Welcome to the Data Information Literacy Symposium

Program begins at 8:30 AM

http://datainfolit.org
#datainfolit
Welcome from Purdue University Libraries
Dean Jim Mullins
Introduction to the DIL Symposium

Jake Carlson
Associate Professor of Library Science
Purdue University Libraries

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Data Information Literacy from the Perspective of a University Administrator

Dr. Karen Plaut – Senior Associate Dean of Research and Faculty Affairs in the College of Agriculture & Professor of Animal Sciences
Roche Diagnostics acquires PCR technology in 1991

- Acquired worldwide rights to polymerase chain reaction (PCR) technology
- Roche Molecular Systems, Inc., (RMS) exclusively to develop diagnostics and other tests using PCR technology
Why do I care about data literacy? Research depends on it.

Genomics and Bioinformatics
Expand capacity in plant biology
Transform plants to improve crops
Automate large-scale plant analysis
Commercialize products and graduate leaders

PLANT SCIENCES
PURDUE AGRICULTURE
Drought of 2012 - Reduced Yields at the Water Quality Field Station (and all of IN) in a System-specific Manner

- 1 = Unmanaged prairie
- 2 = Switchgrass
- 3 = Miscanthus
- 4 = Sorghum
- 5 = Continuous maize (no till-stover removal)

Maize tasseling: < 2 m tall

WQFS - Normal Photo Aug. 8, 2012

Normalized Difference Vegetation Index

Aerial photo credits: M. Zwonitzer and D. Smith
Why do I care about data literacy? Research depends on it

- Climate
- Weather
Why do I care about data literacy? Research depends on it

• Animal Production
Who else cares about data literacy? **Corporations**

- 3 out of 4 businesses have big data activities underway (IBM, UIDP conference)
- By 2015, Big data demand will reach 4.4 million jobs globally (IBM, UIDP conference)
- “By 2020, the wider adoption of big-data analytics could increase annual GDP in retailing and manufacturing by up to $325 billion and save as much as $285 billion in the cost of health care and government services.”


- Policy Principles
- Agency Public Access Plans
- Objectives for Access to Scientific Publications
- Objectives for Access to Scientific Data in Digital Formats
- Implementation of Public Access Plans
- General Provisions

http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf

- Ensure that federally-funded scientific research is made available to and useful for the public, industry, and the scientific community.
- Research/Data is funded by taxpayer dollars – they need to have access to the data
- “Federal agencies must develop plans to make the results of federally-funded research publically available free of charge within 12 months after original publication”

http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf
Who cares about data literacy? National Science Foundation

• Investigators are expected to share with other researchers within a reasonable time
  • primary data, samples, physical collections
  • other supporting materials created or gathered in the course of work under NSF grants.
Who else cares about data literacy?
National Institutes of Health

• In NIH's view, all data should be considered for data sharing.

  “Data should be made as widely and freely available as possible while safeguarding the privacy of participants, and protecting confidential and proprietary data.”
Why do they care?

• IBM – organizations that apply data analytics are 4 times more likely to outperform others
• “Understand big data to decipher the information that counts, but also – more importantly – the possibilities of what you can do with it using big data analytics”
• Taxpayers have paid for the data – it can be reused by other scientists to predict new outcomes, identify problems or verify conclusions

How do I see the fit with the libraries?

• Libraries and Librarians
  • Designed to help patrons (scientists, public ..)
  • Experts on not only storing information but finding it later!
  • Find just what you are looking for
  • They have figured out how to catalog and track information
  • They never throw anything important away!
Scientific Publications and Digital Scientific Data

Agency elements:

- Leverage existing archives
- Public must be able to locate and access digital data
- Search, archival, and dissemination features should encourage innovation in accessibility and interoperability
- Must be a mechanism for long-term stewardship of the results
- Must be a plan for notifying awardees and other federally funded scientific researchers of their obligations
- Agency must measure and enforce compliance
- Agency must have a timeline for implementation

Questions

• What are the knowledge and skill sets that students need to compete in the 21st century?

