$2,500</td>
</tr>
<tr>
<td>1000</td>
<td>$5,000</td>
</tr>
</tbody>
</table>

* This is the minimum amount of storage that can be requested.

For more information regarding data storage, contact Kevin Murphy, Information Services, at 402-472-6466 / kmurphy@unl.edu or DeeAnn Allison, Professor, University Libraries at 402-472-3944 / dallison@unl.edu or 402-472-3944 / dallison@unl.edu

Begin depositing your data. Click Here

Search Through Existing Public Data. Search Directory
UNIVERSITY OF NEW MEXICO
Lobo Vault – UNM Research Data
http://repository.unm.edu/handle/1928/21486

118 · Representative Documents: IRs and Data Archives
Purpose/Scope: Scholars' Bank is the open access repository for the intellectual work of faculty, students and staff at the University of Oregon. Open access journals, student projects, theses, dissertations, pre and post-print articles, instructional resources and university archival material are all candidates for deposit.

To contribute: To start depositing to Scholars' Bank please send us a message.

Communities in Scholars' Bank
Select a community to browse its collections.
- Archives of President Lariviere's Dismissal
- Bicycle and Pedestrian Transportation Plans
- Data
- Dissociation
- Instructional Resources
- Local and Regional Documents Archive
- Renascence Editions
- Scholarly Works
- University Archives

Search Scholars' Bank
Enter some text in the box below to search Scholars' Bank.
Participate in Usability Testing for ScholarSphere!

What is ScholarSphere?

ScholarSphere is a secure repository service enabling the Penn State community to share its research and scholarly work with a worldwide audience. Faculty, staff, and students can use ScholarSphere to collect their work in one location and create a durable and citable record of their papers, presentations, publications, data sets, or other scholarly creations. Through this service, Penn State researchers can also comply with grant-funding-agency requirements for sharing and managing research data.
Publish Datasets with DOIs

Use PURR to publish datasets with Digital Object Identifiers (DOI) that make it easier for people to cite your data and give you credit. Purdue is a founding member of DataCite, the international agency that registers DOIs for data.

Start Your Research Project

- Create a Data Management Plan
  Learn about the detailed requirements for your data management plan (DMP). Funding agency requirements are very specific and our DMP resources can help you to clear up any confusion. Get Started

- Upload Research Data to Your Project
  Create a project to upload and share your data with collaborators using our step-by-step form to guide you through the process. Invite collaborators from other institutions to join your project.

- Publish your Dataset
  Package, describe, and publish your dataset with a Datacite DOI. Publishing will ensure your dataset is citable, reusable, and archived for the long-term. See Published Datasets

Featured Dataset

Evaluation of Function Predictions for Moonlighting Proteins

By Ishita K. Khan, Meghana Chitale, Catherine Rayon, Daisuke Kihara

Purdue University, Université de Picardie Jules Verne

Supplemental datasets used for evaluation of function predictions for moonlighting proteins.
LIBRA Online Archive of University of Virginia Scholarship

Libra makes publications available to the world and provides safe and secure storage for the scholarly output of the U.Va. community.

Open Access Works
Faculty scholarly works available for research, scholarship, teaching and learning in a central, stable location. Learn more...

Electronic Theses & Dissertations
Find current theses and dissertations from departments and schools around Grounds. Learn more...

Datasets
Datasets may now be deposited into Libra. Additional features will become available in the future. Please send us your feedback. Learn more...

Type of Work
- Article (838)
- Doctoral Dissertation (213)
- Master's Thesis (85)

Department or Academic Plan
- Department of Computer Science (862)
- Department of Electrical and Computer Engineering (35)
- Institute for Parallel Computation (35)

Peer Reviewed (32)
Data Management Plan Tools
Indiana University Guidance on NSF Data Management Plans

September 28, 2012

Effective for proposals submitted on or after January 18, 2011, the National Science Foundation (NSF) requires the inclusion of a supplementary document of no more than two pages entitled “Data Management Plan” (DMP). The plan should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results (see AAG Chapter VI.D.4 [1]).

Following is a guide to writing your DMP, consisting of the following sections:

- **Section 1** gives a template and consideration points for completing a data management plan.
- **Section 2** is a short set of boilerplate language for your use when composing your DMP.
- Because no single template works for every discipline and community, **Section 3** lists additional resources that could be helpful in figuring out what works for your needs.
- **Section 4** explains the Indiana University (IU) resources that are available for your use. It is useful if you want to use UITS storage and one of the institutional repositories (IUScholarWorks or IUPUIDataWorks) as your data preservation solution.

This document is prepared with fonts and margins consistent with the NSF Grant Program Guide, so researchers may cut and paste directly from this document when preparing data management plans.

*This document is derived, in part, from a report by a blue-ribbon panel of IU experts led by Professor Beth Plale, of the School of Informatics and Computing (SOIC). As such, this guidance reflects the combined effort and consensus thinking of IU's top experts in data management and reflects IU guidance for NSF Data Management plans endorsed by the Office of the Vice President for Research and offered in a manner that is consistent with the Indiana University Information Technology Strategic Plan [6].*

## 1. Data Management Plan Template

A data management plan meeting the general NSF requirement can be organized by the below template, though not all items will be relevant for all disciplines, Directorates, or solicitations. See [2] for discipline specific advice. It may be helpful to begin your DMP with a few sentences describing the research project in general, to provide general context for the detailed information in each section. In each section, you should describe your reasoning, particularly if you are deviating from common practice or standards used in your discipline or community of practice. Identifying a particular person or role to carry out these activities is also vital.

1. **Describe the types of data and products** that will be generated in the research such as samples, physical collections, software, and curriculum materials. Characterize the data with details such as the types of data (text, numeric, images, audio, video, etc.) and an approximate number and size of files to be generated or used. Provide a brief description of the data collection process, including instruments or tools, sites, and process for getting data into a secure location. In addition, briefly describe the storage/backup plan and the IU cyberinfrastructure to be used.

2. **Describe the format in which the data, metadata, and other products are stored.** Describe the formats in which the data will be stored, preferably using a common or open file format standard. Include a description of the metadata that will make the actual data products useful to the general researcher. Some examples of discipline-based metadata standards include the NanoParticle Ontology [3] and Ecology Metadata Language (EML) [4].

3. **Describe the policies for general access** to data including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements. “Access to data” refers to data made accessible without explicit request from the interested party. Policies for access and reuse should clearly when, how, and to whom the data will be made available. Describe the policies and mechanisms for access to the data and other products, including specific provisions (described in the next section) for appropriate protection of privacy, confidentiality, security,
intellectual property, or other rights. Mechanisms should provide for access beyond the life span of
the project, preferably via institutional or community infrastructure (i.e., institutional or subject
repository).

Reminder: NSF allows grantees to retain principal legal right to intellectual property developed under
NSF grants.

4. Describe policies and provisions for re-use, re-distribution, and the production of derivatives.
Clearly describe the proposed policies and rationale for limitations on others’ ability to re-use, re-
distribute, and produce derivatives of the data and other products. These policies may be developed
in response to the ethical and legal issues identified in the previous question (#3).

5. Describe plans for archiving data, samples, and other research products, and for preservation of
access to them. Identify the data that is appropriate for preservation and the means through which
preservation of digital and physical materials will be ensured. If the data will be preserved by a third
party, refer to their preservation plans. If the data will be preserved at your institution, describe the
cyberinfrastructure that will be used.

Depositing data into an institutional or subject repository ensures access to the data beyond the life
span of the project. If you are interested in using an Indiana University repository (IUScholarWorks,
IUPUIDataWorks) for your data, see Section 4 below.

2. Boilerplate Language

Introduction
This plan describes the management, dissemination, retention, and archiving of the research data
produced during the proposed project. The staff of [INSERT YOUR DEPARTMENT OR LAB NAME
HERE], with the assistance of the [IU Libraries-Bloomington/IUPUI University Library] and University
Information Technology Services (UITS), will provide for sustainable discovery, access to, and
preservation of these data for use by other researchers, instructors, and interested members of the public
for the length of this project and at least three years beyond. This will be facilitated through data and
publication deposits in existing open-access disciplinary and/or institutional repositories.

Data Formats and Description
We will utilize the Dublin Core metadata scheme to capture information about the data collected during
the course of our research. We will work with a metadata expert from the [IU Libraries/IUPUI University
Library] to create a working template that captures each dataset’s metadata throughout the research
process. Upon completion, we will export this data to Dublin Core format, which conforms to the data
submission requirements of the IUScholarWorks and many other relevant museums/repositories.

Access, Re-Use, Re-Distribution, and Derivative Works Policies
[If no sensitive or personally-identifiable information is used, include this:]
All data produced during this research will be available freely to the public; we anticipate no sensitive or
confidential data. Under the terms of the Creative Commons Zero Universal 1.0 Public Domain
Dedication (CC0 1.0: http://creativecommons.org/publicdomain/zero/1.0/), users may share, create,
and/or adapt these data/databases.¹

¹ If you wish to retain attribution rights so that anyone who uses your data must credit you as the creator,
IU recommends you apply the Open Data Commons Attribution License (ODC-BY;
http://opendatacommons.org/licenses/by/) to your data instead of CC0. In your plan, replace the noted
sentence with the following: “Under the terms of the Open Data Commons Attribution License (ODC-BY;
http://opendatacommons.org/licenses/by/), users may share, create, and/or adapt these data/databases
with proper attribution.”
Results, data, and collections will be made available to other researchers in a timely basis with [EXAMPLE] limitations. Sensitive and confidential data collected will be treated following [HIPAA/IRB] regulations, and an added layer of security will be implemented using [STRATEGIES SUCH AS DATA ENCRYPTION, RESTRICTED ACCESS, OR THE SEPARATION OF IDENTIFIABLE DATA]. Under the terms of the Creative Commons Zero Universal 1.0 Public Domain Dedication (CC0 1.0: http://creativecommons.org/publicdomain/zero/1.0/), users may share, create, and/or adapt data/databases made freely available.\(^2\)

### Data Archiving and Preservation

To increase access to the published research that has been funded, the research collaborators will deposit peer-reviewed or pre-print manuscripts (with linked supporting data where possible) in the [IUScholarWorks/IUPUIDataWorks]\(^3\) institutional repository. Other works, including presentations and white papers, will also be made accessible via the [IUScholarWorks/IUPUIDataWorks] institutional repository.

Digital data will be stored using the Indiana University Scholarly Data Archive (SDA; https://pti.iu.edu/storage/sda), a distributed storage service that is centrally supported across mirrored tape silos in Bloomington and Indianapolis. Data stored on the SDA that will be made freely available will be archived in the [IUScholarWorks/IUPUIDataWorks] repository, which will provide a user-friendly interface for the organization, context, and discoverability of data. This combination of [IUScholarWorks/IUPUIDataWorks] and the SDA provides mirroring, redundancy, media migration, access control, file integrity validation, embargoes, and other security-based services that ensure the data are appropriately archived for the life of the project and beyond the project if necessary.

### 3. Resources

NSF funds a wide range of research. Some directorates and programs have provided specific guidance, which can be found at Dissemination and Sharing of Research Results [2]. In the absence of specific guidance, the Award & Administration Guide (AAG) Chapter VI.D.4 [1] applies.

Data management plan examples spanning a range of disciplines are available from the Inter-University Consortium for Political and Social Research [6]. Additionally, a Data Planning Checklist [7] can be helpful in preparation.

**For more help:** Skilled Librarians and grant writers are available to assist you in developing a data management plan, identifying appropriate data and metadata standards, finding resources on developing policies for sharing and reuse of data, locating community- or discipline-based data repositories, and finding resources on data management and preservation. To arrange a consultation to meet your needs, contact the data services program for your campus:\(^4\)

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\(^2\) If you wish to retain attribution rights so that anyone who uses your data must credit you as the creator, IU recommends you apply the Open Data Commons Attribution License (ODC-BY; http://opendatacommons.org/licenses/by/) to your data instead of CC0. In your plan, replace the noted sentence with the following: "Under the terms of the Open Data Commons Attribution License (ODC-BY; http://opendatacommons.org/licenses/by/), users may share, create, and/or adapt these data/databases with proper attribution."

\(^3\) IUPUIDataWorks is the data repository for the IUPUI campus. All other IU campuses should use IUScholarWorks as their institutional repository of choice.

\(^4\) A list of regional campus research data specialists can be found on the [IUScholarWorks Data Management Service website](http://www.libraries.iub.edu/secure/defiles/NSF_DMP_Boilerplate_IUB-IUPUI_Fall_2012.doc).
4. IU Storage Systems and Institutional Repository

University Information Technology Services (UITS) maintains a large suite of storage systems. These are described in an extensive document that can be used (in whole or in part) in the Facilities section of an NSF proposal. This document is available online in a link accessible from: http://kb.iu.edu/data/anwu.html. It describes the storage systems operated by UITS and the backup facilities and plans for those storage systems. It also describes data security.

Indiana University has institutional repositories for archiving scholarly and scientific works called IUScholarWorks [8] at Bloomington and IUPUIScholarWorks [9] at Indianapolis. These repositories will accept digital data generated by IU researchers and from National Science Foundation funded efforts with PIs outside IU when there is a formal collaboration with an IU researcher (documented via a Memorandum of Understanding or via a Statement of Work associated with funding to an IU researcher as part of said project). IU, through IUScholarWorks and IUPUIDataWorks, will provide replicated storage of all data sets (as described in detail in the cyberinfrastructure facilities statement).

Both IUScholarWorks and IUPUIDataWorks accept data in all formats. Classified or confidential data requiring formal, contractual, or legal restrictions to access, such as HIPAA-designated Protected Health Information, will not be accepted for deposit, but may be stored on the SDA. In this case, the searching and metadata management facilities that help make these repositories so valuable in disseminating data are not available for use. However, de-identified datasets are eligible for deposit into the repositories. The PI is responsible for ensuring that datasets are appropriately and fully de-identified.

If you intend to use one of the institutional repositories, you should consider budgeting funds for data management:

1. Funding for a person to manage data and metadata. This may be funded within your own research group, or you may consider a consulting arrangement with the IU Bloomington Libraries (contact iuswdata@indiana.edu) or the IUPUI University Library (contact dataserv@iupui.edu).
2. Funding for storage services for exceptionally large data storage needs (more than 50 TB). In this case, please contact researchtechnologies@iu.edu for more information. UITS may be able to offer storage above the default 50 TB limit as part of matching support for grant proposals.

NSF allows for adding data management costs to your proposal (typically Line G2).
Questionnaire to Help with the Creation of a Data Management Plan
JHU Data Management Services of the Sheridan Libraries; datamanagement@jhu.edu

How to use this document
This questionnaire distills NSF’s guidelines for what to address in your data management plan. You can use the section headings in your own document. The questions can help you structure the content of each section of the plan. The table in section 1 facilitates listing the different data types for your study. Some researchers are including the table in their plan. Please note that you may not need to address all questions under a numbered category, and in some cases, you may not need to address each category, though any omissions should be justified in your plan. See endnotes for more tips, (view by placing mouse over the blue numbers in text). If you have any questions on the content of this questionnaire, please contact a JHU data management consultant at datamanagement@jhu.edu.

1. Data Products and Standards

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Data Product</th>
<th>Format(s)</th>
<th>Estimated Size or Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You may include this table and use numbers to reference corresponding data types in your plan, or use numbered text paragraphs if needed to fit the 2-page format.

Data and Metadata Standards
1. Do the listed data products use standards for formats or metadata, and why are you using them? If not, will your project develop and maintain standardized formatting and metadata?
2. What details (metadata) are necessary for others to use your data?
3. How will metadata be generated (automatically, manually, or both)?
4. What naming conventions/schema will be used for your data, if any?
5. What data dictionaries/taxonomies/ontologies will you use for your data, if used within your field?
6. How will lineage/provenance of some or all of your data be documented (e.g., processing steps executed on raw source data)?
7. What tools will be required to read the data (e.g., software, instruments)?

2. Data Storing and Long-Term Preservation

Storage during project
8. What digital and non-digital data will be retained during the project?
9. How (i.e., media) and where (i.e., location(s)) will the data be stored and who is responsible for it?
10. How and where will the data be backed up and who is responsible for it?
11. If data need to be secured through access controls (e.g., password-protected network space), how will they be applied? (e.g., local passwords, institutional LDAP or Shibboleth)
12. If data are stored in an unusual or not generally accessible format, will they be converted to a more common format for storage or sharing?

Revised 2/16/12
Preserving data after project

13. Which digital and non-digital data will be stored or archived after the project? Why will you preserve these data?

14. Will “raw data” (not processed, analyzed or associated with publications) be relevant to store for reuse in your or others’ future projects? If so, describe.

15. Where and for how long will data be stored or archived after the project? 4

16. Who will manage and administer the stored or archived data?

17. Will security and access codes be retained on archived data after the project? How?

18. If using a service other than your project group to archive research data, please describe the services that the archive provides in preserving and disseminating research data. Will there be a formal archiving agreement? 5

3. Data Sharing

Research to be shared 6

19. Of the data products generated during the project, which data will be shared? 7

20. Which data will be publicly-accessible, if at all? 8

21. When will you share those data? 9

22. How will the data be shared with other stakeholders? (e.g., made available for general access through a public website or database, or released only upon specific request from an interested party. Specify any 3rd party resources or services used.)

23. Who is expected to use the shared data?

Policies for access and sharing 10

24. Identify who will be allowed to use your data, and how data are to be used and disseminated. Explain any restrictions on re-use, production of derivatives and how you will communicate these restrictions, (e.g., requiring citation, or Creative Commons licensing.)

