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Lunch and Learn Workshop Data Management Plans

Data Management Services, Zach S. Henderson Library

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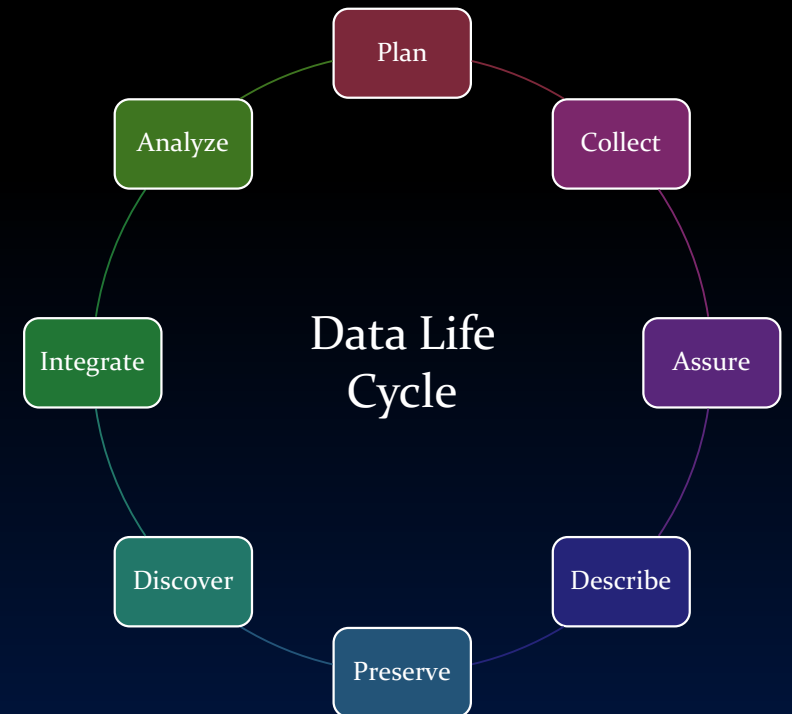
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Lunch and Learn Workshop Data Management Plans





What Is Data Management Planning?

Planning for what data will be created and how it will be prepared, disseminated, and preserved:

- **Data types and sources**
What types of data, samples, physical collections, code, software, curriculum materials and other materials will be produced or obtained and used in the course of the project?
- **Formats and standards**
What standards will be used for your files and metadata?
- **Roles and responsibilities**
What are the roles and who has responsibilities for managing data?
- **Dissemination methods**
What are the methods for sharing data and metadata during and after the award period?
- **Policies for public access, data sharing, and re-use**
How will you meet funder requirements to provide public access to your data while protecting privacy, confidentiality, security and intellectual property rights?
- **Preservation**
How will you preserve the integrity of your data over time?



Why Data Management Planning?

- **Many funders** now require that a data management or sharing plan be submitted with the grant proposal:
 - DOE, DOJ, NOH, NSF, USGS, etc.
 - Alfred P. Sloan Foundation
 - Gordon and Betty Moore Foundation
- **Many publishers** now require open access to replication data as a condition of publication.
 - Nature
 - PLoS One
 - Science

PLoS One

- Open access sharing is required to publish in PLoS One



The screenshot displays the Digital Commons@Georgia Southern website interface. The header includes the Georgia Southern University logo and the text "Digital Commons@Georgia Southern" and "Digital Archive of Research, Scholarship & Creative Works". The main content area features a search bar, a breadcrumb trail "Home > College of Science and Mathematics (COSM) > Biology > Biology Research Data > 1", and the title "BIOLOGY RESEARCH DATA". The featured entry is "Replication Datasets for Consequences of Secondary Calibrations on Divergence Time Estimates" by John J. Schenk, Georgia Southern University. The entry includes a "Download" button, a "Follow" button, and statistics showing 10 downloads since January 06, 2016. It also indicates the work is included in Biology Commons. The entry details include: Document Type: Dataset; DOI: 10.20429/data.2016.1; Publication Date: 1-2016; Publisher: Digital Commons@Georgia Southern; Creative Commons License: CC BY. A recommended citation is provided: Schenk, John J., "Replication Datasets for Consequences of Secondary Calibrations on Divergence Time Estimates" (2016). *Biology Research Data*. Paper 1. <http://digitalcommons.georgiasouthern.edu/biology-data/1>. The left sidebar contains navigation links for "My Account", "FAQ", "About", "Home", "Browse" (Collections, Disciplines, Works by Author, SelectedWorks Author Profiles), "Contribute Content" (Author FAQ), "Links" (Department of Biology), and "Article Locations" (with a map).