• What roles and responsibility could the library assume in teaching the skill sets and why?
Role of the Libraries

• Provide opportunities for faculty and students
  • Workshops
  • Courses – short or long
  • Degrees?
• Frame the issue
  • Many individuals do not understand the importance of data management
• Act as a Resource
• Purdue University Research Repository
• Data Curation Profiles
Data Curation Profiles

• Outline of the “story” of the data, describing its origin and lifecycle within a research project.
• Guide for discussing data with researchers
• Insight into areas of attention in data management
• Assess information needs related to data collections
• Insight into differences between data in various disciplines
• Identify possible data services
• Create a starting point for curating a data set for archiving and preservation

http://datacurationprofiles.org/
Knowledge and Skills for the 21st Century

- Discovery and Acquisition
- Ethics and Attribution
- Metadata and Data Description
- Cultures of Practice
- Data Management and Organization
- Data Curation and Reuse
- Data Quality and Documentation
- Data Processing and Analysis
- Data Visualization and Reuse
- Databases and Data Formats
- Data Conversion and Interoperability
- Data Preservation
Training Students:
Making the Case for Data
Information Literacy in Purdue’s
College of Agriculture

Marianne Stowell Bracke
Associate Professor of Library Science
Agricultural Sciences Information Specialist
mbracke@purdue.edu
Purdue's College of Agriculture

11 Departments

- Agricultural & Biological Engineering
- Agricultural Economics
- Agronomy
- Animal Sciences
- Biochemistry
- Botany & Plant Pathology
- Entomology
- Food Science
- Forestry & Natural Resources
- Horticulture & Landscape Architecture
- Youth Development and Agricultural Education

2700 Undergraduates, 700 Graduate Students
Liaison Role

Leverage Activities

- Meet with COA Admin, Dept. Heads, and Individual faculty and staff
- Teach AGR 101 & AGR 294
- Info Lit Sessions
- Collection Development
- COA Library Committee
- Office Hours in Ag Admin Building
- Personnel on COA grants, e.g., ISEE
- Fellowship to Study in a Second Discipline
- Faculty Advisor to Purdue Equine Assisted Programs group
- Departmental meetings, fundraisers, seminar speakers, potlucks, and Happy Hours
Liaison Role

Time

Seven years at Purdue
Librarian colleagues working as a team
Priority by Libraries Administration
Scalable?
Enter the Data

Ubiquity and Trustworthiness
Enter the Data

Purdue Libraries structure
Research & Data Services
Associate Dean for Research
Libraries Dean as advocate

Libraries Dean

AD for Research

Disciplinary Liaisons
Research & Data Services
Information Literacy
Enter the Data

Tools

- Data Curation Profiles
- Data Management Planning
- Purdue University Research Repository (PURR)
Projects

• Agronomy Lab (sharing data within a lab)
• Ag & Biological Engineering (implementing data practices into workflow)
• Biochemistry Department (courses or certificate needed)
• Data Cohort Program (funded by COA)
• Smarter Ag Data Workshop (USDA, NAL, and other stakeholders)
Why does it matter?
Making the Case

Librarians

Self-advocacy – believe!

*Storage does not = Preservation*

Information Literacy

Liaison roles and faculty partnerships
Making the Case

Library Administrators

Realigning to new landscape for the profession (ARL’s Transforming Liaison Roles in Research Libraries)

Supports campus mission for teaching and research (Launching Tomorrow’s Leaders)
Disciplinary Faculty/Administrators

Prepare students for academic or corporate positions

Competitive advantage for recruiting students, graduating students

Support faculty in new skills and meeting government mandates
Data Literacy

Faculty see the value

Data loss
Sharing in the lab or research group
Sharing externally
Meet funding mandates
Future verification
Don’t necessarily want to learn everything themselves
Librarians

Articulate our strengths, many of which you will hear about over the next 2 days

Awareness of landscape in regards to tools, repositories, standards and policies
Thank you!