25. Are there any data with confidentiality issues (e.g., embargo period)? If so, what are the conditions of use, sharing, and dissemination?

26. Are there any data with specific security or regulatory concerns with sharing (e.g. classified information or FDA handling requirements), and how will they be addressed?

27. Are there any data with intellectual property (e.g., patent, copyright) concerns with sharing? If so, what are the conditions of use, sharing, and dissemination?

28. Are there any data with privacy concerns to sharing (e.g., human subjects)? If so, what policies need to be adhered to and how will policies be enforced? 11

29. Is any of the data owned by someone else? If so, what are the conditions of use, sharing, and dissemination?

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Additional Tips and Instructions (See corresponding endnote number in the text)

1. **Data source** can include instruments, people, and data centers. **Data product** examples: transcripts, tables, 3D models, digital audio, geospatial data. Format examples: RTF text, MS Excel converted to CSV, MATLAB, WAV audio, shapefile. (Specify any instrument-specific formats or software packages). Estimated amount can include rate produced, e.g. 1 TB/year, 50GB/experiment. Include any sources and data products created by others that you are using. It may help to think through the steps of your research workflow to identify data types and sources requiring management.

2. Metadata is the information that captures the who, what, when, where, why and how of your data, providing the details necessary for another researcher to use your data sets. Some scientific communities have established metadata standards, such as Content Standard for Digital Geospatial Metadata (CSDGM), Data Documentation Initiative (DDI), Climate and Forecast (CF) metadata convention, and Dublin Core. Metadata may take the form of “readme files” that explain variables and file structures; however, it is preferable if metadata files are machine readable for better re-usability and processing.

3. Storing data is defined differently than archiving data. Storage is a necessary step towards archiving your data; however, storing data (e.g., on an external drive) does not safeguard against media degradation (e.g., CD file corruption), obsolescence of data formats (e.g., VisiCalc spreadsheets) or providing easy access in the future. Archiving encompasses both active preservation of the digital object and increased discoverability and access to those data. Your plan should discuss how you will store your research data during the project and your preservation strategy for after the project, particularly of research data that will be reused and shared. The next two sections help frame these different topics.

4. JHU requires retention of research data for a minimum period of 5 years after the date of any publication upon which it is based (http://jhuresearch.jhu.edu/Data_Management_Policy.pdf). The NSF Engineering Directorate requires retention for 3 years after conclusion of the award or 3 years after public release, whichever is later.

5. Different data archives provide different kinds of services, such as the creation of persistent, unique identifiers for citation, format migration, disaster recovery plans, and free, publicly-accessible downloading of data files. If you plan to use a data repository, we strongly recommend that you contact the repository to ensure that their archive can handle your data, and determine their archiving fees to include in your budget. Johns Hopkins University has built a research data archive. Please contact datamanagement@jhu.edu to learn more about it.

6. Briefly address the following questions for each data product in Table 1. (You might refer to each by number).

7. NSF expects data sharing to follow the norms of your research community, but encourages efforts to broaden the range of data shared and of potential users beyond your field. Data can often be of unanticipated interest in the future if it can be located, understood, and cited.

8. “Accessible” generally means unmediated public access to your data distributed through a “cyber resource,” unless you specify conditions, such as embargo periods. “Sharing” can include direct release to interested parties upon request.

9. Specify a time period, e.g., “Data will be made available for sharing, in principle, two years after acquisition.”

10. This section will detail any reasons for sharing delays (e.g., embargo, publisher, patent, or political reasons) or restrictions (e.g., ecological endangerment concerns, IRB restrictions of sensitive data). You should also address granular methods for control and access (e.g., maintaining formal consent agreements, anonymous data, and restricted access to secured networks.)

11. State if there are IRB restrictions on data and steps to prepare accessible datasets, such as deidentifying transcripts. NSF requires fewer details than IRB forms, and respects when IRB restrictions put sharing beyond a reasonable effort, but they do sometimes ask for some attempt to create sharable datasets.
Note: Your DMP for NSF grants should not exceed two pages. Contact Research Services in the Libraries for consultation (ljohnsto@umn.edu)

Data Management Plan

V1 last updated MM-DD-YYYY

<table>
<thead>
<tr>
<th>Name of student/researcher(s)</th>
<th>Your Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of group/project</td>
<td>Project Name or Research Lab (for group plan)</td>
</tr>
<tr>
<td>Funding body(ies)</td>
<td></td>
</tr>
<tr>
<td>Partner organisations</td>
<td></td>
</tr>
<tr>
<td>Project Duration</td>
<td>Start: MM-DD-YYYY   End: MM-DD-YYYY</td>
</tr>
<tr>
<td>Date Written</td>
<td>MM-DD-YYYY</td>
</tr>
</tbody>
</table>

Table of Contents

1. Introduction
2. Data Types
   Section 2 Checklist
3. Data Organization, Documentation and Metadata
   Section 3 Checklist
4. Data Access and Intellectual Property
   Section 4 Checklist
5. Data Sharing and Reuse
   Section 5 Checklist
6. Data Preservation and Archiving
   Section 6 Checklist

1. Introduction

The research project described in this data management plan (DMP) ….

2. Data Types

This types of data generated and/or used in this project include …
Note: Your DMP for NSF grants should not exceed two pages. Contact Research Services in the Libraries for consultation (ljohnsto@umn.edu).

Section 2 Checklist
- What type of data will be produced?
- How will data be collected? In what formats?
- How to document data collection?
- Will it be reproducible? What would happen if it got lost or became unusable later?
- How much data will it be, and at what growth rate? How often will it change?
- Are there tools or software needed to create/process/visualize the data?
- Will you use pre-existing data? From where?
- Storage and backup strategy?

3. Data Organization, Documentation and Metadata

The plan for organizing, documenting, and using descriptive metadata to assure quality control and reproducibility of these data include …

Section 3 Checklist
- What standards will be used for documentation and metadata?
- Is there good project and data documentation format/standard?
- What directory and file naming convention will be used?
- What project and data identifiers will be assigned?
- Is there a community standard for metadata sharing/integration?

4. Data Access and Intellectual Property

The data have the following access and ownership concerns …

Section 4 Checklist
- What steps will be taken to protect privacy, security, confidentiality, intellectual property or other rights?
- Does your data have any access concerns? Describe the process someone would take to access your data.
- Who controls it (e.g., PI, student, lab, University, funder)?
- Any special privacy or security requirements (e.g., personal data, high-security data)?
- Any embargo periods to uphold?
Note: Your DMP for NSF grants should not exceed two pages. Contact Research Services in the Libraries for consultation (ljohnsto@umn.edu).

5. Data Sharing and Reuse
The data will be released for sharing in the following way ...

Section 5 Checklist
- If you allow others to reuse your data, how will the data be discovered and shared?
- Any sharing requirements (e.g., funder data sharing policy)?
- Audience for reuse? Who will use it now? Who will use it later?
- When will I publish it and where?
- Tools/software needed to work with data?

6. Data Preservation and Archiving
The data will be preserved and archived in the following ways ...

Section 6 Checklist
- How will the data be archived for preservation and long-term access?
- How long should it be retained (e.g., 3-5 years, 10-20 years, permanently)?
- What file formats? Are they long-lived?
- Are there data archives that my data is appropriate for (subject-based? Or institutional)?
- Who will maintain my data for the long-term?
### Representative Documents: Data Management Plan Tools

| **DMPTool** | service of the University of California Curation Center (UC3) and the California Digital Library but customized for UNC at Chapel Hill. Select UNC from the list of institutions and login with your Onyen to see resources specific to our campus. Walks you through requirements for specific funding agencies. Allows you to work in sequence or jump around, save drafts, and export text files. |
| **Sample Plans** | Odum Institute's sample plans  
ICPSR's sample plan (for deposit with ICPSR)  
Natural Science examples, from a wide range of projects and agencies (links collected on the ICPSR website)  
Guidelines for Formulating Data Management Plans  
Guidelines for Effective Data Management Plans (ICPSR)  
Managing and Sharing Data: Best Practice for Researchers (UK Data Archive)  
IRB application with sections that relate to data management  
Applicable sections (on pages 9 and 10) include:  
- A.4.11 Confidentiality of Data;  
- A.4.12 Data sharing;  
- A.4.13 Data security for storage and dissemination; and  
- A.4.14 Post-study disposition of identifiable data or human biological materials |
| **Data Management Plan checklist** | Odum Institute's data management plan checklist  
Data Management & Frequently Asked Questions (FAQs) (NSF)  
Other Resources  
IRB-required consent form templates for research on human subjects (scroll down to "Consent") |

#### Example Language

For each of the five clauses presented in NSF's Grant Proposal Guide, Chapter II - Proposal Preparation Instructions, Section j. Special Information and Supplementary Documentation (second bulleted point), we have outlined below various points to consider in writing your plan. Where possible, we have adapted text from actual data management plans (although not necessarily plans for NSF) under the heading Sample Text. Such examples are not available for every section.

**Please Note:** These examples are not officially sanctioned by any UNC office at this time. They are only intended to serve as examples for what you might do. If you are willing to share text from your own plan, please contact us.

Here is a [Word version](#) in which to begin drafting your own plan. From the NSF's Grant Proposal Guide: "Plans for data management and sharing of the products of research. Proposals must include a supplementary document of no more than two pages labeled "Data Management Plan." This supplement should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results (see AAG Chapter VI.D.4.), and may include:

| **1. Types of Data** |
| Data Description  
Existing Data |

| **2. Standards** |
| Format  
Metadata  
Data Organization  
Quality Assurance  
Responsibility |

| **3. Access and Sharing (Including Protected Data)** |
| Storage and Backup  
Data Access  
Ethics and Privacy  
Proprietary Data  
Intellectual Property  
Legal Requirements |

| **4. Re-use** |
| Access and Sharing  
Re-Use |

| **5. Archiving Data** |
| Archiving and Preservation  
Disaster Preparedness  
Budget  
Selection and Retention |
Job Descriptions
Classified Title: Data Management Specialist

Working Title: Data Management Consultant

Role: ATP

Level: 4

Range: PD

Status: Full Time

Hours Worked: 37.5

Work Week: Monday-Friday

Contact: Homewood HR 410-516-7196

Personnel Area: Libraries

Org Unit: Entrepreneurial Library Program

Location: 3400 N Charles Street

Approximate Starting Salary:

Description:
The Data Management Consultant provides consultative data management planning support to JHU Principal Investigators. The primary duties and responsibilities of the job include:

- Manage inquiries from Principal Investigators for data management planning support.
- Provide consultative support to PIs including
- Evaluate data planning needs, assess short and long term options and benefits, cater planning to specific granting agency requirements, and provide guidance on editing data management plans.
- Track specific scientific domain areas building knowledge and expertise in data types, formats, and needs within domain.
- Identify data standards, metadata standards, best practices for data management, etc. to continuously build expertise to support the JHU data archiving service.
- Maintain knowledge on a broad range of data repositories including their submission, Intellectual Property and use arrangements, and provide guidance on repository selection for deposit.
- Proactively collaborate and coordinate with team to implement data management plans for data being deposited into the JHU Data Archive.
- Collaborate with others in the library to effectively communicate services to faculty, researchers, and departments.
- Manage short and long-term communications and relationships with PIs, including outreach and training in data management best practices.
- Liaise with the Data Conservancy leadership.

Additional information:

The Sheridan Libraries and University Museums encompass the Milton S. Eisenhower
Library and its collections at the George Peabody Library, the Albert D. Hutzler Reading Room, the DC Centers, the Evergreen Museum and John Work Garrett Library, and Homewood Museum. Staff from the libraries and museums teach classes, curate exhibitions, produce scholarship and serve as principle investigators for research initiatives. Rich in resources and expertise, the libraries and museums focus on the needs of faculty and students but also serve as ambassadors to communities well beyond the borders of the Hopkins’ campuses. A key partner in the academic enterprise, the library is a leader in the innovative application of information technology and has implemented notable diversity and organizational development programs. The Sheridan Libraries and University Museums are strongly committed to diversity. A strategic goal of the Libraries and Museums is to ‘work toward achieving diversity when recruiting new and promoting existing staff.’ The Libraries and Museums prize initiative, creativity, professionalism, and teamwork. For information on the Sheridan Libraries, visit www.library.jhu.edu. For information on Evergreen Museum and Library and Homewood Museum, visit www.museums.jhu.edu.

**Qualifications:**

- Masters of Science, Engineering or Library Science.
- A minimum of three (3) years combined of library, information technology, informatics, and/or scientific research experience.
- Experience working with scientific data management and/or curation preferred.
- Experience with one or more components of the research data life cycle: creation, processing, analyzing, preserving, providing access to, and re-using.
- Must be self motivated, pro-active, willing to take on new challenges and solve problems with minimal supervision.
- Good listener with a high degree of customer orientation.
- Superb people skills, strong team-orientation, and professional attitude.
- Clear and consistent communicator.
- Strong writing skills.
- Strong project planning, management, and execution skills.
- Demonstrated ability to work with and easily adapt to new technology.
UNIVERSITY OF MARYLAND LIBRARIES
POSITION DESCRIPTION FORM

Check one: Faculty__X__ Exempt ____ Non-Exempt ____ Other___

Date Prepared: January 19, 2012 Division: ITD

Prepared by: WITHHELD

Reports to: Manager, Digital Stewardship

Department: Digital Stewardship Unit, Information Technology Division

Position Title: Research Data Librarian [Post-Master’s Program at the University of Maryland Libraries]

NATURE OF WORK:
The Post-Master’s Program, a hiring initiative of the University of Maryland Libraries, matches recent post-master’s professionals with short-term positions aligned with the Libraries' strategic priorities. Both sides win. The post-graduate professional develops their skills in a professional workplace, and the University Libraries gain the expertise of recent graduates to respond to a rapidly changing environment. Post-Master’s Program professionals and the University Libraries each make a 2 year commitment to the position. Relocation costs are not available for Post-Master’s Program professionals.

The University of Maryland Libraries at College Park is engaged in the exciting work of defining the future work of academic libraries. We are seeking employees who want to push the frontiers, to anticipate, model and lead in the provision of new services, and revise our definitions of collections, the library, and librarians themselves. Risk takers and highly flexible, creative problem solvers are most welcome!

The Research Data Librarian position provides an opportunity for a new librarian to get exposed to an academic library environment and exercise leadership in the development and implementation of policies and practices relating to e-Research, e-Science, and data management, a new area of engagement for the University of Maryland Libraries. The incumbent will help the University of Maryland Libraries define a completely new role for librarians - a role that will allow them to become more closely integrated in the whole educational and research process at the University of Maryland.

Reporting to the Manager, Digital Stewardship, the Research Data Librarian: actively participates in university-wide initiatives to develop and design policies, sustainable services, and infrastructure to enable faculty and students to preserve and make available their research data; partners with internal units (such as GIS and DRUM – Digital Repository of University of Maryland) and external units (such as Vice President for Research, Office of Information Technology (OIT) Enterprise Technical Infrastructure and Learning Technologies and Environments, and the Maryland Institute for Technology in the Humanities) to develop a data-publishing model that leverages library
services in support of data management and preservation; assists faculty with
development of data management plans for grant applications; serves as an active
member of the Information Technology Division, contributing to divisional initiatives
and leading specific projects; incorporates support for data management and preservation
into library services; and maintains close engagement with issues relating to scholarly
communications such as copyright, open access, and data management and preservation.

DUTIES AND RESPONSIBILITIES:

- Develops an understanding of e-Research, e-Science and data services in selected
  fields; develops models for characterizing and interrelating datasets
- Performs research, evaluates approaches and implements best practices for
gathering information on the developments in e-Research, data curation, metadata
  creation, and data preservation
- Performs and analyzes surveys to find out what practices and approaches
  researchers are using to collect, store, and re-use large data sets and how
  librarians can help them in this activity
- Provides support for researchers in implementing data storage and data
  management plans as required by funding agencies
- Investigates and implements new technologies and research tools that would
  support data services initiatives
- Develops and communicates a set of guidelines for best practices in data
  management for research
- Participates in preparation of grant proposals for development and advancement
  of the e-Research and data services program at the UMD Libraries
- Maintains a research guide and writes reports, articles and reviews related to data
  services; for example presents seminars/workshops data management and data
  curation
- Participates in library and campus committees as appropriate

PHYSICAL DEMANDS: Extensive use of the computer.

SUPERVISORY RESPONSIBILITIES: None

EDUCATION:

Required: Master's degree in Library or Information Science from an ALA-accredited
institution of higher education by the start of employment.

Preferred: Advanced or undergraduate degree in science or engineering discipline.

EXPERIENCE:

Required:
Demonstrated knowledge of issues and technical challenges related to use and archiving
of digital data. Experience with XML technologies and relational databases. Familiarity
with academic, research, or special libraries. Excellent oral and written communication
Representative Documents: Job Descriptions

UNIVERSITY OF MARYLAND
Research Data Librarian

Skills. Excellent interpersonal skills with the ability to function independently and in
groups, and to build and maintain relationships with partners.

Preferred:
Demonstrated subject knowledge and experience in sciences, social sciences, or
engineering including understanding of issues related to scientific research and scholarly
publishing. Familiarity/experience with data preservation, curation, management, content
description and representation, metadata standards, and relevant workflows; experience
with institutional or subject repository systems. Experience with DSpace, Fedora, or
other repository software. Experience with HTML, CSS, JavaScript, PHP, Perl, or Java.
Familiarity with linked open data.

