

Gearing Up for  
January 2023:  
Institutional  
Strategies for  
Implementing  
the NIH Data  
Management &  
Sharing Policy

Duke University:

**Lindsey Spangler**, *Associate Dean, Research Integrity, Duke University*

**Tim McGeary**, *Associate University Librarian for Digital Strategies & Technology, Duke University*

University of Delaware:

**Jeffrey Friedland**, *Associate Vice President for Research Administration*

**John Huffman**, *Director of Cyberinfrastructure*

**Annie Johnson**, *Associate University Librarian for Publishing, Preservation, Research & Digital Access*

# Some initial thoughts from ARL and COGR

## Today's Moderators:

**Cynthia Hudson Vitale**, *Director, Scholars & Scholarship*

**David Kennedy**, *Director, Costing & Financial Compliance, COGR*

# Introduction to COGR

- Council on Governmental Relations, est. 1948
  - 200+ member institutions, staff of seven
- COGR is a national expert on the crucial issues around research compliance, ethics, technology transfer, and financial sustainability. We work closely with all federal agencies to ensure the nation's scientists and PIs can deliver the cutting-edge research necessary to make the world and nation a better place.
- Active Board and Committees, ~45 individuals from member institutions
- Regular collaboration with higher ed associations and other partners!

# Background & Challenges

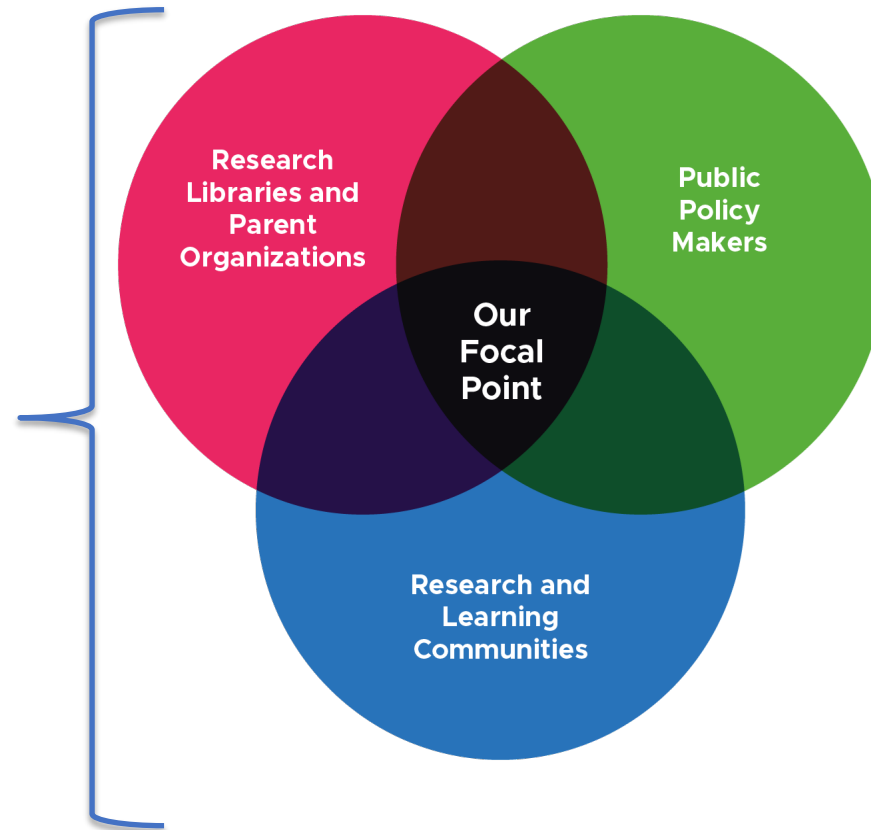
- [NOT-OD-21-013](#) – *Final NIH Policy for Data Management and Sharing* – is effective on January 25, 2023
- As presented by NIH on Sept. 13 (@ FDP), the DMS policy applies to/requires:
  1. Applies to all research funded or conducted in whole or in part by NIH, that results in the generation of scientific data.
  2. Submission of a DMS Plan outlining how scientific data and any accompanying metadata will be managed and shared, taking into account any potential restrictions or limitations.
  3. Compliance with the awardee's plan as approved by the NIH Institute and Center (IC).
- But the anticipated challenges are real:
  1. Varying expectations from varying ICs – will there be harmonization?
  2. Enforcement – what if the submitted plan is deemed inadequate?
  3. New administrative and cost burden – how to budget / how to pay?