Questions?
Prof. Marianne Stowell Bracke
(765) 496-9620 mbracke@purdue.edu @aglibrarian
A Brief Introduction to
the Data Information Literacy Project

Interviews

Jake Carlson
Associate Professor of Library Science
Purdue University

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## DIL Competencies

<table>
<thead>
<tr>
<th>Processing and Analysis</th>
<th>Curation and Re-Use</th>
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<tbody>
<tr>
<td>Management and Organization</td>
<td>Conversion and Interoperability</td>
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<tr>
<td>Preservation</td>
<td>Visualization and Representation</td>
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<tr>
<td>Databases and Formats</td>
<td>Discovery and Acquisition</td>
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<td>Ethics and Attribution</td>
<td>Metadata and Description</td>
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<tr>
<td>Quality and Documentation</td>
<td>Cultures of Practice</td>
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<table>
<thead>
<tr>
<th>Cornell</th>
<th>Minnesota</th>
<th>Oregon</th>
<th>Purdue #1</th>
<th>Purdue #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Resources</td>
<td>Civil Engineering</td>
<td>Ecology</td>
<td>Electrical &amp; Computer Engineering</td>
<td>Agricultural &amp; Biological Engineering</td>
</tr>
<tr>
<td>Longitudinal data of fisheries and water quality</td>
<td>Real-time sensor data on bridge structures</td>
<td>Climate change and plant growth data</td>
<td>Software code in community service projects</td>
<td>Simulation data of hydrological processes</td>
</tr>
</tbody>
</table>

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Project Structure

Data Librarian

Subject Librarian or Information Literacy Librarian

Research Faculty

Graduate Students

Post-doc; Research assistant

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Project Phases

1. Literature Review
2. Interviews
3. Develop Educational Programs
4. Implement Programs
Interviews

Understanding Local:

- Data / Research
- Lab Practices
- Priorities
  - Faculty (n = 8),
  - Grad Students (n = 15),
  - Research Assistants (n = 2)
Module 7 – Organization and Description of Data

Please indicate how important you believe it is for your students to be knowledgeable in each of the competencies listed below by the time they graduate by circling a response below:

Data Management and Organization
Skills may include:
Understands the lifecycle of data, develops data management plans, and keeps track of the relation of subsets or processed data to the original data sets. Creates standard operating procedures for data management and documentation.

Limitations of the Interviews

• Small sample size

• Convenience sampling

• Pre-existing relationships with faculty

• Informative snapshot, but not definitive
# Rankings of Importance

<table>
<thead>
<tr>
<th>Competency</th>
<th>Average Ranking of Faculty (n=8)</th>
<th>Average Ranking of Students (n=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing and Analysis</td>
<td>4.63 ⭐</td>
<td>4.35 ⭐</td>
</tr>
<tr>
<td>Visualization and Representation</td>
<td>4.63 ⭐</td>
<td>4.35 ⭐</td>
</tr>
<tr>
<td>Quality and Documentation</td>
<td>4.63 ⭐</td>
<td>4.12</td>
</tr>
<tr>
<td>Metadata and Description</td>
<td>4.57 ⭐</td>
<td>3.88</td>
</tr>
<tr>
<td>Ethics and Attribution</td>
<td>4.38</td>
<td>4.35 ⭐</td>
</tr>
<tr>
<td>Curation and Re-use</td>
<td>4.25</td>
<td>4.06</td>
</tr>
<tr>
<td>Databases and Formats</td>
<td>4.13</td>
<td>3.71</td>
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<tr>
<td>Conversion and Interoperability</td>
<td>4.13</td>
<td>4.24</td>
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<tr>
<td>Management and Organization</td>
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<td>4.47 ⭐</td>
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<tr>
<td>Cultures of Practice</td>
<td>3.71</td>
<td>3.88</td>
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<tr>
<td>Preservation</td>
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<tr>
<td>Discovery and Acquisition</td>
<td>3.57</td>
<td>4.12</td>
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</table>
Rankings of Importance

Diagram showing various domains of importance such as Processing and Analysis, Visualization and Representation, Quality and Documentation, Metadata and Description, Ethics and Attribution, and Curation and Re-use. The diagram compares the rankings of faculty (n=8) and students (n=17).
Overall Findings

• Overall, the competencies were seen as important for students to develop.

• Overall, students were seen as lacking in these competencies

• Assumption that students have or should have acquired these competencies earlier.

• Lack of formal training for students in working with data.

• Learning is largely self-directed and through “trial and error.”
Overall Findings

• Education / training from advisor tends to occur at the point of need and is framed in the context of the immediate issue.

• Students tended to focus on data mechanics over deeper concepts.

• Faculty were often unsure of best practices or how to approach these competencies themselves.