Employee’s Signature ____________________ Date __________

Print Employee’s Name ______________________________________________________

Supervisor’s Signature ____________________ Date __________
JOB DESCRIPTION

POSITION TITLE: Social Sciences Research Liaison Librarian
INVENTORY NUMBER: 201659
LIBRARY: Satellite Social Sciences
EFFECTIVE DATE: July 1, 2012
POSITION REPORTS TO: Head, Teaching and Research Support – 201663

SUMMARY OF FUNCTIONS:

The incumbent is responsible for the delivery of an effective research liaison program to graduate students, post-doctoral fellows, faculty members and research teams in the social sciences domains.

The main functions of this position include the provision of in-depth reference services for individuals as well as research project liaison and support for research teams; the planning and delivery of customized instructional programs and workshops; and collection development in all formats including data resources in social sciences. Through collaborative outreach and liaison, the incumbent will gain an understanding of research teams’ information resource and service needs that will be applied to developing, identifying and evaluating new services and information resources.

The main objective of this position is the enhancement of research output by creating efficiencies in the researcher information discovery process in support of the research mission of the University of Ottawa.

MAIN ACTIVITIES:

A. Outreach and liaison activities

1. Provide reference assistance and in-depth research assistance to meet the information needs of researchers in the social sciences domains.

2. Maintain outreach to the social sciences community through engagement in departmental activities, awareness of current research and regular communication with faculty and students.

3. Liaise with academic units and researchers to promote library resources and services, reference and teaching activities and to identify ongoing needs.

4. Collaborate with faculty to create subject guides and use technologies such as social media to achieve seamless and integrated information and knowledge services for the assigned disciplines.

5. Develop and implement effective subject-based instructional and information literacy programs for assigned disciplines; collaborate with faculty in the design of innovative library and classroom instruction.

6. Working with the social sciences librarians team, incorporate support for e-science, research data management and curation into library services and assist researchers and faculty with development of data management plans.
B.  Collections development

1. Evaluate and develop scholarly information resources in assigned disciplines in accordance with current policies and practices and in cooperation with faculty and the social sciences librarians’ team.

2. Elaborate, write and revise collections development policies for assigned disciplines and manage collections and gifts in kind in assigned disciplines including evaluation and transfer to the Library Annex;

C.  Other duties

1. Contributes to librarianship by carrying out professional research and/or scholarly work.

2. Perform other duties as assigned by the Head, Teaching and Research Support Services.

AUTONOMY:

1. Carry out her functions under the responsibility of the Head, Teaching and Research Support Services.

2. Exercise full autonomy in the development of the collections in the assigned disciplines.

RELATIONS:

1. Frequent communication with the directors of academic units, library representatives, professors, students and other library clients.

2. Frequent communication with librarians and library technicians from other network libraries.

3. Occasional communication with the heads of specialized libraries and collections, and other library services.

4. Occasional relations with colleagues from external libraries.

ESSENTIAL QUALIFICATIONS:

1. A Master’s degree in Library and Information Studies (M.L.I.S.) from an ALA accredited institution or equivalent;

2. Four (4) years of professional experience, or fewer, depending on relevance of experience to the position;

3. University degree in social sciences or experience working in a social sciences library;
4. Knowledge of scholarly information and research methods in social sciences acquired through studies or professional experience;

5. Familiarity with research data curation and metadata standards;

6. High level of technological literacy including knowledge of or experience with instructional technologies;

7. Pertinent knowledge of and experience in the areas of reference, teaching and collection development;

8. Excellent interpersonal and communication skills;

9. Bilingual (English and French), written and spoken, including the ability to teach in both official languages.

INVENTORY NO: 201XXX

SIGNATURES:

_________________________ Date:

(Incumbent)

_________________________ Date:

(Immediate Superior)

_________________________ Date:

(Director)

_________________________ Date:

(University Librarian)

May 2012
PURDUE UNIVERSITY-POSITION DESCRIPTION

Date: 1/18/2012  Reason: Create New Position

Libraries Org Unit Name Org Unit # Position ID #
333  50096371 & 50096372

Supervisor Name: Michael Witt
Supervisor Title: Interdisciplinary Research Librarian; Assistant Professor of Library Science
Supervisor Position ID: 50031466  Phone: 4-8703  E-mail: mwitt@purdue.edu

Position title: Digital Library Software Developer

Employee Group  Non-exempt: SELECT ONE  Exempt: Administrative/Professional

Time Reporting:  ☑ Full time  ☐ Part time (< 1.00)  % =  Day

Employee Subgroup: Non-exempt position  SELECT ONE  Exempt position  FY 12

Education: Indicate the minimum education required. BA/BS degree
List the required and/or preferred course work or degree field(s):
Bachelor's degree in computer technology, computer science, library and information science, or a related field. Master's of Library Science (MLS or MLIS) preferred.

Experience: Indicate the minimum years of experience required. 1 yr
Describe the type of experience required and/or preferred:
Experience gathering requirements, evaluating tools, and designing, developing, and implementing software. Complementary experience in which documentation, analysis, problem-solving, and communication have been demonstrated both independently and as a member of a team. Mastery of two or more current programming languages. Preferred: experience with PHP, java, MySQL, XML, or RDF; Experience working in a library or with systems that manage digital information in a library context.

Knowledge, Skills, Abilities: List any knowledge, skills, or abilities, special training, certificates or licenses.
Functional competencies include: knowledge of databases, computer programming and scripting languages, software and web development, and information systems. Ability to learn and evaluate current and relevant technologies, standards, and practices in digital preservation such as OAIS, PREMIS, TRAC, LOCKSS, DuraSpace, Archivematica, and curation micro services
Leadership competencies include: teamwork, initiative, and innovation; skill to analyze data and use sound judgment to make decisions; skill to develop specific goals and plans to prioritize, organize, and accomplish work; skill to communicate effectively and clearly in both written and oral forms;
Interpersonal competencies include: effective teamwork and collaboration; efficient management of time, utilizing excellent time and project management; analysis of data and use of sound judgment to make decisions; completion of work with a high level of accuracy and attention to detail; effective and clear communication; development of specific goals and plans to prioritize, organize, and accomplish work; ability to build productive and respectful relationships with others and maintain them over time; ability to pay attention to detail and concentrate on a task over a period of time without being distracted;
Customer Service competencies include: ability to build and respond courteously and effectively to customer needs; ability to addresses shortfalls and problems in service delivery; ability to share solutions and improvements with others.
Change Management competencies include: ability to adjust productively to and communicate about change; ability to explore and try new ideas, methods, and approaches; ability to suggest changes that fit with unit/Library strategic plans.
Performance Development competencies include: ability to take initiative to learn new knowledge and skills; receptive to feedback and takes appropriate action in response; productively applies new knowledge and skills.
Teamwork and Collaboration competencies include: skill to communicate productively about group decisions; ability to treat coworkers with respect; ability to contribute productively to group/unit results.

AAP 710  Census 101  EEO 08  JIC  Supervision No  FLSA Exemption Exempt-Administrative
Compensation Specialist  Validity Date: 2/17/2012
PURDUE UNIVERSITY  
Digital Library Software Developer

Human Resources PD  
January 2012

POSITION SUMMARY: What is the main purpose of this position? Why does it exist?

The Digital Library Software Developer will be responsible for implementing and developing software to build out a long-term preservation environment for research data allowing the Purdue University Research Repository (PURR) to sustain published materials. This position will also collaborate with Purdue colleagues, and with both national and international partners, to develop and implement software in support of policies and practices that enable long-term digital data management and preservation. This is an 18 month position with the possibility of continued funding.

ESSENTIAL DUTIES AND RESPONSIBILITIES include but are not limited to the following:

Describe the essential responsibilities of the position in order of importance. Essential responsibilities are those functions, if removed, would fundamentally alter the purpose of the position. It is not necessary to list each individual task. Percentages should be listed in no less than 5% increments and must total 100%.

USE THE TAB KEY TO MOVE FROM FIELD TO FIELD

<table>
<thead>
<tr>
<th>Essential</th>
<th>Percent</th>
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<tbody>
<tr>
<td>DEVELOP AND IMPLEMENT DIGITAL LIBRARY SOFTWARE</td>
<td>90%</td>
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<tr>
<td>• Learn and evaluate current and relevant technologies, standards, and practices in digital preservation such as OAIS, PREMIS, TRAC, LOCKSS, Dura Space, Archivematica, and curation micro services (focus: preservation) AND/OR Learn and evaluate current and relevant technologies, standards, and practices in systems that are used to manage digital information in a library context, in particular those that relate metadata management, persistent identifiers, data interoperability, and discovery tools (focus: systems).</td>
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<tr>
<td>• Gather requirements, consult and collaborate with constituents including project team members, project partners— the Libraries, Information Technology at Purdue (ITaP), and the Office of the Vice President for Research (OVPR), archivists, and users to identify needs and design software solutions to support user and archival workflows, policies, and best practices for digital preservation</td>
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<tr>
<td>• Design, develop, and implement a standards-based preservation environment for digital research data as a component of the Purdue University Research Repository (PURR)</td>
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<td>• Provide documentation, support, and continuous improvement of preservation software and systems</td>
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<td>• Contribute code to the HUB zero and other, related open source projects</td>
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<tr>
<td>• Assist in the development and certification of PURR as a Trustworthy Digital Repository (ISO 16363)</td>
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<tr>
<td>ADMINISTRATIVE</td>
<td>10%</td>
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<tr>
<td>• Regularly meet, communicate, and collaborate with project partners and library units</td>
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<td>• Prepare reports or correspondence concerning project specifications, activities, or status</td>
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| • Other duties and projects as assigned
### SUPERVISION ROSTER

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<thead>
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<th>Libraries Org Unit Name</th>
<th>Org Unit #</th>
<th>STD: 50096371 &amp; 50096372 Position ID #</th>
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<tr>
<td>Libraries</td>
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**Supervision exercised:** Must be listed as an essential responsibility of the position and described along with the percentage of time under the “Responsibilities Section” on the previous page.

**Functional:** limited to assigning, instructing and reviewing work of others. Also includes hiring, terminating and pay decisions for both undergraduate and graduate student employees.

- Indicate the total number of Monthly exempt staff this position functionally supervises: ________
- Indicate the total number of Bi-weekly non-exempt staff this position functionally supervises: ________

**Temporary/Student(s) supervision:** List the total number of positions supervised below.

- Monthly temporary/Grad student(s): ________
- Hourly temporary/Student(s): 1

---

**Administrative:** responsible for making decisions/recommendations for hiring, terminations, pay adjustments, promotions and training of direct reports as well as performing other supervisory duties. *(If revising existing position, only list changes to reporting below.)*

- Indicate the total number of Monthly exempt staff this position administratively supervises: ________
- Indicate the total number of Bi-weekly non-exempt staff this position administratively supervises: ________

**List IDs of the position(s) below:** *(Required)* List the IDs of the Position(s) (not the person) for each direct report this position administratively supervises. Must match the total number listed above. Do not include graduate student, temporary, or grouped positions.

<table>
<thead>
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<th>Monthly exempt:</th>
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<tr>
<th>Bi-weekly non-exempt:</th>
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PHYSICAL, ENVIRONMENTAL, AND HAZARDOUS SPECIFICATIONS

Identify below the physical, environmental, and hazardous conditions under which the essential responsibilities of the position are performed.

Physical Requirements
From the list of physical requirement descriptions below, check the box that best describes the physical requirements of the position.

1. □ SEDENTARY ACTIVITY: Lift and carry up to 10 lbs. occasionally; sedentary work involves sitting most of the time.
2. □ LIMITED PHYSICAL ACTIVITY: Lift and carry up to 10 lbs. frequently, and up to 20 lbs. occasionally.
3. □ LIGHT PHYSICAL ACTIVITY: Lift and carry 10 to 25 lbs. frequently, and up to 40 lbs occasionally.
4. □ MODERATE PHYSICAL ACTIVITY: Lift and carry 25 to 50 lbs. frequently, and up to 60 lbs occasionally.
5. □ HEAVY PHYSICAL ACTIVITY: Lift and carry 50 to 80 lbs. frequently, and up to 100+ lbs. occasionally.

*Occasional is defined as <50 percent of the time. **Frequent is defined as >50 percent of the time.

Machines, Tools, Electronic Devices & Office Equipment
List the machines, tools, electronic devices, office equipment or other equipment necessary to perform the job.


Environmental and Hazardous Conditions
Check the boxes that best describe the environmental and hazardous conditions of the job.

1. Work indoors (% of time: 100) Work outdoors (% of time: ______)
2. Respiratory Conditions: Involving exposure to:
   □ Gases  □ Inadequate ventilation  □ Other conditions (list) ______
3. Skin Conditions: Involving exposure to:
   □ Toxic chemicals  □ Radiation  □ Burn
   □ Electrical shock  □ Other conditions (list) ______
4. Working Conditions: Including use of, or exposure to:
   □ Heavy machinery  □ Machinery with moving parts  □ Vibration
   □ Working on scaffolding and high places  □ High voltage electricity  □ Lasers
   □ Steam pipes and/or tunnels  □ Grease and oils  □ Cramped working quarters
   □ Biological and/or chemical reagents  □ Infectious diseases  □ Use of sharp objects
   □ Extreme cold (temperatures below 32°)  □ Noise (work requires employee to shout to be heard)
   □ Extreme heat (temperatures above 90°)  □ Handling or maintaining animals
   □ Other conditions (list) ______

DEPARTMENTAL/SCHOOL APPROVALS

Approval to Establish/Modify Position: As supervisor of this position, I am certifying that this description is an accurate reflection of the primary purpose of the position and that the essential duties and responsibilities listed are those that the employee in this position is expected to perform. It does not limit or modify my responsibility or authority to assign and direct the work of the employee.

Supervisor Signature – REQUIRED Date
Department Head Signature – REQUIRED Date
Fiscal Authorization Signature – REQUIRED Date
(e.g., Business Office/Director/VP)
PURDUE UNIVERSITY
Digital Data Repository Specialist

Date: 2/3/2012  Reason: Create New Position

Libraries  333  50096367
Org Unit Name  Org Unit #  Position ID #

Supervisor Name: Michael Witt
Supervisor Title: Interdisciplinary Research Librarian; Assistant Professor of Library Science
Supervisor Position ID: 50031466  Phone: 4-8703  E-mail: mwitt@purdue.edu

Position title: Digital Data Repository Specialist

Employee Group  (Final determination rests with HRS)
Non-exempt: SELECT ONE  Exempt: Administrative/Professional

Time Reporting:  ☑ Full time  ☐ Part time (< 1.00)  % = ______  Shift: Day

Education:  Indicate the minimum education required.  MS degree
List the required and/or preferred course work or degree field(s):
MLS or MIS from an ALA-accredited institution or equivalent combination of education and experience.

Experience:  Indicate the minimum years of experience required.  1 yr
Describe the type of experience required and/or preferred:
Experience managing and/or developing repositories and digital collections.  Experience in supporting and participating in scholarly communications and sponsored research.  Experience as a successful collaborator in a collegial research library environment.

Knowledge, Skills, Abilities:  List any knowledge, skills, or abilities, special training, certificates or licenses.
Functional competencies include: management or development of digital repositories, digital collections, and/or content management systems; one or more major descriptive metadata standards; standards and practices related to digital preservation such as ISO 16363 or TRAC; current digital preservation environment and practices and the research process, data life cycle, and trends in the organization and management of digital information; scholarly communication and intellectual property issues.

Leadership competencies include: teamwork, initiative, and innovation; ability to perform outreach and promotion for data services; skill to develop specific goals and plans to prioritize, organize, and accomplish work; skill to communicate effectively and clearly in both written and oral forms.

Interpersonal competencies include: effective teamwork and collaboration; efficient management of time, utilizing excellent time and project management; analysis of data and use of sound judgment to make decisions; completion of work with a high level of accuracy and attention to detail; effective and clear communication; development of specific goals and plans to prioritize, organize, and accomplish work; ability to build productive and respectful relationships with others and maintain them over time; ability to pay attention to detail and concentrate on a task over a period of time without being distracted; ability to teach something to others.

Customer Service competencies include: ability to build and respond courteously and effectively to customer needs; ability to address shortfalls and problems in service delivery; ability to share solutions and improvements with others.

Change Management competencies include: ability to adjust productively and communicate about change; ability to explore and try new ideas, methods, and approaches; ability to suggest changes that fit with unit/Libraries strategic plans.

Performance Development competencies include: ability to take initiative to learn new knowledge and skills; receptive to feedback and takes appropriate action in response; productively applies new knowledge and skills.

Teamwork and Collaboration competencies include: skill to communicate productively about group decisions; ability to treat coworkers with respect; ability to contribute productively to group/unit results.

For HRS use only:
AAP  710  Census  101  EEO  08  JIC  26652  Supervision  No  FLSA Exemption  Exempt-Administrative
Donna Dye  2/17/2012  Job Long Text: Software Quality Splst. II
Compensation Specialist  Validity Date: Job ID: 1297

148 · Representative Documents: Job Descriptions
POSITION SUMMARY: What is the main purpose of this position? Why does it exist?
The Digital Data Repository Specialist will oversee and provide support for the launch and subsequent day-to-day operation of the Purdue University Research Repository (PURR) service. The position will partner with colleagues to support the adoption and improvement of PURR, as well as lead the ISO 16363 certification process for PURR as a Trustworthy Digital Repository. This is an 18 month position with the possibility of continued funding.

ESSENTIAL DUTIES AND RESPONSIBILITIES include but are not limited to the following:

Describe the essential responsibilities of the position in order of importance. Essential responsibilities are those functions, if removed, would fundamentally alter the purpose of the position. It is not necessary to list each individual task. Percentages should be listed in no less than 5% increments and must total 100%.