# COGR's Approach

- Education and Other Resources, including:
  1. Resource Page: <https://www.cogr.edu/nih-data-management-and-sharing>
  2. NIH Policy Summary, via the Matrix
  3. Readiness Guide (Living Document) – Culture, Roles & Responsibilities, etc.
- Administrative and Cost Burden
  1. Hypothesis – The burden is real and significant
  2. Cost Impact Survey – 40+ institutions, data analysis starts next week
- Advocacy to NIH, including:
  1. Harmonization
  2. How to Pay
  3. Enforcement
  4. Other Outreach, as we learn more

# Association of Research Libraries Convenes, Shapes, Informs and Influences for Systemic Change

Vision  
Mission  
Relationships  
Resources



# ARL's Approach

## ➤ Advocacy

- Machine-readable DMP's
- Persistent identifiers
- Well-documented and/or curated research data sharing
- Harmonization of policies

## ➤ Research and Resources

- Realities of Academic Data Sharing <https://www.arl.org/realities-of-academic-data-sharing-rads-initiative/>
  - Retrospective study of expenses to make research data publicly accessible in 5 disciplines across 6 institutions = ~3000 researchers (covering NIH, NSF, and DOE)
  - Campus mapping of institutional infrastructure and expenses for research data services at 6 academic institutions
- Implementing Effective Data Practices <https://www.arl.org/implementing-effective-data-practices/>
- ARL/CARL Roadmap for Research Libraries on Research Data Services <https://www.arl.org/arل-carل-joint-task-force-on-research-data-services/>
- Resources: <https://www.arl.org/research-data-management-and-sharing-policies/> (more forthcoming)



# COGR–ARL Collaborative Approach

## ➤ Cross-organization representation

- COGR NIH DMS Working Group
- ARL RADS Advisory Committee

## ➤ Resources and Webinars

- NIH Policy Briefing Sheet – Starting the Conversation with Institutional Leadership <https://www.cogr.edu/cogr-readiness-guide-chapter-1-starting-conversation>
- Additional materials continue to be developed
- Today's Webinar and future sessions (as needed)
- Other DMS activities and tasks (forthcoming)





**Jeffrey Friedland**, *Associate Vice President  
For Research Administration*

**John Huffman**, *Director of Research  
Cyberinfrastructure*

**Annie Johnson**, *Associate University Librarian  
for Publishing, Preservation, Research  
& Digital Access*

# Supporting the New NIH DMS Policy @ The University of Delaware

Jeff Friedland, John Huffman,  
and Annie Johnson



**Jeffrey Friedland**  
Associate Vice President,  
Research Administration



**John Huffman**  
Director of  
Research  
Cyberinfrastructure



**Annie Johnson**  
Associate University Librarian  
for Publishing, Preservation,  
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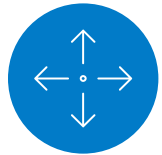
# Presentation Overview