Why Data Management Planning?

- **It benefits you and your collaborators.**
Your data will be easier to find, understand, and use during active research.
- **It benefits the research community.**
Your data will be easier to find, understand, and use by other researchers in the long term.
- **It increases awareness and impact of your research.**
The easier it is to discover, access, understand, and use your data over time, the more likely it is to be used and cited.



Office of Science & Technology Policy (OSTP)

Memorandum, February 22, 2013

“The Administration is committed to ensuring that, **to the greatest extent and with the fewest constraints possible** and consistent with law and the objectives set out below, **the direct results of federally funded scientific research are made available** to and useful for the public, industry, and the scientific community. **Such results include peer-reviewed publications and digital data.**”

“The ... (OSTP) hereby directs **each Federal agency with over \$100 million in annual conduct of research and development expenditures** to develop a plan to support increased public access to the results of research funded by the Federal Government.”

What Is a Data Management Plan?

A plan for how you will manage your data throughout the “data life cycle”:

Plan: description of the data that will be compiled, and how the data will be managed and made accessible throughout its lifetime.

Collect: observations are made either by hand or with sensors or other instruments and the data are placed into digital form.

Assure: the quality of the data are assured through checks and inspections.

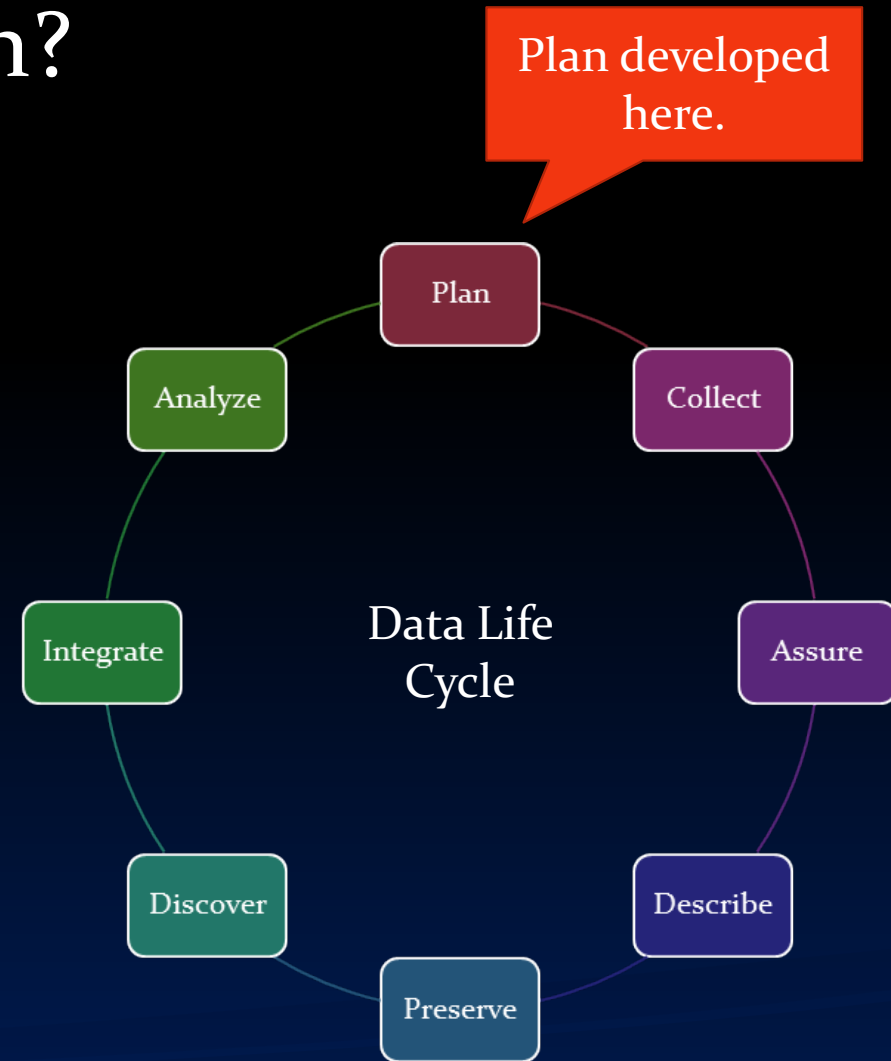
Describe: data are accurately and thoroughly described using the appropriate metadata standards.