<table>
<thead>
<tr>
<th>Essential</th>
<th>Percent</th>
</tr>
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<tbody>
<tr>
<td>REPOSITORY SERVICE MANAGEMENT</td>
<td>70%</td>
</tr>
<tr>
<td>• Lead and complete a successful ISO 16363 audit to establish and maintain PURR as a Trustworthy Digital Repository</td>
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<tr>
<td>• Review, update and develop PURR policies (e.g., preservation) and procedures as the repository grows, and as technology and community practice evolves</td>
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<td>• Maintain a documented history of changes to repository’s operations, procedures, software and hardware, and keeping records of actions and administrative processes relevant to storage and preservation.</td>
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<tr>
<td>• Document change management and critical processes that potentially affect the repository’s ability to comply with its mandatory responsibilities.</td>
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<tr>
<td>• Review logs of access management failures and anomalies and respond accordingly.</td>
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<tr>
<td>• Analyze repository for security risk factors associated with personnel and physical plant.</td>
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</tr>
<tr>
<td>• Report on financial risk, benefit, investment, and expenditure (including assets, licenses, and liabilities).</td>
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<tr>
<td>• Coordinate regularly scheduled self-assessment and external certification processes.</td>
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<tr>
<td>• Coordinate staff roles, responsibilities, and authorizations related to implementing changes within the system and service.</td>
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<tr>
<td>• Ensure that PURR meets its defined service level and policies.</td>
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<tr>
<td>• Actively monitor the integrity of all digital archival objects, managing the number and location of copies of all digital objects, and maintaining information integrity measurements.</td>
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<tr>
<td>• Coordinate and test the understandability of the Content Information and respond to the appropriate Designated Communities when Representation Information is inadequate for understanding the data holdings.</td>
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<tr>
<td>• Review all reported incidents of data corruption and loss, and assess necessary revisions to software/hardware systems, operational procedures and management policies as needed.</td>
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</tr>
<tr>
<td>• Change preservation plans accordingly as a result of repository monitoring. Update and maintain Designated Community definitions and their accessibility, the delivery and access options available to the Designated Community, and address feedback from users.</td>
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<tr>
<td>OUTREACH AND SUPPORT</td>
<td>25%</td>
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<tr>
<td>• Provide support to users in the context of their use of PURR (e.g., collaborators on a research project, dataset production and publication and archiving, end-users of datasets).</td>
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<tr>
<td>• Perform outreach and promotion for data services</td>
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<tr>
<td>• Train staff and ensure PURR has adequate staff and skills to fulfill its duties and responsibilities.</td>
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</tr>
<tr>
<td>ADMINISTRATIVE</td>
<td>5%</td>
</tr>
<tr>
<td>• Partner with colleagues in the Office of the Vice President for Research, Information Technology at Purdue (ITaP), and the Purdue Libraries as a member of the PURR project team in the continuous improvement of PURR</td>
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<tr>
<td>• Regularly meet, communicate, and collaborate with project partners, the project team, and library units</td>
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<tr>
<td>• Other duties and projects as assigned</td>
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### SUPERVISION ROSTER

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<thead>
<tr>
<th>Libraries</th>
<th>Org Unit Name</th>
<th>Org Unit #</th>
<th>Position ID #</th>
<th>333</th>
<th>50096367</th>
</tr>
</thead>
</table>

**Supervision exercised:** Must be listed as an essential responsibility of the position and described along with the percentage of time under the “Responsibilities Section” on the previous page.

**Functional:** limited to assigning, instructing and reviewing work of others. Also includes hiring, terminating and pay decisions for both undergraduate and graduate student employees.

- Indicate the total number of Monthly exempt staff this position functionally supervises: 0
- Indicate the total number of Bi-weekly non-exempt staff this position functionally supervises: 0

**Temporary/Student(s) supervision:** List the total number of positions supervised below.

- Monthly temporary/Grad student(s): 0
- Hourly temporary/Student(s): 0

**Administrative:** responsible for making decisions/recommendations for hiring, terminations, pay adjustments, promotions and training of direct reports as well as performing other supervisory duties. *(If revising existing position, only list changes to reporting below.)*

- Indicate the total number of Monthly exempt staff this position administratively supervises:
- Indicate the total number of Bi-weekly non-exempt staff this position administratively supervises:

**List IDs of the position(s) below:** *(Required)* List the IDs of the Position(s) (not the person) for each direct report this position administratively supervises. Must match the total number listed above. Do not include graduate student, temporary, or grouped positions.

<table>
<thead>
<tr>
<th>Monthly exempt:</th>
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</table>
**PHYSICAL, ENVIRONMENTAL, AND HAZARDOUS SPECIFICATIONS**

Identify below the physical, environmental, and hazardous conditions under which the essential responsibilities of the position are performed.

### Physical Requirements

From the list of physical requirement descriptions below, check the box that best describes the physical requirements of the position.

1. **SEDENTARY ACTIVITY**: Lift and carry up to 10 lbs. occasionally; sedentary work involves sitting most of the time.

2. **LIMITED PHYSICAL ACTIVITY**: Lift and carry up to 10 lbs. frequently, and up to 20 lbs. occasionally.

3. **LIGHT PHYSICAL ACTIVITY**: Lift and carry 10 to 25 lbs. frequently, and up to 40 lbs occasionally.

4. **MODERATE PHYSICAL ACTIVITY**: Lift and carry 25 to 50 lbs. frequently, and up to 60 lbs occasionally.

5. **HEAVY PHYSICAL ACTIVITY**: Lift and carry 50 to 80 lbs. frequently, and up to 100+ lbs. occasionally.

*Occasional is defined as <50 percent of the time. **Frequent is defined as >50 percent of the time.

### Machines, Tools, Electronic Devices & Office Equipment

List the machines, tools, electronic devices, office equipment or other equipment necessary to perform the job.

1. Computers
2. Servers
3. Copier/Fax
4. Printer
5. __________
6. __________

### Environmental and Hazardous Conditions

Check the boxes that best describe the environmental and hazardous conditions of the job.

1. Work indoors (% of time: 100) Work outdoors (% of time: ________)

2. Respiratory Conditions: Involving exposure to:
   - Fumes/vapors
   - Dust
   - Odors
   - Gases
   - Inadequate ventilation
   - Other conditions (list) ________

3. Skin Conditions: Involving exposure to:
   - Toxic chemicals
   - Radiation
   - Burn
   - Electrical shock
   - Other conditions (list) ________

4. Working Conditions: Including use of, or exposure to:
   - Heavy machinery
   - Machinery with moving parts
   - Vibration
   - Working on scaffolding and high places
   - High voltage electricity
   - Lasers
   - Steam pipes and/or tunnels
   - Grease and oils
   - Cramped working quarters
   - Biological and/or chemical reagents
   - Infectious diseases
   - Use of sharp objects
   - Extreme cold (temperatures below 32°)
   - Noise (work requires employee to shout to be heard)
   - Extreme heat (temperatures above 90°)
   - Handling or maintaining animals
   - Other conditions (list) ________

### DEPARTMENTAL/SCHOOL APPROVALS

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Supervisor Signature – **REQUIRED** Date

Department Head Signature – **REQUIRED** Date

Fiscal Authorization Signature – **REQUIRED** Date
(e.g., Business Office/Director/VP)
The Data Curation Librarian will build on e-Science training initiatives and support new emphases and directions in liaison librarian assignments at the University of Tennessee, Knoxville. This new position will lead new initiatives in data curation and work collaboratively on new research initiatives and campus technology innovation.

Reporting to the Associate Dean for Research and Scholarly Communication, the data curation librarian will: strengthen the University's capacity to secure highly competitive grant funding; contribute to the development of long-term data management infrastructure; assist faculty in the discovery of relevant existing data sets and other information; serve as a PI, co-PI or grant team member on externally funded projects; and engage in research and professional activity at the national and international level. The librarian performs data management planning with PIs and researchers, serves as a consultant with researchers on research data issues, and trains researchers on the use of digital research and publishing tools, including UT's Trace digital repository.

The successful candidate will perform outreach and facilitate communication between the Libraries and research groups at UT. The librarian is a member of the Research and Scholarly Services department and a Learning, Research, and Collections liaison. As such, the incumbent is responsible for learning and engagement, research and scholarly communication, and stewardship and collections activities in assigned liaison areas. The Data Curation Librarian is responsible for building strong relationships with administrators, faculty, students, and staff on campus, within the Libraries, and beyond the university. Depending on qualifications and experience, the incumbent may be responsible for supervising library faculty and/or staff.

Responsibilities:
- Assist faculty with development of data management plans for grant applications and general data stewardship
- Working closely with other liaison librarians, incorporate support for data management, citation, and preservation into library services
- Maintain an awareness of emerging trends and best practices in e-science, data curation, and e-scholarship in all disciplines.
- Develop services to enhance access to data.
- Maintain awareness of subject or disciplinary repositories of potential interest to the UT research community
- Maintain awareness of tools and algorithms for computationally centered, data-driven science (data mining, visualization, text mining, etc.)
- Actively participate in university-wide initiatives to develop and design policies, services, and infrastructure to enable faculty and students to preserve and make available their research data
- Partner with internal units (such as Digital Initiatives, Learning and Outreach, and Agriculture & Veterinary Medicine Library) and external units (such as Office of the Vice Chancellor for Research and Engagement, Office of Information Technology, and Center for Information & Communication Studies) to implement data management and publishing services and workshops

Required Qualifications:
- ALA-accredited Master's degree in Library and/or Information Science, or doctorate in a relevant field.
- Demonstrated knowledge of issues and technical challenges related to the life cycle of research data
- Familiarity with two or more commonly used repository platforms (Fedora, DSpace, Dataverse, iRODS, etc.)
- Strong commitment to public service and ability to work well with diverse population of faculty, students, and academic colleagues
- Strong communication (oral and writing), interpersonal, and presentation skills
UNIVERSITY OF TENNESSEE
Data Curation Librarian
http://www.lib.utk.edu/employ/faculty/datacuration.html

Ability to initiate and manage collaborative projects and develop policies
Ability to think creatively in developing and promoting the use of library services and collections through a variety of outreach efforts
Familiarity with funding agency requirements for data management plans
Familiarity with ISO 14721
Must be able to meet the requirements of a tenure-track librarian position

Preferred Qualifications:
Experience working with research data and researchers (e.g., a combination of academic work done in labs with research data, outreach work done with researchers and faculty, digital repository work, etc.)
Second advanced degree in STEM (science, technology, engineering, mathematics) field or quantitative social science discipline
Experience with DSpace, Fedora, Dataverse, or iRODS
Experience with one or more of the following web technologies: HTML, CSS, JavaScript, PHP, Perl, Python, Java
Experience with XML, XSLT, and relational databases
Instruction or teaching experience
Familiarity with at least one of the following metadata standards: Ecological Metadata Language (EML), Data Documentation Initiative (DDI), FGDC/ISO 19115, METS, PREMIS
Ability to use various tools for metadata manipulation and scripting
Successful track record of collaboration with other campus units around scholarly issues and/or technologies
Experience working on an externally funded project
Responsible conduct of research/research ethics training or certification
Experience with a statistical software package (e.g., SPSS, SAS, R)
Supervisory experience

Environment:
The University of Tennessee Libraries serves the flagship campus of the state university system. The UT Libraries supports the teaching, research, and service mission of the university and enhances the academic experience of each student at the Knoxville campus — through outstanding print and electronic collections, reference and instructional services, and top-notch facilities and technological resources.
The UT Libraries serves as an intellectual, cultural, and social center for the university and community. We are a national leader in the creation of regionally significant digital collections; in support of open access through our digital repository Trace; and through a rich history of designing innovative spaces and building key partnerships that enhance the teaching/learning enterprise. The University of Tennessee Libraries is a member of the Association of Research Libraries, the Association of Southeastern Research Libraries, the Digital Library Federation, Lyrasis, and the Center for Research Libraries. The UT Libraries collaborates actively at the state level with the other UT System Libraries as well as the libraries in the Tennessee Board of Regents system.

Benefits:
Excellent benefits include 24 annual leave days; choice of state retirement plan or ORP (AIG Retirement, ING, TIAA-CREF) with nonrefundable contributions paid for the employee by the University; optional group health and life insurance plans. Tuition remission is available for all university employees and partial undergraduate tuition remission is available to dependent children and spouses of UT employees. Faculty rank and status; twelve-month, tenure-track appointment.

Application Procedures:
A background check and official transcripts are required prior to hiring. Send cover letter addressing the above qualifications, a current resume, and the names, addresses, e-mail addresses, and telephone numbers of three recent references to: Elizabeth Greene, Library Human Resources, 1015 Volunteer Blvd., Knoxville, TN 37996-1000. Application materials may be sent via email attachment to ejgreene@utk.edu. Review of applications will begin April 15, 2013 and will continue until the position is filled. Qualified spring graduates are encouraged to apply.

All qualified applicants will receive equal consideration for employment and admissions without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, or covered veteran status.

Eligibility and other terms and conditions of employment benefits at The University of Tennessee are governed by laws and regulations of the State of Tennessee, and this non-discrimination statement is intended to be consistent with those laws and regulations.

In accordance with the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act.
Over the past 2 1/2 years, the University Library’s Scientific Data Consulting Group has focused on assessment of the data management landscape at UVA, developing and testing service workflows and processes, building team capacity, and developing a strategy for addressing long-term research data management challenges at UVA. We are now positioned to offer significant value to the research process through a more complete set of lifecycle services and to become long-term data management consulting partners with researchers. We are now looking for an experienced researcher/scientist to join our group in a part-time capacity, for a one year period, to help advance specific objectives.

In addition to participation in day-to-day consulting and training activities, this individual will contribute in the following ways:

- 40% - Add capacity for implementation services – Apply knowledge of the University, infrastructure, services, and belief in our approach, to add team capacity for consulting and training services, especially in consulting with researchers on implementation of our data management process improvement recommendations.
- 40% - Evaluation of value/impact – Within context of responsibility centered management (RCM), look at how SciDaC generates value for researchers and the institution from the funding allocated to the unit, and how this ecosystem can be measured and reported in a clear manner to various stakeholders (primary focus is on researchers).
- 10% - Analyze from a different perspective – Conduct ongoing testing of consulting and training processes with target user groups.
- 10% - Reach deeper- Help SciDaC to better frame services in language which resonates with researchers, and to market more actively to those audiences.

Required experience/skills:

- Knowledge of research data policy, sponsored research trends, research software, open access trends, data sharing, security, preservation, IT environments, and academic research processes generally.
- A demonstrated commitment to improvement of research data management practices in the academic environment.
- Deep knowledge of how research is conducted, the incentive and motivation models involved in academic research, and how to marry the ideal vision for management and preservation of research data with the realities of day-to-day processes and cultural beliefs.
- A PhD in an academic discipline, as well as demonstrated experience applying for, obtaining, and completing sponsored research grants.
- More than 10 years experience as an academic researcher.
Organization Charts
Staff

Who we are:

Andrew Ashton, Director, Library Digital Technologies
Jean Bauer, Digital Humanities Librarian
Bruce Boucek, Social Sciences Data Librarian
Ann Caldwell, Head, Digital Production Services
Julia Flanders, WWP Director
Eli Mylonas, Senior Digital Humanities Librarian
Ned Quist, Associate University Librarian for Research and Outreach Services
Joseph Rhoads, Digital Repository Manager
Appendix A:
RDMSG Organizational Structure

<table>
<thead>
<tr>
<th>Sponsors and advisors</th>
<th>Vice Provost for Research</th>
<th>University Librarian</th>
<th>Faculty Advisory Board</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Management Group</strong></td>
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<tr>
<td>Management Council</td>
<td></td>
<td>Coordinator</td>
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<tr>
<td><strong>RDMSG Virtual Organization</strong></td>
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<tr>
<td>Implementation teams</td>
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<tr>
<td>Preservation and access (PATFOR)</td>
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<td>Outreach and training</td>
<td>Documentation</td>
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<td></td>
<td></td>
<td></td>
<td>Consultants</td>
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<tr>
<td>Service Providers</td>
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<tr>
<td>CAC</td>
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<td>CIT</td>
<td>CUL</td>
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<td>CISER</td>
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<td>WCMC ITS</td>
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<tr>
<td>CUL</td>
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<td>others as appropriate</td>
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</table>
6g. Data Management: Research Records

1. What are Research Records?
2. What points should I consider when managing my data?
3. What am I responsible for?
4. Who can help?
5. What are the relevant policies and procedures?

1. What are Research Records?

Typically, research records refer to any type of records or materials that document your research effort. These can be electronic or hard copy as in various forms of logs, notebooks, correspondence, videos, computer databases, audio or digital records, or even the actual products of experiments.

In addition to maintaining accurate and complete research records for data analysis, all records relating to the conduct of the project are important including those that document the management of the research funds and the intellectual property.

Although not an inclusive list, research records typically include:

- Laboratory research: lab notes, notebooks, computer databases, microscopic slides, gels, images, photos, videos, laboratory equipment printouts, and records of statistical and other data analysis.
- Animal research: protocol binders with IACUC-approved protocols with all approved modifications, animal health records, surgical or treatment records, breeding records, drug records, research data files.
- Clinical trials: regulatory binders which include CHR approvals, protocols, informed consent documents, monitoring reports, adverse event reports, and other documents pertaining to sponsors, drugs and devices. Other clinical records can include records for research data, data analysis, audio and video tapes of subjects, images of subjects and any other type of record that can identify persons that data were collected from.
- Funding: records and correspondence relating to the grant financial records, purchasing records, scope of work, budgets, and service records.
- All correspondence with granting agencies, institutions, and collaborators.