Background



Data Management  
Support Roles



Logistics



Anticipated Challenges



Education and Outreach



Data Cyberinfrastructure



Data Security,  
Storage and Access

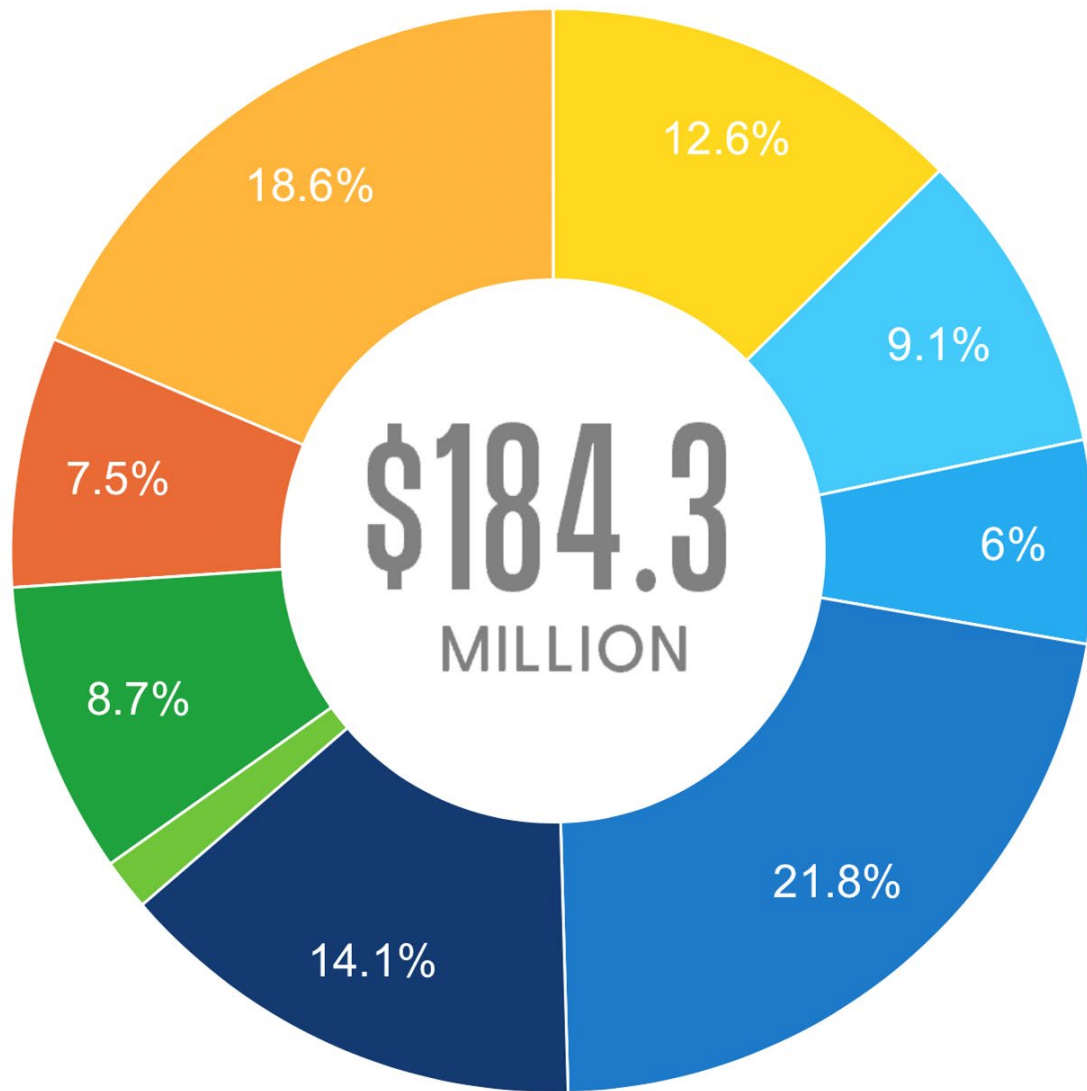




# University of Delaware

- 18,600 undergraduate students / 4,300 graduate students / 1,300 faculty
- 16 universities to hold the “triple crown” – **Land Grant, Sea Grant and Space Grant designations**
- R1: Doctoral Universities
- 2021 Research Expenditure Data \$184 Million

# FY21 Sponsored Research Expenditures



- 12.6% Department of Commerce
- 9.1% Department of Defense
- 6% Department of Energy
- 21.8% Health and Human Services
- 14.1% National Science Foundation
- Other
- 8.7% Other Federal
- 7.5% State of Delaware
- 18.6% Federal Flow-Through



# A Few Facts from FY21

2091  
Proposals

\$1.71B  
Requested in  
Funding

680  
New Awards  
Received

\$335M  
New Awards

1958 Active  
Awards



# Data Management Support Roles

## Research Office

- Serves as the connector to other units
- Reviews to be sure DMP are submitted at proposal stage
- Works with PI/unit to budget for allowable data sharing/management costs



# Data Management Support Roles

## Library, Museums and Press

- Data Services Librarian (Daniel Peart)
- Research Data Steering Group
  - Library, Research Office, and IT
- UDSpace
  - Not a data repository!