• Lack of formal policies in the lab.
Break

10:00-10:15 AM
Discussion of the Data Information Literacy (DIL) Competencies

Moderator: Jon Jeffryes

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Goals of this session

● Basic introduction to the 12 competencies

● In-depth engagement with select competencies
Instructions

Steps

1. Select a recorder for your group
2. Record discussion and ideas on the flip chart
3. After 25 minutes, the flipcharts will be rotated to another team to build on that topic for another 20 minutes
4. Teams will report out the results

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First Competency

Respond to these questions:

1. What are your observations / experiences with this data competency at your institution? Does your experience align with the DIL project findings?

2. What roles or responsibilities do you see for librarians in teaching this competency to students? What additional skills or knowledge would librarians need to acquire and/or what partnerships could or should we form?

3. What do you see as areas for further exploration or development of this competency?

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First Competency

Less than 10 Minutes Left

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First Competency

Less than 5 Minutes Left

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Rotate Flip Charts
Second Competency

Respond to these questions:

1. What are your observations / experiences with this data competency at your institution? Does your experience align with the DIL project findings?

2. What roles or responsibilities do you see for librarians in teaching this competency to students? What additional skills or knowledge would librarians need to acquire and/or what partnerships could or should we form?

3. What do you see as areas for further exploration or development of this competency?
Second Competency

Less than 10 Minutes Left
Second Competency

Less than 5 Minutes Left

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Prep to Report Out

5 minutes

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Reporting Out

Each team has 3-4 minutes to report out
Lunch

12:15-1:30 PM
Panel 1: Initiating Contact

Preparing to implement DIL programs

Sarah Wright, Cornell University; Brian Westra, University of Oregon; Megan Sapp Nelson, Purdue University
Environmental Scan

- Swot Analysis Diagram
  - Strengths
  - Weaknesses
  - Opportunities
  - Threats

Identifying who to work with
Low Hanging Fruit
Great Minds Think Alike
Work Arouneds
Avoiding Common Complications
Making the case for DIL
How a team/lab/institute/department can benefit from DIL
A business case?

Not a requirement, but the process can help you identify factors and steps.
Pathway to meeting requirements

Requirement of research funding agencies:
1. NSF, NIH, Dept of Ed, NOAA, Dept of Ag, NEH, Dept of Defense, Dept of Energy, CDC, NASA
2. Publicly funded research is a public good

Anticipate resource needs, budget
Other Benefits – to Faculty

1. Increase citation of your work
2. More collaboration opportunities
3. Accelerate research and discovery
4. Reduce risk of data loss, errors, and mismanagement
5. Easier to locate and reuse your own and your team’s data
6. More competitive grant proposals
Benefits – to Grad Students

1. All the above, plus
2. Establish better practices earlier in career
3. Preparation for running your own lab, future employment
Benefits – to Libraries, Other Service Providers

1. Use cases can improve planning and resource allocation
2. Building steps on the collaboration pathway
3. Improved infrastructure → Recruit faculty
4. Improved infrastructure → Recruit students
Proceed with care

1. Be curious
2. Listen well
3. Don’t be ‘that person,’ excessively pushing a library agenda
4. ‘Open access’ is a key to some, but not everyone
5. Address the local (often internal) needs first
Interviewing to gather information

Environmental Scans/Literature Reviews

Discipline
Faculty
Interviewing to gather information

Interview structure

Data lifecycle focused
Identify areas of need

*Infrastructure

Digital Voice Recorder
Take a buddy
Interviewing to gather information

Analysis
  Opportunities
  Gap Analysis

*Infrastructure
  Transcription
  Nvivo or other qualitative analysis software
Developing Learning Objectives

Moderator: Camille Andrews
What Should They Be Able To Do?

Learning Outcomes

Camille Andrews

Data Information Literacy Symposium

September 2013

Modified from Zald, Anne. (2009) Assessment Cycle Question #1: Student Learning Outcomes. ACRL/IIL Assessment Immersion
Session Outcomes

• By the end of these next sessions, you’ll be able to:

  • Define learning outcomes and their purpose in order to identify the differences between varying definitions and levels

  • Analyze and refine DIL competencies in order to develop learning outcomes for data information literacy instruction

  • Identify possible curricular activities for data information literacy in order to think about instruction that might work for your context

  • Identify criteria, needs and constraints in developing learning outcomes for DIL curricula in order to identify good learning outcomes
What’s a Learning Outcome?