The University of Iowa Operations Manual includes description of UI’s Records Management Program which provides definitions for different types of UI documents and records.
2. What points should I consider when managing my data?

The integrity of your data is dependent upon having and using a system of data management. When determining how data will be collected, recorded, and stored, you should consider the following:

- Are the research records legible, accurate, and complete? Are they in sequence and dated? Is the researcher identified in the records?
- Are there reasonable plans for retention, retrieval and storage of the data?
- Have you managed the data so it can be shared if required by funding agencies?
- Would an audit of the research records support your claims in your publications?
- Could co-investigators confirm the accuracy of the manuscript from the laboratory or research notebooks?

Your research records are the source documents for verification of your research by governmental or University investigations and audits. Clear, permanent records of research are crucial for clarifying any challenges to your data authenticity, authorship and intellectual property.

3. What am I responsible for?

As the PI, you should observe sound practices for the maintenance, oversight, and storage of data as you have the final responsibility for the following:

- Validity and quality of the data and manuscripts.
- Fulfilling all departmental and University research standards, policies, and procedures.
- Training and monitoring the performance of your students, research fellows, residents, and staff to assure that each has the knowledge, information, and skills necessary to meet these standards.

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 c of the University of Iowa Operations Manual.

In addition to institutional responsibilities, a growing number of U.S. funding agencies such as the National Science Foundation, the National Institutes of Health, and National Endowment for the Humanities-Office of Digital Humanities require researchers to supply detailed, cost-effective plans for managing research data, called Data Management Plans. These plans typically detail:

- What data will be kept and for how long
- How data will be formatted and described for reuse and interpretation
- Policies around data access, use, and attribution/copyright, and preservation

4. Who can help?

UI researchers can seek assistance in developing data management plans from various sources. The DMP Tool helps researchers create and manage data management plans. The University of Iowa Libraries subject liaisons and its Digital Research & Publishing unit also provide advice on developing data management plans and long-term archiving and preservation for small sets through Iowa Research Online.

5. What are the relevant policies and procedures?

University of Iowa Policy, Procedures, and Resources:

- The University of Iowa Operations Manual 17.3 Records Management Program
- The University of Iowa Guidebook on Records Management
- Guide for Human Subjects Research at the University of Iowa (guidance on records management can be found in Section F. Record Keeping)
- UI Information Technology Services – Research Services
- The Iowa Social Science Research Center offers data access and management services to UI social science researchers.

Partial list of Federal Policies, Procedures, and Resources:
JOHNS HOPKINS UNIVERSITY
POLICY ON ACCESS AND RETENTION
OF RESEARCH DATA AND MATERIALS
January 2, 2008

INTRODUCTION

The following policy paper contains parameters for Research Data and Materials Management (hereafter to be referred to as Research Data). In recent years, the amount of scrutiny and inquiry into Research Data has increased from a variety of sources, which has prompted efforts at Johns Hopkins and elsewhere to evaluate and update their Research Data Management practices.

The purpose of this policy is to protect researchers and the university. These measures are designed to address compliance requirements for researchers while diffusing some of the burden associated with Research Data Management. At Johns Hopkins, the department, research administration, divisional and university administration and the researcher are partners in managing and protecting the Research Data produced at the university.

This policy provides an umbrella approach to Research Data Management across the university. Divisional and other policies may also apply but are not to conflict with the overarching policy. This policy has been carefully designed to serve the best interests of our researchers and the university in management of Research Data. This policy is designed to complement, not supersede, other policies of the Johns Hopkins University including (but not limited to) protection of human subjects, HIPAA, intellectual property, financial management, etc. This policy does not apply to academic issues.

1. DEFINITIONS

RESEARCH DATA AND MATERIALS: Research Data is defined as information recorded in physical form, regardless of form or the media on which it may be recorded. For the purposes of this policy, Research Data is further defined as including any records that would be used for the reconstruction and evaluation of reported or otherwise published results. Research Data also includes materials such as unmodified biological specimens, environmental samples, and equipment. Examples of Research Data and Materials include laboratory notebooks, notes of any type, photographs, films, digital images, original biological and environmental samples, protocols, numbers, graphs, charts, numerical raw experimental results, instrumental outputs from which Research Data can be derived and other deliverables under sponsored agreements.
PRIMARY RESPONSIBLE INVESTIGATOR: The individual who bears primary responsibility for technical, programmatic, fiscal, and administrative requirements of the project.

2. APPLICABILITY OF POLICY: This Policy on Access and Retention of Research Data and Materials shall apply to all Johns Hopkins University faculty, staff, postdoctoral fellows, students and any other persons, including consultants, involved in the design, conduct or reporting of research performed at or under the auspices of the University.

3. OWNERSHIP OF RESEARCH DATA: The University owns all Research Data generated by research projects conducted at or under the auspices of the Johns Hopkins University regardless of funding source, unless specific terms of sponsorship, other agreements or University policy supersede these rights.

   This policy does not attempt to determine relative rights of researchers and issues surrounding collaborative efforts such as authorship.

4. RETENTION AND ARCHIVING: The Primary Responsible Investigator of a research project is responsible for selection of an appropriate method of storing and archiving Research Data, and for determining what needs to be retained in sufficient detail and for an adequate period of time to enable appropriate responses to questions about accuracy, authenticity, primacy, and compliance with laws and regulations governing the conduct of research. The Primary Responsible Investigator is responsible for educating all participants in the research project of their obligations regarding Research Data, and for protection of the University’s rights and ability to meet obligations related to the Research Data. The Primary Responsible Investigator should also consult with University officials regarding the development of any contingency plans.

5. RIGHTS TO ACCESS: The Primary Responsible Investigator will have access to the Research Data generated by the project. Any other faculty, staff, student or person involved in the creation of Research Data may have the right to review that portion of the Research Data that he or she created. The University will have access to the Research Data as necessary for technology transfer, compliance and other purposes. The University also has the option to take custody of the Research Data as determined by the appropriate University official. Such option will not be invoked without cause and subsequent notification of the Primary Responsible Investigator. In some instances, a research sponsor has a legal right of access or access may be requested through the sponsoring agency under the federal Freedom of Information Act (FOIA). Such requests will be coordinated through the Office of the General Counsel and/or the appropriate Research Administration Office.
6. DESTRUCTION OR REMOVAL: Research Data must be maintained for the periods required by law, University policy and sponsored agreement terms (See Appendix V). Thereafter, Research Data must not be destroyed without prior approval of the appropriate University official. With respect to removal of the Research Data, the University recognizes the importance of Research Data to the future research and career of its faculty. Therefore, should removal of Research Data be approved, for example, because of the transfer of the investigator to another institution, the following requirements apply:

    I. Researchers may receive approval to remove original Research Data. The University may retain copies.
    II. Research Data generated during the Researcher’s employment at the University will be maintained in accordance with Johns Hopkins policy
    III. Research Data that are integral to the ongoing research of another Johns Hopkins employee or student will continue to be made available for that purpose
    IV. The researcher bears full responsibility for making original Research Data available to Johns Hopkins or federal and legal entities upon request.

Others involved in the project may remove copies (but not originals) of the Research Data with permission of the Primary Responsible Investigator.

7. MAINTENANCE AND REVISION OF THE RESEARCH DATA: The Primary Responsible Investigator of the research project is the person directly responsible for maintenance of Research Data created on that project. In order to support the project’s credibility and the University’s rights and ability to meet obligations related to the Research Data, should any revisions to final Research Data be contemplated, the Primary Responsible Investigator must notify the appropriate offices in the University and the originator of the information. The Primary Responsible Investigator must retain the original Research Data. See also Appendix IV.

APPENDICES, WEB LINKS, AND/OR FORMS:

    I. RESPONDING TO REQUESTS FOR ACCESS BY NON-HOPKINS ENTITIES UNDER FOIA (Policy and Cost Reimbursement Form)
    II. TRANSFER OF RESEARCH DATA FROM JHU CUSTODIANSHIP (Optional Approval Form)
    III. LINK TO UNIVERSITY POLICIES (http://jhuresearch.jhu.edu/policies.htm)
    IV. APPROVED METHODS OF ARCHIVAL
    V. TIME MINIMUMS FOR ARCHIVAL
REGULATION ON THE CONDUCT OF RESEARCH

4. RESEARCH DATA

4.1 A Researcher shall collect Data concerning human and animal subjects in accordance with the Regulatory Framework governing the use of such subjects.

4.2 A Researcher shall respect the laws governing access to personal information and privacy in his or her collection and use of Data.

4.3 A Student may engage in Research in which use of certain kinds of Data, in the custody of a government or Person, is restricted provided that:

(i) the eventual publication of Research based on the Data is permitted; and
(ii) subject to section 4.3.1, any delay in publication does not exceed one (1) year.

4.3.1 A request by a third party for a delay in publication of Research undertaken by a Student for his or her thesis that exceeds one (1) year may be agreed to only in exceptional cases and shall require:

(i) the written consent of the Student; and
(ii) the written approval of:

(a) the Vice-Principal (Research and International Relations); and
(b) the Dean of Graduate and Postdoctoral Studies.

4.4 A Researcher shall not use or publish Data which he or she knows to be, or has reasonable grounds to believe are, false or of unknown provenance unless it is so identified.

4.5 A Researcher shall organize his or her Data in a manner that allows for its verification by third parties.

4.6 Retention of Research Data

4.6.1 A Researcher shall retain Data in conformity with best practice in his or her discipline and for:

(i) the period specified by the Agency supporting the Research; or
(ii) in the absence of an Agency specification, a period of seven (7) years from publication of the Data.

4.6.2 Each department or research unit shall establish procedures appropriate to its needs for the retention and recording of Data.

4.6.2.1 Data shall be retained by a Principal Investigator or the department or research unit in which they were generated as agreed to by the Principal Investigator and his or her Chair.

4.6.2.2 A Researcher who ceases to be a member of the University shall deposit his or her Data with the department or research unit where the Data were generated unless alternative written arrangements are made with his or her Chair.

4.6.3 In the event that Data obtained from a limited access database or under a Research Related Agreement cannot be retained by a Principal Investigator, the Principal Investigator must provide the Chair in writing with the location of the Data or the limited-access database.

4.7 Access to Research Data

4.7.1 Subject to exceptions based on a duty of confidentiality and the laws respecting intellectual property and access to information, a Researcher shall make his or her Data available after publication to an Agency or established scientific or scholarly journal presenting a reasonable and legitimate written request to examine the Data.
4.7.2 Where there is a disagreement between the Researcher and the Agency or journal requesting the Data, the disagreement shall be referred for resolution:
(i) first to the Chair;
(ii) then, if necessary, to the Dean; and
(iii) finally, if necessary, to the Office of the Vice-Principal (Research and International Relations).

4.8 Collaborative Data

4.8.1 Research collaborators, at the commencement of their collaboration, shall make all reasonable efforts to reach agreement, preferably in writing, that is consistent with the law and the Regulatory Framework relating to intellectual property, on their rights to, and future use of, Data.

4.8.2 In the absence of an agreement between Research collaborators, their rights to and future use of the Data shall be governed by the law and the Regulatory Framework relating to intellectual property.

4.8.3 In the event that a dispute should arise between Research collaborators concerning rights to and future use of the Data, the University shall assist in facilitating the resolution of dispute in accordance with section 6.5.
Research Data Policy

1. Objectives

Research Data are a valuable asset to The University of Tennessee (the University). This policy protects the faculty's and University's property rights by addressing definition, responsibility, control, and distribution of Research Data produced during activities supported by the University; supported by external sponsors; or produced with University facilities, resources, or other personnel.

This policy is applicable to Research Data developed by University employees in performing the duties of their employment by the University or through substantial use of funds and facilities provided by the University. This policy assures that Research Data are adequately recorded, archived, retained, and accessible for sufficient time to support the associated research that produced the data and any intellectual property developed by that research. This policy supports the academic freedom for free and broad dissemination of Research Data, consistent with University policy and needs.

2. Definition of Research Data

For purposes of this policy, Research Data includes all records necessary for the reconstruction and evaluation of reported results of research and the events and processes leading to those results, regardless of form or media. Research Data may include laboratory notebooks, databases documenting research, and other compilations of information developed during research.

Research Data are distinct and separate from, but may be associated with, other intellectual property such as patentable or copyrightable works, and trademarks. Intellectual property is subject to a separate policy (see The University of Tennessee Statement of Policy on Patents, Copyrights, and Other Intellectual Property), as is Tangible Research Property (see Tangible Research Property Policy).

3. Responsibility for Research Data

The University is ultimately responsible for the accuracy and sufficiency of research records, the cornerstone of rigorous research. Therefore, the University is responsible for Research Data developed by University personnel in performing the duties of their employment by the University or through substantial use of facilities or funds provided by the University. Such responsibility applies to research funded by external sources and managed by the University, unless the University agrees to another arrangement in a grant, contract, or other agreement.
The University’s responsibility for the scientific record for projects conducted at the University, under University auspices, or with University resources is based upon (a) United States Office of Management and Budget Circular A-110, Sec. 53, (b) the University’s need to assess and defend charges of intellectual dishonesty, (c) the University’s need to support and commercialize the management of intellectual property, and (d) the University’s mission to develop and disseminate new knowledge.

4. Control of Research Data

The University supports the principle of openness in research. Free dissemination of data, processes, and results of research and other sponsored activity is crucial to a vibrant and healthy academic environment. The University promotes the prompt and open exchange of Research Data with scientific colleagues outside the investigator’s immediate laboratory or department, subject to relevant grants, contracts, other agreements, or applicable law.

In the case of externally sponsored research involving a grant, contract, or other agreement, the Principal Investigator (PI) is responsible for controlling storage, use, and distribution of Research Data arising from the research activity, subject to provisions of the applicable grant, contract, or other agreement, or University policy, or applicable law. The PI, or laboratory/department head is responsible in situations where the research is performed without a grant, contract, or other agreement, such as institutionally sponsored research. The PI or laboratory/department head is responsible for the following:

a) Collection of Research Data, including production of defensible laboratory notebooks;

b) Management of Research Data ensuring efficient and effective retrieval by the PI, other personnel within the research group, or appropriate administrative personnel or research sponsors;

c) Development of a formal Research Data plan and procedures where appropriate;

d) Consideration of a system for preserving Research Data in the event of a natural disaster or other emergency;

e) Retention of Research Data for the requisite period of time (see below); and

f) Documented communication of the management system and description of the data managed to members of a research group and to the Chief Research Officer.

Control of Research Data, however, remains at all times subject to the other provisions of this policy.

5. Retention of Research Data
The PI or laboratory/department head must preserve Research Data for a minimum of three (3) years after the final project close-out, with original data retained where feasible. The following circumstances may require longer retention:

a) Where data supports a patent, such data must be retained as long as the patent and any derivative patents are valid;
b) If allegations of scientific misconduct, conflict of interest, or other charges arise, data must be retained until such charges are fully resolved;
c) If a student is involved, data must be retained at least until the degree is awarded or the student has unambiguously abandoned the work; and
d) Data must be retained if required by the terms of a grant, contract, or other agreement, or applicable law.

Beyond these periods, destruction of the research record is at the discretion of the PI or the laboratory/department head. Research Data will normally be retained in the administrative unit where generated. Research Data must be retained on a University facility unless specific permission to do otherwise is granted by the Chief Research Officer.

6. University Responsibilities

University responsibilities with respect to Research Data include the following:

a) Ensuring the academic freedom of the faculty in pursuit of the University’s mission of developing and disseminating new knowledge;
b) Securing and protecting intellectual property rights for Research Data and commercialization of such data where appropriate and feasible;
c) Protecting the rights, including those of access to data, of faculty, postdoctoral scholars, students, and staff;
d) Avoiding undue interference with appropriate dissemination of Research Data in an academic community;
e) Complying with the terms of a sponsored grant, contract, or other agreement;
f) Facilitating the investigation of charges of scientific misconduct, conflict of interest, and similar charges or disputes; and
g) Ensuring the appropriate care of animals, human subjects, recombinant DNA, radioactive materials, controlled substances and the like.

7. Research Data Transfer When a PI Leaves the University or a Grant is Transferred

If a PI leaves the University and a research project is to accompany the PI to a new institution, ownership of the data may be transferred with the approval of the Chief Research Officer and with written agreement from the PI’s new institution that ensures: (1) its acceptance of custodial and other responsibilities for the data; (2) the University
and any sponsors have access to the data when necessary and upon reasonable notice; and (3) protection of the rights of human subjects.

8. Resolving Disputes Concerning Research Data Ownership or Policy

Questions of Research Data ownership or other matters pertaining to the Research Data policy will be resolved by the Chief Research Officer in conformance with applicable University policies.

9. University Access

When necessary to assure access to Research Data, the University has the option to take custody of the data in a manner specified by the Chief Research Officer.
Data Retention Policies
Policy on Research Records: Sharing, Retention and Ownership

As Approved by the Academic Council May 5, 1994
Revised by Research Policy Committee January 2007

The preparation, sharing and retention of appropriate records are essential components of any research endeavor at the University. The University, its faculty and its trainees have a common interest and a shared responsibility to assure that research is appropriately recorded, shared and retained. Original records may be required to protect the University’s intellectual property rights, to answer ongoing questions regarding management of a research program, to address possible questions that may arise regarding the propriety of research conduct and to comply with the data sharing requirements of many sponsors. Most importantly, it is essential that original research records be mutually available to all the collaborators on a research project.