# Data Management Support Roles

## Central IT

- Primary focus on infrastructure
- Assesses data security needs



# Logistics

## Research Office

- Connecting the dots; took lead on organizing meetings with Library and IT to assemble a plan
- Shared relevant resources, like those from COGR



# Anticipated Challenges

- Awareness
- Last-minute nature of many NIH proposals
  - Inability to help develop a plan
  - Costing
- Lack of robust data storage options at UD
- Lack of understanding of secure data handling



# Education and Outreach

- Lots of meetings!
- NIH DMSP landing pages on Library and Research Office websites
- Articles in Research Office newsletter
- Customizing DMPTool



# Education and Outreach

- Promote DataWorks! DMP Challenge
- Integrating information into existing data workshops
- Conducting internal training for liaison librarians and Research Office staff
- Joint memo planned from Library/IT/RO





# Data Cyberinfrastructure

- Infrastructure costs are not covered
- Projects with less funding may have less access to existing infrastructure
- Data storage is not data management





# Data: Security, Storage and Access

## Level III: High Risk

Encrypt at rest and transit,  
restricted and monitored  
access, explicit requirements

## Level II: Moderate Risk

Share only with those who  
“need to know”

## Level I: Low Risk

May be shared publicly

Security  
needs will  
help drive  
infrastructure  
choices

Domain Specific  
Repositories

Cloud Based  
Services and  
Infrastructure

Institutional Resources



# Data Storage and Retention Costs

- Costs go up based on security needs
- DM and storage needs persist beyond funding
- Potential hidden costs of Cloud SaaS, IaaS and other cloud services
- UD is currently enabling NIH STRIDES access for commercial cloud vendors



# Things to Consider

- Start now
- Collaboration is key
- One size does not fit all





# Thank you!

**For more information, contact:**

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Annie Johnson: [akjohnso@udel.edu](mailto:akjohnso@udel.edu)

# Research Data Management at Duke

## Gearing up for January 2023

**Tim McGeary, Associate University Librarian for Digital  
Strategies & Technology**

**Lindsey Spangler, Associate Dean, Research Integrity**

**Hosted by COGR and  
the Association of Research Libraries**

**September 30, 2022**



# Short History at Duke



**2015** - NSF rejects Duke research proposal due to insufficient DMP, specifically due to lack of plans to deposit data

**2015** - University Libraries, Trinity College of Arts & Sciences, and Office of Information Technology (OIT) collaborate on white paper to Provost and charge for Faculty Working Group for Digital Research Data Services

**2016** - Interdisciplinary faculty working group meets for 9 months and submits recommendation to Provost; Provost accepts and funds recommendations

**2017** - Research Data Services positions (four) hired by Duke University Libraries for university-wide partnership and services

**2018** - Research Data Repository (RDR) launched

**2022** – 200<sup>th</sup> data set published in RDR



*Duke University Libraries*

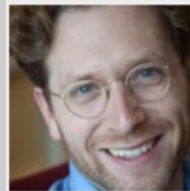
**Center for Data and  
Visualization Sciences**

*Our mission is to curate, publish, and archive Duke digital research data from any discipline. We provide long-term **public access** to support research **transparency, reproducibility** and to **foster new discoveries**.*

[research.repository.duke.edu](https://research.repository.duke.edu)