Preserve: data are made available (or not) to other researchers and the public (e.g., through a data archive like *Digital Commons @ Georgia Southern*).

Discover: potentially useful data are located and obtained, along with the relevant information about the data (metadata).

Integrate: data from disparate sources are combined to form one homogeneous set of data that can be readily analyzed.

Analyze: data are analyzed.



Preparing Data Management Plans – Getting Started

- Always review the *specific* proposal request documents, or funder/publisher requirements.
- Research funder requirements via DMPTool's DMP Requirements Library and the library's Data Management Services guide.

The screenshot shows the website for the ZACH S. HENDERSON LIBRARY at Georgia Southern University. The page is titled "Data Management Services: Funder & Publisher Requirements". It features a navigation menu with options like "Overview", "Data Management Planning", "Collecting and Working with Data", "Curating and Sharing Your Data", and "Links, Workshops, Training and Tools". The main content area is divided into several sections: "Get Help Now!" (contacting Jeffrey Mortimore), "Publish Your Data" (discussing OpenICPSR), "Upcoming Workshops" (listing a fall 2016 lunch-and-learn), "Funder & Publisher Requirements: Overview" (explaining the need for data management plans), "Select Funder Requirements" (listing various funding agencies like the Department of Education, Energy, Defense, etc.), and "Select Publisher Requirements".

Preparing Data Management Plans – Getting Started

- Consider DMPTool to develop your data management plan using funder-specific templates.
- DMPTool supports sharing with collaborators and the library's DMS staff to get feedback.
- Consult with the library's DMS staff to develop language, locate appropriate data archives, and prepare your data.



The screenshot shows the DMPTool website homepage. At the top, there is a navigation bar with links for Home, My Dashboard, DMP Requirements, Public DMPs, News, Help, Contact Us, and About. A user is logged in as Jeffrey Mortimore. The main heading is "Data Management Planning Tool" with a subtext "Create, review, and share data management plans that meet institutional and funder requirements." and a "Get Started" button. Below this, there are three columns: "PUBLIC DMPs" (listing sample plans), "DMPTOOL NEWS" (listing recent news items), and "DMPTOOL HELP" (listing help resources). The footer contains the University of California logo and copyright information, along with social media icons.



Elements of a Data Management Plan

Data types and sources

What types of data, samples, physical collections, code, software, curriculum materials and other materials will be produced or obtained and used in the course of the project?

Consider:

- Including a brief description of each type of data to be generated (e.g., experimental, qualitative, raw, processed).
- How much data you anticipate will be generated over the course of the project.
- Which data you will share and at what stage (raw, processed, reduced, or analyzed).
- Why the data you will share will be of interest to a broader community and how your plan will maximize potential for reuse.
- If you are using data from other sources. If so, provide a brief description, including content, source, and any conditions required for obtaining and using that data. If you will combine existing data with your own, describe the relationship between the data sets.



Elements of a Data Management Plan

Formats and standards

What standards will be used for your files and metadata?

Consider:

- Formats of data files created over the course of the project, and approximate volume of data.
- Select non-proprietary file formats for sharing and archiving to maximize the potential for reuse and longevity, and describe the plans for conversion to those formats, if necessary.
- The metadata that will be created or captured, when it will be created, and who will create it.
- Identify community metadata standards used. Indicate if no applicable standards exist and describe what additional documentation you will provide to make the data understandable and usable by others (ex: Readme file).
- data organization, such as how data will be distributed among files, file naming conventions, directory organization, and version management.



Elements of a Data Management Plan

Roles and Responsibilities

What are the roles and who has responsibilities for managing data?

Consider:

- Who will have primary responsibility for implementing the data management plan?
- If multiple institutions are involved, funding agencies typically task the lead PI with executing the DMP.
- Plans for transfer of responsibility if key personnel depart from the project.



Elements of a Data Management Plan

Dissemination Methods

What are the methods for sharing data and metadata during and after the award period?