Definition of Research Records

Research records include, by way of example but not limitation, material contained in research notes, laboratory notebooks and in other media such as computer disks and instrument printouts. Significant research materials or products generated by any research are also part of the record and should be retained and available.

Sharing of Research Records

Research records must always be available to collaborators (co-investigators, supervisors and their trainees). In collaborative projects, all investigators should know the status of all contributing research records and have access to them consistent with confidentiality restrictions. Investigators also should be aware if their research records are subject to specific data sharing requirements of a sponsor.

Retention of Research Records

Faculty, or the responsible investigators, have the obligation to ensure that, for all aspects of their research program, sufficient records are kept to document the experimental methods and accuracy of data collection as well as the methods and accuracy of data interpretation. This policy does not create an obligation to retain the research records of an unfunded project unless it results in publication or involves the use of animals or human subjects. Research records should be archived for a minimum of five years after final reporting or publication of a project (or longer if required by an external sponsor, law, rule or regulation). The archived records should be the originals. In addition, the records should be kept for as long as may be required to protect any patents resulting from the work. If any questions regarding the research are raised during the required retention period, the records should be kept until such questions are fully resolved. In the event an investigator leaves the University for any reason, the original research records must be retained at the University and the investigator’s department and collaborators notified as to their location.

Ownership of Research Records

The primary owner of research records is the University. The University has the right of access to the supporting records for all research carried out through the University with the understanding that information or data that would violate the confidentiality of sources or subjects involved in the research should not be disclosed. In addition, extramural sponsors providing support for research at Duke University may have the right to review any data and records resulting from that extramural support.
Policy 7.9
Guidelines for Responsible Conduct of Scholarship and Research

Responsible Official: VP for Research Administration
Administering Division/Department: Research Compliance
Effective Date: April 30, 2007
Last Revision: April 30, 2007

Policy Sections:

I. Overview
II. Applicability
III. Policy Details
IV. Related Links
V. Contact Information
VI. Revision History

Overview

These guidelines describe a standard of practice for the conduct of scholarship and research at Emory University. The University complies with all applicable laws and regulations (see Appendix). The guidelines are intended as a statement of desirable practices. They are based on three important principles:

I. The University is obligated to protect and foster the academic freedom and intellectual integrity of all members of the University community in their pursuit of knowledge;
II. The University is accountable to outside funding sources that support the research and scholarship of its faculty; and
III. Every scholar has ultimate responsibility for the accuracy and validity of his/her own work and that of junior co-investigators, fellows, and students. Each scholar shared this responsibility with colleagues with whom she/he establishes collaborative relationships.

Applicability

This document applies to research in all areas of intellectual inquiry. A separate section addresses issues specific to scientific research. These guidelines are intended to heighten awareness of potential ethical problems and to instruct individuals regarding appropriate procedures for resolving and documenting ethics-related matters. The focus is on the individual scholar; the purpose is to emphasize that his/her responsibility includes a duty to maintain high scholarly and ethical standards, and a commitment to instill those standards in co-investigators, students, and trainees.

Scientific inquiry, scholarly contributions, creativity, and academic accomplishment can take many forms and may vary among disciplines. The issues addressed by these guidelines are essential to all scholarly activity within the University community. Scholarly responsibility, quality of scholarly activity, security of scholarly contributions and their sources, responsible authorship, and provision for training in ethics of each discipline are issues inherent to all areas. The implications of these guidelines apply as fully to the scholar who co-authors a history textbook as to the laboratory scientist who reports a biological discovery, or the clinician who publishes a case report.

The guidelines address the following concerns:

- the scholar's authority and responsibility for research activities;
- the establishment of the quality of research;
- authorship of publications, including multiple publications and requisites for authorship;
- the supervision of students and other trainees;
- the education of trainees in research ethics and integrity;
- access to and retention of scientific research protocols and data; and
- the social responsibility of the scholar.
C. Access to and Retention of Scientific Research Protocols and Data

1. Both the research director and the University have responsibilities and, hence, rights concerning access to, use of, and maintenance of original research data. ("Ownership of Research Data", Estelle A. Fishbein, Academic Medicine, 66:129, 1992 and "Workshop Summary", L.J. Rhoades, Data Management in Biomedical Research: Report of a Workshop, USPHS, pp. 2-9, 1990.) Consistent with the precepts of academic freedom and intellectual integrity, the investigator/scholar has the primary authority to make judgments involving the use and dissemination of the data.

2. Each faculty member/preceptor is ultimately responsible for the maintenance and proper retention of research records. These records should include sufficient detail to permit examination for the purposes of replicating the research, responding to questions that may result from unintentional error or misinterpretation, establishing their authenticity, and confirming the validity of the conclusions.

3. Each preceptor should maintain a laboratory manual that describes all major procedures. Correspondence with institutional review committees and records of the use of controlled substances and radioactive materials should be maintained as part of the research record in accordance with governmental, regulatory, and University policies.

4. A standardized system of data organization should be adopted and should be communicated to all members of a research group and to the appropriate administrative person. The appropriate administrative person should be determined by the sub-unit.

5. Where feasible, all original primary data are to be retained by the faculty member or by his or her designee. Accepted practices for retaining data vary among disciplines and depends on the perishability nature and logistics of retaining each type of data. Each investigator should treat data properly to ensure authenticity, reproducibility and validity and to meet the requirements of relevant grants and other agreements concerning the retention of data. Primary data should be reserved for a reasonable duration to ensure that any questions raised by the researcher, colleagues, or readers of any published results can be answered. It is recommended that, where feasible, data be retained for seven years; in circumstances where there are no federal or other requirements such as those referred to in the Appendix, sub-units of the University may wish to establish uniform standards and procedures for retention and destruction of data. Data should not be destroyed without proper notification of and approval by an appropriate administrative person. In unusual cases (e.g., data used for a patent application filed by the University), it may be necessary for original data to be kept at the University. Potentially patentable data should be signed and dated by the preceptor at the time they are entered into notebooks or maintained by other methods of retention in the event the results are questioned.

6. In the event the scholar leaves the University, an Agreement of Disposition of Research Data may be negotiated by the scholar and the department chair or dean to allow the scholar's data, notebooks, and other data retention materials (other than clinical research records) to be transferred to the new institution. Consistent with the same precepts, and to fulfill its obligations to funding sources and others, the University will ensure in such agreements access to the transferred data for purposes of review. In unusual cases (e.g., data used for a patent application filed by the University) it may be necessary for original data to be kept at the University. In such cases an individual written agreement shall be signed which preserves the scholar's right to access and copy (where practical) such data. In cases of multi-institutional studies, the institution of the primary study director is ultimately responsible for guaranteeing appropriate access to, use of, and retention of original data.

7.9.03 References


*"Authorship and Other Credits", N. Fotion and C. C. Conrad, Annals of Internal Medicine, 100:592, 1984.


### APPENDIX V

**Time Minimums for Research Data Archival**

<table>
<thead>
<tr>
<th>Research Data</th>
<th>Laws, Policies and Regulations</th>
<th>Time Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposals not funded</td>
<td>Not defined, but may contain proprietary information</td>
<td>Not defined</td>
</tr>
<tr>
<td>Expired Grants and Contracts</td>
<td>- Office of Management and Budget (OMB) Circular A-110*&lt;sup&gt;*&lt;/sup&gt;</td>
<td>OMB - Three years after completion of the entire research project</td>
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<tr>
<td></td>
<td>- Grants Policy of Funding Agency</td>
<td>Federal - follows OMB</td>
</tr>
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<td></td>
<td></td>
<td>Private – Varies--see specific policy</td>
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<tr>
<td>Clinical Trials</td>
<td>Food and Drug Administration (FDA) Notice: “Good Clinical Practices: Consolidated Guidelines”</td>
<td>At least two years after the last approval of a marketing application or at least two years after formal discontinuation of clinical development of the investigational product or longer if required by contract, but in no instance less than three years after the completion of the Clinical Trial</td>
</tr>
<tr>
<td>(All relevant records)</td>
<td></td>
<td></td>
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<tr>
<td>- Patent files</td>
<td>U.S. Patent Law</td>
<td>17 years from the date of the patent application</td>
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<td>- Data in support of patent</td>
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<tr>
<td>Research Data which supported enactment of a federal, state or local law</td>
<td>Not defined</td>
<td>Indefinite</td>
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</tbody>
</table>

* = OMB Circular A110 Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations”

NOTE: If a sponsored agreement exists, see specific archival requirements contained therein.
RESEARCH DATA: OWNERSHIP, RETENTION AND ACCESS

Policy Statement
Individual researchers and the University have rights and responsibilities with respect to research data. This Policy describes the basis of data ownership and the standards for the collection and retention of data, in addition to requirements for data access. This Policy also provides guidance with respect to transfer of research data in the event a researcher leaves Northwestern University.

Reason for Policy/Purpose
This Policy assures that research data are appropriately recorded and archived, and available for review under appropriate circumstances.

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Statement</td>
<td>1</td>
</tr>
<tr>
<td>Reason for Policy/Purpose</td>
<td>1</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>1</td>
</tr>
<tr>
<td>Who Approved This Policy</td>
<td>2</td>
</tr>
<tr>
<td>Who Needs to Know This Policy</td>
<td>2</td>
</tr>
<tr>
<td>Website Address for This Policy</td>
<td>2</td>
</tr>
<tr>
<td>Contacts</td>
<td>2</td>
</tr>
<tr>
<td>Definitions</td>
<td>2</td>
</tr>
<tr>
<td>Policy/Procedures</td>
<td>3</td>
</tr>
<tr>
<td>1.0 Ownership and Responsibilities</td>
<td>3</td>
</tr>
<tr>
<td>2.0 Data Retention</td>
<td>4</td>
</tr>
<tr>
<td>3.0 Transfer in the Event a Researcher Leaves Northwestern</td>
<td>5</td>
</tr>
<tr>
<td>Forms/Instructions</td>
<td>5</td>
</tr>
<tr>
<td>Appendices</td>
<td>5</td>
</tr>
<tr>
<td>Related Information</td>
<td>5</td>
</tr>
<tr>
<td>History/Revision Dates</td>
<td>5</td>
</tr>
</tbody>
</table>
Who Approved This Policy
Vice President for Research

Who Needs to Know This Policy
Faculty, students, other trainees, staff, and all other members of Northwestern University’s research community.

Website Address for this Policy
http://www.research.northwestern.edu/policies/documents/research_data.pdf

Contacts
If you have any questions about this policy, you may contact:

1. Executive Director, Office for Sponsored Research – (312) 503-7955, osr-chicago@northwestern.edu (Chicago) or (847) 491-3003, osr-evanston@northwestern.edu (Evanston)

2. Director, Office for Research Integrity – (312) 503-0054 or nu-ori@northwestern.edu

Definitions
For the purpose of this Policy, “research data” means all information in whatever form (e.g., both physical and electronic) collected and/or generated in the course of a sponsored research project conducted at the University, under the auspices of the University or with University resources. This includes original and derivatives of research data, including recordings of such data. Examples of research data include, but are not limited to:

- Records necessary for the reconstruction and evaluation of the results of research;
- Data contained in laboratory notebooks;
- Data collected using instrumentation or systems and stored in an electronic format;
- Case report forms and source documentation for human subject research studies.

Pursuant to Northwestern’s Policy on Retention of University Records, “Records” include “recorded information of any kind and in any form including writings, drawings, graphs, charts, images, prints, photographs, microfilms, audio and video recordings, data and data compilations, and electronic media, including e-mail.”

This Policy does not address ownership of intellectual property, which is governed by Northwestern’s Patent and Invention Policy and Copyright Policy.

Policy/Procedures
1.0 Ownership and Responsibilities

As a federally funded research institution, the University, in order to meet the requirements of research sponsors, asserts ownership over the research data for projects conducted at the
University, under the auspices of the University or with University resources. Although the University as owner of the research data must meet the requirements of sponsors, good management practice and practical considerations necessitate that the University and researchers act in partnership to fulfill these obligations.

As custodians of research data, Principal Investigators (PIs) and other researchers are stewards of research data. At the same time, no matter how such responsibilities are delegated, the flow of accountability runs from the PI being responsible to the institution for the stewardship of research data, just as the institution is ultimately responsible to the research sponsor.

Research data are to be accessible to members of the University community, external collaborators and others as appropriate (e.g., for patent applications or journal submissions). Where necessary to assure needed and appropriate access (e.g., for research misconduct investigations), the University may take custody of research data in a manner specified by the Vice President for Research.

Northwestern’s responsibilities with respect to research data include, but are not limited to:

1. complying with the terms of sponsored project agreements;
2. ensuring the appropriate use of project resources, e.g., animals, human subjects, recombinant DNA, biological agents, radioactive materials, etc.;
3. protecting the rights of researchers, including, but not limited to, their rights to access to data from research in which they participated;
4. securing intellectual property rights;
5. facilitating the investigation of charges, such as research misconduct or conflict of interest;
6. maintaining confidentiality of research data, where appropriate; and
7. complying with applicable state and federal laws and regulations.

The PI’s responsibilities with respect to research data include, but are not limited to:

1. ensuring proper management and retention of research data in accordance with this Policy;
2. establishing and maintaining appropriate procedures for the protection of research data and other essential records, particularly for long-term research projects;
3. ensuring compliance with program requirements;
4. maintaining confidentiality of research data, where appropriate; and
5. complying with applicable state and federal laws and regulations.

2.0 Data Retention
Research data must be retained for a minimum of three years after the financial report for the project period has been submitted. In addition, any of the following circumstances may justify longer periods of retention:

1. research data must be kept for as long as may be necessary to protect any intellectual property resulting from the work;
2. if litigation or other dispute resolution, claim, financial management review or audit related to the research project is started before the expiration of the three year period, or commenced after the three year period but the relevant data and records have not been destroyed, the research data and other project records must be retained until all
litigation/dispute resolution, claims, financial management review or audit findings involving the records have been resolved and final action taken;
3. if any charges regarding the research arise, such as allegations of research misconduct, research data must be retained consistent with the Northwestern University Policy on Retention of University Records, or as otherwise instructed by Northwestern’s Office for Research Integrity or Office of General Counsel;
4. if a student is involved, research data must be retained at least until the student’s degree is awarded (or the student otherwise leaves Northwestern University) and any resulting papers are published;
5. when research is funded by an award to or contract with Northwestern that includes specific provision(s) regarding ownership, retention of and access to technical data, the provision(s) of that agreement will supersede this Policy;
6. research data from human subject research studies must be maintained consistent with the Human Subjects Protection Program Policy Manual and the Policy on Retention of University Records;
7. if other regulations, federal oversight, sponsor policies or guidelines, journal publication guidelines or other University policies require longer retention, all applicable sources must be reviewed and the research data must be kept for the longest period of time applicable.

Beyond the period of retention specified here, the destruction of research data is at the discretion of the PI. Destruction of research data must follow applicable federal regulations, Northwestern policies on record retention and data disposal, sponsor requirements and other applicable guidelines.

Research data will normally be retained in the unit where they are produced. Please refer to the Policy on Retention of University Records for additional guidance on responsibilities related to the retention of research data and records.

3.0 Transfer in the Event a Researcher Leaves Northwestern

When individuals other than the PI involved in research projects at Northwestern leave the University, they may take copies of research data for projects on which they have worked, subject to relevant confidentiality restrictions. Original data, however, must be retained at Northwestern by the PI.

If the PI leaves Northwestern, and a project is to be moved to another institution, ownership of the original data may be transferred from Northwestern to the PI’s new institution upon request from the PI subject to: (a) the prior written approval of the Vice President for Research; (b) written agreement from the PI’s new institution that guarantees (1) its acceptance of ongoing custodial responsibilities for the data and (2) Northwestern having access to the original data, should such access become necessary for any reason; and (c) relevant confidentiality restrictions, where appropriate.

Forms / Instructions
N/A
Policy: Laboratory Notebook and Recordkeeping

Date: 06/23/04  Policy ID: RES-002  Status: Final

Policy Type: University

Contact Office: Vice President for Research (Office of the)

Oversight Executive: Executive Vice President and Provost

Applies To: University-wide.

Table of Contents:
- Policy Statement
- Recording and Storage of Laboratory Data

Reason for Policy: This policy describes the University's position of the importance of recordkeeping in research to ensure that complete data is maintained in an accessible format to support verification of research processes undertaken and of the data obtained as an outcome of such processes.

Policy Summary:

Definition of Terms in Statement:
- Laboratory Notebook: The logbook of all processes and procedures performed in the course of research which shall be kept in such a manner as to enable an investigator to reproduce the steps taken.
- Data: The results of research procedures.

Policy Statement:
The investigators and all research fellows, assistants, technicians and students involved in research activities, shall maintain complete and verifiable records of the procedures they have followed in pursuing all research, and the subsequent data they have thereby obtained.

Recording and Storage of Laboratory Data:
The retention of accurately recorded and retrievable results is of the utmost importance in the conduct of research, and it is the responsibility of each investigator to maintain such records in a secure location.

Data and notebooks resulting from sponsored research are the property of the University of Virginia. It is the responsibility of the principal investigator to retain all raw data in laboratory notebooks (or other appropriate format) for at least five years after completion of the research project (i.e., publication of a paper describing the work, or termination of the supporting research grant, whichever comes first) unless required to be retained longer by contract, law, regulation, or by some reasonable continuing need to refer to them.

If the principal investigator leaves the University of Virginia, he or she may transfer such data to another institution, provided that the Vice President for Research and Graduate Studies is informed of this transfer and approves of it. This shall be subject to the proviso that the University is given written assurance that the data will be retained for the required five-year minimum retention period.