• “Learning outcomes are statements of what a successful learner is expected to be able to do at the end of the process of a learning experience such as the course unit or the course model.” (Gogus, 2012)

• Objectives and Outcomes (often used interchangeably); there’s what you aim to teach them and then there’s what they can actually do after instruction

• Student learning outcomes vs. program outcomes

• Should drive the whole process of developing instructional activity
Assessment Cycle: Instruction Design

Assessment
#4 How will students demonstrate their learning?

Criteria for Evaluation
#5 How will the student know they have done well?

Curriculum
#2 What do they need to know in order to do this well?

Deb Gilchrist & Ann Zald, ACRL Information Literacy Immersion 2009

Pedagogy
#3 What activity will facilitate the learning?

Instructor Values / Philosophy

Course learning goals

Instruction Program
Vision / Mission / Goals

Outcome
#1 What do you want the student to be able to do?
What do you want the student to be able to do?

• Need or Competency: Acknowledges data from external sources appropriately.

• Outcome: Cite data sources appropriately in APA 6th ed. format in order to properly credit sources for paper.
The Outcome “Formula” Classroom & Program Outcome Statements

<table>
<thead>
<tr>
<th>VERB PHRASE</th>
<th>+ IN ORDER TO</th>
<th>+ WHY</th>
</tr>
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<tbody>
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<td>IN ORDER TO properly credit sources for paper</td>
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- Verbs set the stage;
- Select verbs that reflect desired skill or cognitive level;
- Select verbs that are observable or “judge-able”

IOT serves as a bridge between the ability and the rationale or application

- Answering the WHY question describes the way the student will apply the ability and brings depth and clarity to the outcome;
- Creates relevance and connection for the student.

Gilchrist & Zald, 2009
Bloom’s Taxonomy

- **Remembering**: Recalling relevant knowledge from long term memory.
- **Understanding**: Making sense of what you have learnt.
- **Applying**: Use the knowledge gained in new ways.
- **Analysing**: Breaking the concept into parts and understand how each part is related to one another.
- **Evaluating**: Making judgements based on a set of guidelines.
- **Creating**: Putting information together in an innovative way.

By nist6dh
Bloom’s Taxonomy

- from [http://www.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm](http://www.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm)
Bloom’s Taxonomy

• Knowledge/Remembering:
  • arranges, defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.

• Comprehension/Understanding:
  • comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives an example, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates

• Application/Applying:
  • applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.

• Analysis/Analysing:
  • analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates
Bloom’s Taxonomy

• Evaluation/Evaluating:
  • appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports

• Synthesis/Creating:
  • categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes

Learning Outcomes Criteria

• Measureable/observable and discrete

• Student-centered

• Uses action verb and appropriate levels of Bloom’s taxonomy

• Clear and aligned with what you’ll be assessing (no unspoken assumptions or assessing things not stated; criteria/performance conditions specified)

• Not too shallow or in depth for level of research (e.g. appropriate for audience; not too all inclusive or very specifically task-oriented)

• Integrated: Connected to larger curriculum/research/field

• Transferable: Skills build on one another and can be used in other contexts
Examples

Becomes familiar with standard data formats and types for their discipline

- Converts data from [proprietary format] to .csv in order to use in relational database

Develops an understanding of intellectual property, privacy and confidentiality issues, and the ethos of the discipline when it comes to sharing and administering data

- Identifies potential issues with sharing data in order to decide level of access for dataset in repository
EXERCISE/QUESTION: Given what you know about student learning outcomes and the criteria for good ones, which of these examples would be good learning outcomes for an undergraduate research methods class?

a. Understands the concept of relational databases and how to query those databases

b. Utilizes Microsoft Excel and Access to collect, transfer, and analyze data from their fieldwork and runs queries in Access to answer research questions in order to complete their research projects

c. PI can query data in relational database in order to answer questions about research data

d. Defines the difference between spreadsheets/flat files and relational databases in order to decide which is more appropriate for their project
•BONUS EXERCISE/QUESTION: How would you revise one of your data information literacy competences into a learning outcome?
What does the student need to know?