Consider:

- How the data sets will be stored (if secure storage and/or restricted access are required) and backed up during the course of the project.
 - Describe hardware, storage environment, and local or external services to be used.
 - Include the costs for these services in proposal budget, if applicable.
- Who will have access to working data and how will access be managed before and after the grant period.
- How the data will be transferred and shared between collaborators.
- When you will share the data.



Elements of a Data Management Plan

Dissemination Methods

What are the methods for sharing data and metadata during and after the award period?

Consider:

- How the data will be made available (e.g., an institutional repository).
- How users will discover the data (e.g. an institutional repository, project website, Internet search engines).
 - Some funders and publishers require an identifier (e.g., DOI) for persistent access to the dataset.
- How users will obtain the data (e.g. direct download, registration and download, upon request).
- Tools and software needed to work with data, include in metadata.



Elements of a Data Management Plan

Policies for public access, data sharing, and re-use

How will you meet funder requirements to provide public access to your data while protecting privacy, confidentiality, security and intellectual property rights?

Consider:

- Conditions for reuse of the data by others including any licenses that will be applied.
- Whether data acquired from another source will be shared, and under what conditions.

Privacy & Security:

- How the data will be managed to protect privacy (e.g. measures taken to anonymize data, disposition of data including personally identifiable information).
- Legal and ethical requirements that may preclude sharing of any of your data. If so, explain the circumstances that prevent you from sharing data.
- If your research is subject to oversight by the Institutional Review Board. Refer to applicable requirements and describe how your data management practices will ensure compliance.



Elements of a Data Management Plan

Policies for public access, data sharing, and re-use

How will you meet funder requirements to provide public access to your data while protecting privacy, confidentiality, security and intellectual property rights?

Intellectual Property

- Copyright protection and whether it extends to your data.
- Some standard licensing options (Creative Commons, Open Data Commons) exist. Many metadata standards accommodate rights or usage statements where conditions for reuse may be expressed.
- That funding agencies (including the NSF) often recognize that commercialization potential may delay or preclude data sharing, and exempt trade secrets and commercial information from the data sharing requirement.



Elements of a Data Management Plan

Preservation

How will you preserve the integrity of your data over time? Some of these issues may already be addressed in the section on public access, sharing and re-use.

Consider:

- Any departmental, institutional, or programmatic policies on data retention, how they influence your plan, and how you will adhere to the policies.
- How long data will be retained or preserved and why.
 - Some data may only be retained for the lifetime of the project, some may be retained for the project plus a specified number of years, and some may be worth the effort of long-term preservation (several years to decades).
 - Consider what data are needed to validate the research, what data directly support publications based on the research, and what data have the greatest potential for reuse.
- Hardware or campus or commercial services to be used to assure data preservation
- Costs for any of these activities or services. You may be able to include them in your proposal budget.

Data Management Services @ Henderson Library

The screenshot shows the website for the ZACH S. HENDERSON LIBRARY at Georgia Southern University. The page is titled "Data Management Services: Overview" and features a navigation menu with options: Overview, Data Management Planning, Collecting and Working with Data, Curating and Sharing Your Data, and Links, Workshops, Training and Tools. The main content area is divided into several sections:

- Get Help Now!**: Contact Jeffrey Mortimore, Discovery Services and Data Curation Librarian.
- Publish Your Data**: Studies show that sharing your research data increases your impact. Partner with the library to take your data public, through Digital Commons @ Georgia Southern, OpenICPSR, or whatever data repository best fits your data. Includes the OpenICPSR logo.
- Upcoming Workshops**: See our current schedule of spring.
- Data Resources & Services throughout the Research Lifecycle**:
 - Plan & Propose**: To get the most out of your data, plan early how you will collect, use, and share it. Many funders now require data management plans (DMPs), and many publishers require that data be made publicly available.
 - See our guide to data management planning
 - See funder and publisher data requirements
 - Use DMPTool, an online tool for creating DMPs
 - Download our generic DMP template and outline
 - See example DMPs
 - Read our DMP FAQs
 - Create & Collect / Analyze & Assure**: Ensure that you are following best practices while actively collecting, caring for, and analyzing your data. Host, secure, and share your "working" data in Digital Commons @ Georgia Southern during the active phase of.

On the right side of the page, there is a circular diagram illustrating the research lifecycle with three main stages: Plan & Propose, Create & Collect, and Analyze & Assure, connected by arrows in a clockwise cycle.

<http://georgiasouthern.libguides.com/data>