The notebook or logbook shall be kept in a secure location where it cannot be removed by an unauthorized person.
Policy on Data Stewardship, Access, and Retention

Adopted By: Research Policy Advisory Committee
Adoption Date: December 16, 2010
Approved By: Vice Chancellor for Research
Approval Date: February 21, 2011

1.0 Purpose: Establishes University policy to assure that research data are appropriately maintained, archived for a reasonable period of time, and available for review and use under the appropriate circumstances.

2.0 Scope: This policy shall apply to all University of Wisconsin-Madison faculty, academic staff, visiting scholars, postdoctoral fellows or other trainees, research technicians, and graduate or undergraduate students and any other persons at UW-Madison involved in the design, conduct or reporting of research at or under the auspices of UW-Madison involved in the design, conduct or reporting of research at or under the auspices of UW-Madison, and it shall apply to all research projects on which those individuals work, regardless of the source of funding for the project.

3.0 Definitions:

Data means recorded factual material, regardless of the form or media on which it may be recorded, that is commonly accepted in the research community as necessary to validate research findings. For example, data may include writings, films, sound recordings, pictorial reproductions, drawings, designs, or other graphic representations, procedural manuals, forms, diagrams, work flow charts, equipment descriptions, data files, statistical records, and other research data.

This definition pertains to both primary and secondary data. Primary data means data generated by research conducted at the University, under the auspices of the University, or with University resources. Secondary data means data owned and or generated by another party, data collected from administrative records, or data designated for public use, but used in whole or in part for research conducted at the University, under the auspices of the University, or with University resources.

This definition of data excludes research results based on data such as preliminary analyses, drafts of research papers, published papers, plans for future research, peer reviews, or communications with colleagues.

This definition does not supersede any campus policy pertaining to intellectual property.

Principal investigator (PI), for purposes of this policy, means a researcher with primary responsibility for a research project, a definition that applies whether or not the research is sponsored by an external funding source. A PI's responsibility includes both leadership of the scientific/technical aspects and compliance with administrative aspects of the research.
Others on campus, including certain academic staff titles, visiting scholars, postdoctoral fellows or other trainees, and graduate or undergraduate students, who would initiate a research project and are not themselves eligible to be a PI, must identify a faculty member, academic staff person with permanent PI status, or other authorized person to serve as principal investigator.

Other research contributors mean any persons other than the PI who have made a substantial contribution to the conception and design of research, acquisition of data, or analysis and interpretation of data. Contributors may include faculty collaborators, academic staff, visiting scholars, postdoctoral fellows or other trainees, research technicians, and graduate or undergraduate students. In general, persons performing narrow technical or clerical tasks would not qualify as contributors.

4.0 Policy: UW-Madison must retain research Data in sufficient detail and for an adequate period of time to enable appropriate responses to questions about accuracy, authenticity, primacy and compliance with laws and regulations governing the conduct of the research. It is the responsibility of the Principal Investigator to determine what needs to be retained under this policy.

4.1 Scope: The University's requirements for stewardship of the research record for projects conducted at the University, under the auspices of the University, or with University resources are based on regulation (OMB Circular A-110, Sec. 53), UW System policy, and sound management principles. UW-Madison's responsibilities in this regard include, but are not limited to:

1. Complying with the terms of sponsored project agreements;
2. Ensuring the appropriate use of animals, human subjects, recombinant DNA, disease-causing agents, radioactive materials, and the like;
3. Protecting the rights of students, postdoctoral scholars, and staff, including, but not limited to, their rights to access Data from research in which they have participated;
4. Facilitating the investigation of charges, such as scientific misconduct or conflict of interest; and
5. Support university personnel in securing and protecting intellectual property rights.

Where research is subject to an agreement with UW-Madison that includes specific provision(s) regarding retention of and access to Data and other records of research conducted under the auspices of the University of Wisconsin-Madison, the provision(s) of that agreement will supersede this policy. However, University of Wisconsin System Financial & Administrative Policies on Extramural Support Administration (G2) Section V.B.(9) "Data" provides that "No agreement shall be entered into with any extramural sponsor which allows for the transfer of the ownership of data."
In the case where an outside party has provided a University of Wisconsin-Madison investigator with secondary Data for the purposes of research, requirements to retain research Data in sufficient detail and for an adequate period of time will apply to that portion of secondary Data used in the research.

4.2 **Stewardship and Retention:** *Principal Investigators* should adopt an orderly system of Data organization, access, and retention and should communicate the chosen system to all members of a research group and to the appropriate administrative personnel, where applicable. Particularly for long-term research projects, PIs should establish and maintain procedures for the protection of essential records in the event of a natural disaster or other emergency.

Research Data must be archived for a minimum of seven years after the final project close-out, with original Data retained wherever possible. Principles of good stewardship would justify longer periods of retention in the following cases:

1. Data must be kept for as long as may be necessary to protect any intellectual property resulting from the work;
2. If any charges regarding the research arise, such as allegations of scientific misconduct or conflict of interest, Data must be retained until such charges are fully resolved; and;
3. If a postdoctoral scholar or other trainee, graduate student, or undergraduate student is a Research Contributor, Data must be retained at least until the degree is awarded, training is completed, or it is clear that the individual has abandoned the work.

Beyond the period of retention specified here, the disposal of the research record is at the discretion of the PI and his or her department or work unit (e.g., laboratory). As a practical matter, Data may be translated to more efficient storage media as long as the essential nature of the Data is not lost. For example, lab notebooks may be scanned, audio recordings transcribed, questionnaires coded and digitized, and the like.

Records will normally be retained in the unit where they are produced. Research records must be retained on the UW-Madison campus, or in facilities under the auspices of University of Wisconsin-Madison, unless specific permission to do otherwise is granted by the Vice Chancellor for Research.

4.3 **Access:** As part of the stewardship of research Data, the *Principal Investigator* shall create explicit understandings with *Other Research Contributors* regarding access to and use of Data. These understandings ought to reflect access appropriate to one's role and contribution to the conception and design of research, acquisition of Data, or analysis, and interpretation of Data.
It will also be the responsibility of the Principal Investigator to follow the requirements of any sponsored agreements with regard to access to Data.

Where necessary to assure needed and appropriate access, the Principal Investigator, upon request of the university, must provide the university with research Data. Under extraordinary circumstances, such as research misconduct, the university will take all necessary steps to ensure integrity of the Data in a manner specified by the UW Policy for Misconduct in Scholarly Research (FP&P II-314).

None of these provisions is intended to supersede the Principal Investigator's right to keep Data proprietary until the results of the research have been published and the aims of the research have been fulfilled.

4.4 Transfer in the Event a Researcher Leaves UW-Madison: When individuals involved in research projects at UW-Madison leave the University or move to a different research group or position at UW-Madison, they may, with PI approval, take copies of research Data that they have generated or to which they have made a substantial contribution for projects on which they have worked. Original Data, however, must be retained at UW-Madison by the Principal Investigator.

If a Principal Investigator leaves UW-Madison, and a project is to be moved to another institution, the Data may be transferred with the approval of the Vice Chancellor for Research, and with written agreement from the PI's new institution that guarantees: 1) its acceptance of custodial responsibilities for the Data, and 2) UW-Madison access to the Data, should that become necessary.

5.0 Roles and Responsibilities: The Principal Investigator is responsible for the stewardship and retention of research Data as well as for determinations concerning access to and appropriate use of Data.

Other Research Contributors are responsible to cooperate with the PI in carrying out the requirements of this policy.

The dean(s) of the school(s)/college(s) in which the PI is appointed may hear appeals concerning issues of access to Data and determine who shall have access.

The Vice Chancellor for Research may hear appeals to a dean's determination concerning access to Data and make a final determination. The Vice Chancellor for Research may determine, consistent with campus policy, who is eligible to serve as a Principal Investigator.

6.0 Related Documents/Resources:
University of Wisconsin-Madison Research Data Services
http://researchdata.wisc.edu/

University of Wisconsin-Madison Intellectual Property Policy and Procedures (www.grad.wisc.edu/research/ip/policies.html)
Data Needs Assessment
As you may be aware, on October 1, 2010, the National Science Foundation announced a new policy requiring a supplementary document for all grant proposals outlining the proposal's data management plan (see http://www.nsf.gov/bfa/dias/policy/dmp.jsp). This requirement will take effect on January 18, 2011. Individual programs and directorates within NSF may have additional guidelines. Other major research funders can be expected to implement similar policies, if they have not already done so.

The Research Data Management Service Group (RDMG, http://data.research.cornell.edu/) is conducting this survey to estimate the demand on campus services for data management, and to identify potential gaps in existing services.

It should take you approximately 10 minutes to complete this survey and your participation is voluntary. You will not be required to provide any identifying information unless you choose to.

Your answers will provide valuable information for use in the RDMG’s planning efforts. Some results from this survey, such as general trends, may be used in external reports, but no identifying information or direct quotes will be used without your consent.

This survey will be closed and no further submissions will be accepted after February 1st, 2011.

Information Sessions

You are also invited to attend an informational session on the National Science Foundation’s (NSF) new policy requiring a data management plan with all grant proposals. The new policy goes into effect January 18, 2011.

Staff from RDMG will review the new requirement, describe how researchers can obtain assistance from the RDMG to create data management plans, and answer questions.

Three sessions will be offered:

Thursday, January 13, 1:30-2:30pm, G01 Biotech
Tuesday, January 18, 9:00-10:00am, 102 Mann Library
Thursday, January 20, 12:30-1:30pm, 312 Hollister

By clicking the next button below, you voluntarily agree to participate in this online survey.
Would you be interested in any sort of guidance, including consultation, for writing a data management plan in support of an NSF grant application?

- Yes
- No
- I'm not sure

Additional comments

Block 2

According to the NSF, a data management plan may include a description of "the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project."

Please specify the types of data you have produced or anticipate producing for this project that you intend to share with others. Check all that apply.

- Text
- Image
- Audio
- Video
- Spreadsheets
- Databases
- Code
- Other
- I'm not sure

Please specify other data types

Please list the file extensions you produced or anticipate producing for this project that you intend to share with others.

Block 3
According to the NSF, a data management plan may include a description of "the standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies)."

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the data you have produced or intend to produce conform to known standards in your discipline?</td>
<td>Yes, No, I'm not sure</td>
</tr>
<tr>
<td>&quot;Metadata&quot; refers to descriptive information or documentation about data.</td>
<td></td>
</tr>
<tr>
<td>Have you produced or do you anticipate producing metadata for this project?</td>
<td>Yes, No, I'm not sure</td>
</tr>
<tr>
<td>Additional comments</td>
<td></td>
</tr>
<tr>
<td>Does the metadata you have produced or intend to produce conform to known standards in your discipline?</td>
<td>Yes, No, I'm not sure</td>
</tr>
<tr>
<td>Please specify the standard(s) you are using.</td>
<td></td>
</tr>
<tr>
<td>Would you make use of a service to produce metadata for this project?</td>
<td>Yes, and I would be willing to pay for this service, Yes, but I would not be willing to pay for this service, No, I would produce metadata myself</td>
</tr>
</tbody>
</table>
**Block 4**

According to the NSF, a data management plan may include a description of "policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements."

Do you anticipate needing to consult with an intellectual property specialist to create a license agreement or usage statement for the data you have produced or intend to produce?

- Yes
- No
- I'm not sure

When would you be able to share the data you have produced or intend to produce for this project?

- Immediately after collection
- Immediately after my team has analyzed the data
- Six months or more after my team has analyzed the data
- I would not be able to share this data

What might prevent you from sharing the data you have produced or intend to produce for this project? Check all that apply. (You may also check no boxes if none apply.)

- Little value to others
- Confidentiality or privacy issues
- Commercialization or patent issues
- Some or all of the data I work with has license or usage restrictions that prevent me from sharing
- Data requires secure access I am not capable of providing

Additional comments

**Block 5**

According to the NSF, a data management plan may include a description of "policies and provisions for re-use, re-distribution, and the production of derivatives." Furthermore, Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants.

Given the NSF expectation to share data with other researchers, how much data would you intend to share?

- I do not plan on sharing data
- No more than 1 GB
- More than 1 GB but less than 100 GB
When you publish your findings from this research project, do you plan on submitting your supporting data to a journal publisher?
- Yes
- No
- I'm not sure

Additional comments

Do you plan on using a custom solution to share the data you have produced or intend to produce? (i.e., Sharing data on a personal or departmental website or FTP server…)
- Yes, and I plan to do this work in-house
- Yes, and I plan to contract all or part of this work
- No
- I'm not sure

Additional comments

Block 6

According to the NSF, a data management plan may include a description of "plans for archiving data, samples, and other research products, and for preservation of access to them."

Do you plan to deposit the data you have produced or intend to produce in Cornell’s Institutional Repository, eCommons (http://ecommons.cornell.edu/about.html), or would you be interested in doing so to satisfy the NSF requirement?
- Yes
- No
- I'm not sure

Additional comments
Do you plan to deposit the data you have produced or intend to produce in CISER's Data Archive (http://ciser.cornell.edu/info/about.shtml), or would you be interested in doing so to satisfy the NSF requirement?

- Yes
- No
- I'm not sure

Additional comments

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Do you plan to utilize the Cornell Restricted Access Data Center http://ciser.cornell.edu/CRADC/What_is_CRADC.shtml to work with restricted access or limited use licensed data, or would you be interested in doing so to satisfy the NSF requirement?

- Yes
- No
- I'm not sure

Additional comments

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Do you plan to store the data you have produced in the Center for Advanced Computing Disk Farm (http://www.cac.cornell.edu/services/storage.aspx), or would you be interested in doing so to satisfy the NSF requirement?

- Yes
- No
- I'm not sure

Additional comments
Do you plan to deposit the data you have produced or intend to produce in a data center or other non-Cornell repository, or would you be interested in doing so to satisfy the NSF requirement?
- Yes
- No
- I'm not sure

Please specify the repository (or repositories) you plan to deposit your data into.

Block 7

What is your current method of backing up the data you have produced or intend to produce for this project? Check all that apply.
- Own IT infrastructure (e.g., external hard drives)
- EZBackup or other campus-based solution
- Commercial solution (i.e., Google Docs, Amazon S3)
- No backup

Approximately how much data needs to be backed up?
- No more than 1 GB
- More than 1 GB but less than 100 GB
- More than 100 GB but less than 1 TB
- More than 1 TB but less than 100 TB
- More than 100 TB

Block 8

The NSF specifies that if "any PI or co-PI identified on the project has received NSF funding in the past five years, information on the award(s) is required." Specifically, applicants must indicate "evidence of research products and their availability, including, but not limited to: data, publications, samples, physical collections, software, and models, as described in any Data Management Plan."

Do you currently keep track of research outputs and their availability?
- Yes
- No

Additional comments
If there was a service offered where you could enter in basic information about your data (including the description, where it was available on the web) to demonstrate compliance with NSF’s policy, would you make use of it?

- Yes
- No
- I’m not sure

Additional comments

Do you anticipate or would you be interested in any sort of guidance, including consultation or instruction, for any of the data management plan components mentioned above?

- Yes
- No
- I’m not sure

Additional comments

Which components are you interested in receiving consultation or instruction for?

A review of the data management components:

1. the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;
2. the standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);
3. policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;
4. policies and provisions for re-use, re-distribution, and the production of derivatives; and
5. plans for archiving data, samples, and other research products, and for preservation of access to them.

Block 9

A review of the data management requirements:
1. the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;
2. the standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);
3. policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;
4. policies and provisions for re-use, re-distribution, and the production of derivatives; and
5. plans for archiving data, samples, and other research products, and for preservation of access to them.

Please share any additional thoughts or concerns you have regarding campus support for complying with funders' data management policies.

Would you like to be contacted in the future about your response or participate in focus groups about Data Management Plans? (Please include your contact information if yes.)
Faculty Survey Results - Research Data Management - Guides at Emory University - Main Library (Woodruff)

Faculty Practices and Perspectives on Research Data Management

In fall of 2012, in collaboration with the Emory Office of Institutional Research, we invited all Emory University faculty members to complete an online survey of their research data management practices and perspectives.

Over 350 respondents from a wide range of schools and colleges stated that they generate some type of research data (e.g., spreadsheets, text, images, videos, audio files, instrument files, photographs, physical samples/specimens, etc.). Their responses are shown in preliminary form to the right.

To learn more about how Emory researchers manage their research data, we are currently conducting in-person interviews with faculty, research staff, postdocs, and graduate students. If you are interested in participating in these interviews, please see our interview page for more information.

Survey Results

Survey of Faculty Practices and Perspectives on Research Data Management

Fall 2012

Related Documents

RDM Survey Instrument

Presentations

Faculty Practices and Perspectives on Research Data Management

Jennifer Doty & Katherine G. Akers
Emory University Libraries

Links:
Website / Blog
Profile & Guides
Subjects:
Research Data Management
A Data Planning Checklist

Managing your data before you begin your research and throughout its life cycle is essential to ensure its current usability and long-run preservation and access. To do so, begin with a planning process. See also our page on data management plans.

1. What type of data will be produced? Will it be reproducible? What would happen if it got lost or became unusable later?
2. How much data will it be, and at what growth rate? How often will it change?
3. Who will use it now, and later?
4. Who controls it (PI, student, lab, MIT, funder)?
5. How long should it be retained? e.g. 3-5 years, 10-20 years, permanently
6. Are there tools or software needed to create/process/visualize the data?
7. Any special privacy or security requirements? e.g., personal data, high-security data
8. Any sharing requirements? e.g., funder data sharing policy
9. Any other funder requirements? e.g., data management plan in proposal
10. Is there good project and data documentation?
11. What directory and file naming convention will be used?
12. What project and data identifiers will be assigned?
13. What file formats? Are they long-lived?
14. Storage and backup strategy?
15. When will I publish it and where?
16. Is there an ontology or other community standard for data sharing/integration?
17. Who in the research group will be responsible for data management?
Welcome to the Data Curation Profiles Community!