• Outcome: Cite data sources appropriately in APA 6th ed. format in order to properly credit sources for paper.

• Curriculum: Students need to know how to:
  • Discover whether producer provides citation information or where to find it
  • Identify key elements of APA citation format for dataset
  • Arrange citation elements in proper order
What’s the learning activity?

• **Pedagogy:** After looking at handout on APA citation for data, give students a dataset (or have them find ones for their paper) and have them formulate citations in annotated bibliography (undergraduate)

• Too big to cover entirely here but some possibilities and you’ll hear more from participants later in talking about their approaches
Q&A

• Questions?
• What was most interesting or helpful in this session?
• What is still unclear?
Break

3:00-3:20 PM

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Lightning Round Presentations

Taking what you’ve learned and translating it into an educational program.

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Discipline – Ecology

Research context – four-year field study on impacts of climate change on prairie ecosystems

Data types – ASCII, tabular (Excel), statistical analyses (SPSS or R)
Educational Priorities / Needs

Best practices promoted by professional societies

Data management and organization

Documentation and metadata

Data sharing/publishing

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Response

Readings:

• **Article: Bulletin of the ESA – Some Simple Guidelines for Effective Data Mgmnt**

• **Article: Global Change Biology - Global change science requires open data**

• **Chapter: lab notebook best practices**

Team meeting - seminar format with discussion on best practices.

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Ag & Biological Engineering

Context – a joint hydrology research group

Data types – field data, modeling data, and remote sensing data

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Ag & Biological Engineering

- File organization and data completeness
- Adherence to research group standards
- Data description for sharing and re-use
- Data storage

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Creating checklists
Searching for data
Creating Metadata
Structural Engineering

Data Types:
1) Real-time bridge sensor readings
2) Experimental structural-integrity tests

Data Management Issues/Considerations:
• Ownership of data
• Sharing requirements
• Transfer to next student
• Quality concerns/ lack of documentation

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DIL Needs

“The [data management] skills that they need are many, and they don’t necessarily have it and they don’t necessarily acquire it in the time of the project, especially if they’re a Master’s student, because they’re here for such a short period of time.”

- Faculty Partner at UMN

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<tr>
<th>Data Life Cycle</th>
<th>Educational Needs</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation &amp; Collection</td>
<td>Backup and Security</td>
<td>Understand how/where to store data safely</td>
</tr>
<tr>
<td>Organization</td>
<td>Document changes, shared file/directory structure</td>
<td>Transition data to next student in a well-documented way</td>
</tr>
<tr>
<td>Access/Ownership</td>
<td>IP and Rights Issues</td>
<td>List stakeholders</td>
</tr>
<tr>
<td>Sharing</td>
<td>Why share data?</td>
<td>Recognize the reuse value of data</td>
</tr>
<tr>
<td>Preservation</td>
<td>Maintaining Access</td>
<td>Consider preservation-friendly file formats</td>
</tr>
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Online Data Management
Course

Seven Web-Based Modules

1. Introduction to Data Management
2. Data to be Managed
3. Organization and Documentation
4. Data Access and Ownership
5. Data Sharing and Re-use
6. Preservation Techniques
7. Complete Your DMP

Course open to anyone at:

http://z.umn.edu/datamgmt

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Computer Engineering and Science Case Study

- Embedded Data Information Literacy within highly structured existing curricula
  - Built on long term embedded liaison
- Focused on software code design teams
  - App development
- Integrated with the engineering design lifecycle
  - Identified DIL activities for each phase
  - Rubric
- Evidence from student design notebooks

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Background / Audience

- **Discipline** – Natural resources
- **Data types** – spreadsheets (Excel), relational databases (Access), analyses in R
- **Context** – long-term studies tracking longitudinal changes in fish species occurrence, population abundance, growth, and diet


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Educational Priorities / Needs

• Data management
• Data organization
• Data quality and documentation
• Data analysis and visualization
• Metadata
Response

Six session mini-course:
• Intro to Data Management
• Data Organization
• Data Analysis & Visualization
• Data Sharing
• Data Quality & Documentation
• Wrap-up

NTRES 6940
Special Topics Course: Managing data to facilitate your research

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Poster Session

4:15-5:00 PM

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