A LOT IS GOING ON WITH DATA CURATION PROFILES: THREE (3) NEW TOOLS!

We are in the middle of renovating this space, but we felt we had to share!

The Data Curation Profiles Symposium was recorded and provides a video overview of work involving the Profiles and Toolkit. Additional presentations by experts in the field addressing curation.
http://docs.lib.purdue.edu/dcpsymposium/

A new tutorial on using the Data Curation Profiles is available to anyone who wants to learn more about the Profiles and the Toolkit.
Coming soon...

We have a new publication, the Data Curation Profiles Toolkit. You can publish Profiles you write, they can be found and studied, and they will be indexed to be easily found and cited.
http://docs.lib.purdue.edu/dcp

This website is an environment where academic librarians of all kinds, special librarians at research facilities, archivists involved in the preservation of digital data and those who support digital repositories can find help, support and camaraderie in exploring avenues to learn more about working with research data and the use of the Data Curation Profiles Toolkit.

A Data Curation Profile is essentially an outline of the "story" of a data set or collection, describing its origin and lifecycle within a research project. The Profile and its associated Toolkit grew out of an inquiry into the changing environment of scholarly communication, especially the possibility of researchers providing access to data much further upstream than previously imagined. If researchers are interested in sharing or forced to provide access to data sets or collections, what does that mean for the data, for researchers, and for librarians?

Data Curation Profiles can:

- provide a guide for discussing data with researchers
- give insight into areas of attention in data management
- help assess information needs related to data collections
- give insight into differences between data in various disciplines
- help identify possible data services
- create a starting point for curating a data set for archiving and preservation

Look around and get to know the site. You will find everything from the history of Data Curation Profiles, the Toolkit for developing a profile of a research data set (registration is required), completed profiles from various disciplines, guidelines for submitting profiles, forums for discussion and resources to learn more about data curation. We hope you will register, download the Toolkit, submit a Profile of your own and join the conversation.
Data Interview Protocol

This document is the step-by-step set of instructions for the actual interview. This is to serve as the master copy, accompanied by a question template that is designed to be printed and used to ask focused questions along with check boxes to account for all of the protocol issues. The template will also allow for note taking during the interview.

Data Interview Constraints

- Interview will consist of:
  - Scientific Data Consultant Group members (two) and subject librarian (one)
  - Researcher (one) being interviewed.
  - Optionally, an additional technical expert invited by the researcher.
- An interview will last no more than sixty minutes.
- Interviews will be semi-structured to allow free-flowing discussion.
- Information to be gathered includes:
  - The state of current data management efforts.
  - Types of digital data created.
  - A prioritized needs assessment covering:
    - Current situation and future needs.
  - Functional specifications for services to meet those needs.

Mission of the Data Interview

At the start of the interview, we will briefly review why we are doing these data interviews and why the library is suited to do it.

- Library goal of supporting researcher needs.
- Library focus on data management.
- Scientific Data Consultant Group Experience:
  - Research Computing Lab, Dataset Task Force, Metadata Steering Group, Institutional Repository Implementation Team
- Purpose of the Data Interview Initiative:
  - Identify common researcher data problems and needs.
  - Identify communities and individuals who are under the most pressure from upcoming grant regulations.
  - Provide data management recommendations and training.
  - Identify the types of digital “data” that are being created.
  - Identify potential partnerships for IR data deposit implementation.
- Remember – there are no “right” answers! We want an honest assessment of your practices. That includes your successes and your failures.
- Mention IRB and give them a copy
Data Interview Protocol

What Is Your Data All About?

To start the interview we’d like to get some background information on your research. If you’d like, you can discuss your lab’s work as a whole, or focus on a specific project.

1.1 What question are you trying to answer?
1.2 What is the process/method to answer the questions?

What Kind of Data Do You Have?

Now that we’ve heard about your research, let’s talk specifically about what kind of data you produce i.e. what they create and use, and their attitude towards digital material. Here we are looking for the data characteristics, types, sizes and transformations.

2.1 Describe the data you create in your research.
   Here we are looking for the data characteristics, types, sizes and transformations.
   - General Category (experimental, simulation/computational, observational, derived/compiled)
   - Creation (sensors, instruments, software)
   - Data Type (docs, emails, databases, images, videos, etc.)
   - Data Format (MS Word, Excel, spss, html, jpg, etc.)
   - Amount (#files, files sizes, growing?)

2.2 Another issue related to data is that of intellectual property. Who owns the Intellectual Property rights of the data you create? Are you familiar with the following UVa policies?
   - Lab Notebook Policy
   - UVa’s Ownership Rights Policy

How Do You Work With Your Data?

Now we’d like to talk about the practices you have in place to organize your data.

3.1 Who is responsible for managing the data? Are you using any filing or naming conventions for the files? How are the files organized? Is there any documentation on the files and/or data fields?
Data Interview Protocol

Here we are looking for information on managing the data. Are there set procedures? What role does each person play?

- Management Plan
- Naming Conventions
- File Organization
- Documentation
- File Backup/loss/recovery
- File storage
- Backups

3.2 Do you share data among lab group or other colleagues (e-mail, shared drive, removable devices, CD, web pages, other)? Do you typically have multiple people working on the same data files? If so, have you had issues regarding which version was “correct” or the latest? How are these issues controlled or resolved?

- File sharing
- Issues related to multiple file versions

Preservation Concerns

We are looking for any digital preservation issues in this section of the interview. Continue discussion to ascertain whether any issues have been encountered when creating and using digital material to identify areas where practices could improve.

Here we are looking for preservation issues on their own data in their own lab/computer.

4.1 What challenges have you faced in terms of storage, formats, costs, and continued access to older data?

- Do they have older files?
- Obsolete data formats
- Obsolete media
- Lost or misplaced data
- Storage space
- Costs
Data Interview Protocol

Data Sharing and Long-term Accessibility

Get them thinking about the future of their data i.e. how can these files continue to be accessed and used (if appropriate), do they need to be preserved, if so, for how long?

5.1 Have you been asked to provide or share your data? Could or should your data be reused or repurposed by others, and if so, how and by whom?

- Publisher requirement
- Funder requirement
- Restrictions (Confidentiality, Sensitivity)
- Documented for sharing

Long-term Preservation

5.2 Do your files need to be preserved? For how long? Does all of it need to be kept?

- Raw or processed data or both
- Who decides? Who is responsible?
- Where?
- Libra, the UVa IR
- How long?

What Would Make Data Management Easier for You?

Ask where the interviewee currently gets advice and support and what else s/he would like to see provided by the University. Key thing is to gauge desire for preservation policy, suggested coverage and any supplementary support needed to implement it.

6.1 What would help you create and manage your data better?

6.2 Who should be responsible for digital preservation? Who should be responsible for funding it?

- Preservation responsibility
- Help, where?
- Library

6.3 What sort of impact might a University-wide policy on data preservation have upon you? What sort of policy do you think would be reasonable?
Data Interview Protocol

Follow-Up Plans

Review the steps that will come after the interview is complete (Script for interview is included below).

7.1 Team combines interview notes.
7.2 Send aggregated report to researcher for review/approval, corrections/additions on notes. To expedite things we need the approval/feedback within one week.
7.3 Ask for feedback for interview process.
7.4 Provide a complete report that includes a summary of the conversation, responses to the interview questions, and recommendations on how to improve your data management.

Script from the Data Interview Template (for this section):

Thank you for participating in our Data Interview. Here are our next steps:

7.1 Andrew, Sherry and I will combine our interview notes.
7.2 I will send you an aggregated report for your review/approval, corrections/additions on our notes. Please return the approval/feedback within one week.
7.3 When you send the report back to us, we would like to have your feedback on our interview process.
7.4 Once we have your comments on the report. I will provide you with a complete report that will include a summary of the conversation, responses to the interview questions, and recommendations on how to improve your data management.
RDM Staff Resources
Data Management/Curation Task Force

Please see the charge for background information on this collaborative Task Force with the UF Libraries and UF Research Computing.

Meetings:
Reminders are sent on the email list. Meetings are every other Wednesday from 1-2pm.
Locations rotate: Health Science Center Library C2-41, Library West 429, and Munson Science Library L107.
Next Meeting: July 24, 1-2pm, MSL

Overall Activities

- Description of Responsibilities from the Charge
This group is charged to assess needs, make recommendations, and develop support for the role of the Libraries in campus-wide data management and curation.
  - Specific advisory activities include:
    - Formally assess, through surveys, interviews, and focus groups, campus-wide data management needs and current support resources and activities
    - Review and consider the best practices and models of peer institutions
    - Develop recommendations for the Libraries' campus-level role in support of data management and curation
    - Propose a corresponding framework and resources for library support of the data life cycle
    - Recommend the role of the institutional repository and research computing in storing, finding, and accessing working and final data, and linking publications to supporting data
    - Recommend a framework for liaisons and subject specialists to incorporate data instruction and consultation into their workflows
  - Specific operational activities include:
    - Develop materials and sessions for training of liaisons, subject specialists, and other library staff to prepare them to support campus data management services
    - Develop training and outreach materials to be used by liaisons, subject specialists, and other library staff in their work with clients
    - Develop means to enhance and expand the librarian liaison model with the goal of making librarians partners in research activities
    - Develop and implement templates and support training and services for the DMPTool (Data Management Plan Tool) and other resources
  - Additional goals identified by the group (draft):
    - Ensure that the recommendations and plans resulting from the group both support immediate campus needs and support ongoing, long-term needs for full support including, but not limited to:
      - Develop and promote training and resources for data management collaboration related concerns, finding data, citing data, creating data management plans, and implementing data management
      - Develop and submit recommendations for a full approach for supporting the implementation of data management and curation across campus, for collaborative implementation and support with the libraries, Office of Research, Research Computing, and others as appropriate, along with resources and requirements for the recommendations to be fully operational

Current Activities and Coordinator

- SURA, collaboration on pilot test for Dataverse Network (Laurie, all)
- DMP Tool, customization for UF resources (Val)
- Survey (Hannah and Rolando)
- Focus Groups (all)
- Sharing and promoting activities (all)
- Coordinating existing training activities related to data management (all)
- Including training by Research Computing, Libraries (ICPSR, Census and Gov Data, Best Practices in Research Data Management at HSCL, FRSA, specific classes, etc.), and others
- Coordinating and promoting speakers and events related to data management (all)
- Integrating resources within a single consolidated portal for all users, with the Research Data Management LibGuide

Draft timeline for current activities in the meeting agendas and reports:
http://ufdc.ufl.edu/AA0014890/001/01/alextimelines
Mentors

The following individuals are happy to consult with you for preparation or carrying out data interviews and other data work. If you would like to be added to this list, please contact Megan.

Megan Sapp Nelson - msn@purdue.edu
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Lisa Zilinski - lzilins@purdue.edu

Welcome

This page was created by the Data Education Working Group to assist library faculty to find relevant, useful resources to support developing roles in data curation. The page has been designed to house a variety of resources, which have been selected based upon previous utility and relevance. This includes locally produced documents relevant to Purdue's data services such as the Data Management Plan documents and the Data Curation Profiles. Relevant resources produced by other institutions are highlighted as well. To recommend resources for inclusion, please contact the individuals listed at the left. If you have feedback on this tool, please give that to the authors listed at the left as well.

Purdue University Research Repository (PURR)

The Purdue University Research Repository (PURR) provides an online, collaborative working space and data sharing platform to support the data management needs of Purdue researchers and their collaborators.
What is DaEG?

DaEG is an informal discussion group interested in data curation, management, sharing, publication, citation and the services and infrastructures surrounding those activities at Yale and universities and data centers in the US and internationally.

Topics discussed are: the latest in data literature, what's going on at Yale, how we can learn more, implement best practices, and spread awareness about data at Yale.

Join the mailing list here to be informed of upcoming readings and meetings:
http://mailman.yale.edu/mailman/listinfo/daeg

Questions? Email michelle.hudson@yale.edu

Related research guides

Data and Statistics in the Social Sciences
by Kristin Bogdan, Michelle Hudson - Last Updated May 23, 2013
Sources for locating published statistics on topics broadly related to the social sciences, as well as numeric datasets for statistical analysis.
2,959 views this year

eScience Institute 2012
by Michelle Hudson - Last Updated Mar 7, 2013
Materials for those of us participating in the eScience Institute
82 views this year

Research Data Management
by Kristin Bogdan, Michelle Hudson, Melanie Maksin, Stacey Maples - Last Updated Mar 8, 2013
Resources for learning about best practices in research data management across a variety of disciplines.
745 views this year

Science Data Resources
by Kristin Bogdan, Kayleigh Bohemier, Michelle Hudson - Last Updated Aug 17, 2012
Resources for data in the sciences.
86 views this year
Need help with your data?
Librarians can help you:

- find data
- share data
- manage data
- cite data

email: data-help@colorado.edu
http://data.colorado.edu

RESEARCH DATA SERVICES

NEED HELP?
- Writing a data management plan
- Locating a repository for sharing and archiving your data
- Identifying best practices for research data management
- Finding data sets for your research
- Citing data sets
- Tracking data impact

Contact us at data-help@colorado.edu
The Data Management/Curation Task Force at UF is a collaborative Task Force with representatives from the George A. Smathers Libraries, Research Computing, and the Office of Research. In order to promote awareness of data management and curation concerns on campus and broader impacts for research, teaching, and service, the group is highlighting existing and planning new speaker events related to data management and curation. Highlighted speakers and events are being noted as being part of the Data Management/Curation Speaker Series.

**Events for 2013-2014:**

**Big Data Event, August 7, 1-2pm**
UF Digital Humanities Day and THATCamp-UF
April 24-25, 2014

**Past Events:**

**Dense, Intense and Complex Data Workshop, June 19**

- Andrea Matsunga/ Mauricio Tsugawa: Big Data Support for Scientific Disciplines through Information Technology Engineering
- R. Balachander: Big Data from simulations of extreme and environmental problems
- Jim Jones: Data and Research for Sustainable Food Security
- Liang Mao: Big Geographic Data and GI/Sciences
- Paul Gader: Big Data for Environmental Monitoring
- Herman Lam: Big Data Meets High-Performance Reconfigurable Computing
- Sanjay Ranka: Big Data: Research and Education
- Erik Deumens: HiPerGator and infrastructure for working with data
- Bill Farmerie: A role for glue people in big data research
- Pam Soltis: Big Data in Biodiversity Studies
- Eric Triplett: Big Data and the search for a microbial cause for disease
- Mike Conlon: Opportunities for Big Data Medical Records
- Betsy Shenkman: The Power of Multiple Data Streams and Big Data in Health and Health Care

**Biology and Big Data**

- George Lan: Empowering nonlinear and stochastic optimization for large-scale data analysis
- David Hale: Automated Analysis of Traffic Simulation
- Kevin Knudson: Ecological Data Analysis

**National Agricultural Library: A Vision for Preservation and Accessibility of Agricultural Data**
Dr. Simon Liu, Director of the National Agricultural Library
Wednesday April 10th, 3:00 p.m., Smathers Library, Room 1A

**Digital Humanities Day and Interface**
Thursday April 25th, 9:00 a.m. to 4:15, Smathers Library, Room 1A
Workshops

The IU Data Management Service brings together experts in research data preservation and management policy to bring you a series of workshops co-sponsored by the IU Libraries, the OVPR, and ORA.

Past

Meeting the NSF Data Management Plan Mandate at IUB
Thu Jan 24, 2013 1:00 pm - 3:00 pm
Persimmon Room, IMU

Learn the fundamentals for preparing a data management plan that conforms to the January 2011 NSF mandate. Find information on free, fully supported campus resources for data storage, access, and preservation; resources for DMP development; and key staff that can help you develop your proposal. Q&A will follow the presentation. Anyone interested in or planning to apply for NSF funding should attend.

RCR Series: Data Management
Mon Feb 18, 2013 10:00 am - 12:00 pm
Redbud Room, IMU

In collaboration with other academic units both in Bloomington and Indianapolis, REEP has developed an on-going series of workshops for post-docs and graduate students covering the topics of responsible conduct of research. Sessions are offered on each campus twice per semester on various topics.

Teaching Research Ethics (Poynter): Responsible Data Management
May 14-17, 2013
IMU

Each year the Poynter Center at Indiana University and additional sponsors offer the Teaching Research Ethics Workshop (TRE) to provide training for those involved in teaching research ethics or in administering research programs. The workshop emphasizes a variety of pedagogical approaches to teaching research ethics through sessions on ethical theory, research ethics, trainee and authorship issues, assessment and evaluation, responsible data management, integrity in research, conflict of interest, and international research.

Managing Your Research Data at IUB
Fri Sep 21, 2012 12:00 pm - 1:00 pm
Wells Library E174

Learn about the research data storage, preservation and access resources that IUB has to offer researchers. We will also examine funder mandates for data management planning and how to meet them.

Meeting the NSF Data Management Plan Mandate at IUB
Tue Oct 9, 2012 10:00 am - 11:00 am
Office of Research Administration

Learn the fundamentals for preparing a data management plan that conforms to the January 2011 NSF mandate. Find information on free, fully supported campus resources for data storage, access, and preservation; resources for DMP development; and key staff that can help you develop your proposal. Q&A will follow the presentation. Anyone interested in or planning to apply for NSF funding should attend.