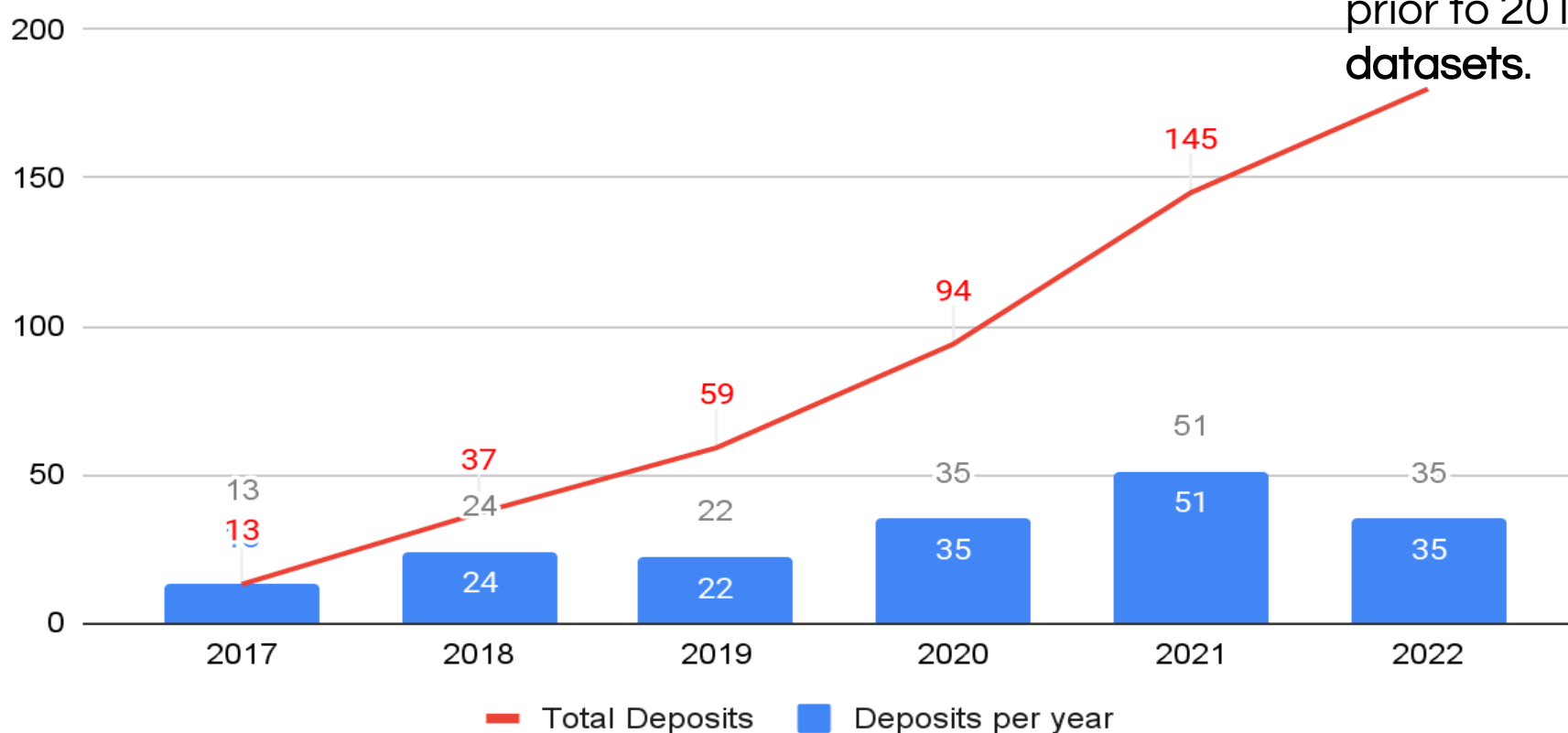
“Archiving data this way **ensures reproducibility** of the underlying science and **long-term stability of the work**, despite the **natural turnover in my research group’s composition**. It thus brings our research practice in **compliance with data management requirements** of funding agencies, and helps us **respond promptly to external requests** for our data. In addition, the very process of depositing gives us the opportunity **to validate figures one last time**, as we copy-edit page proofs.”

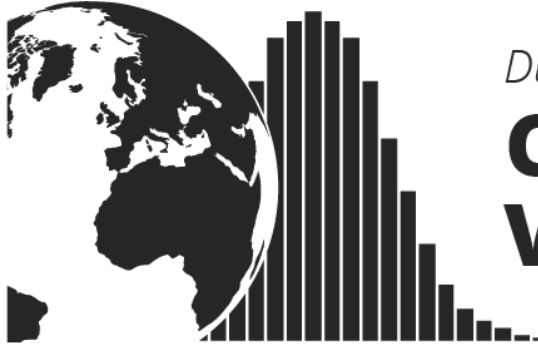
Patrick Charbonneau, PhD  
Professor of Chemistry & Physics



# RDR Dataset Numbers

Deposits/year and Total Deposits





*Duke University Libraries*

# Center for Data and Visualization Sciences

***askdata@duke.edu***

<https://library.duke.edu/data>  
@duke\_data

**CDVS provides multiple programs supporting data driven research**



Data  
Science



GIS &  
Mapping



Data  
Visualization



Data  
Management

# Duke Office of Scientific Integrity

Established ASIST Office (**A**dvancing **S**cientific Integrity, **S**ervices, and **T**raining) in 2017

- Created a Data Management Plan Guidance document to help researchers develop a DMP
- Held weekly office hours and offered one-on-one support to assist in DMP development
- Identified resources to support data management

# Research Data Policy Initiative

Started in spring 2020

<https://research.duke.edu/research-data-policy-initiative>

**Facilitating efficient and quality research, ensuring data integrity, and fostering a culture of data sharing**

For the past two years the Duke School of Medicine and the University have been working together strategically to develop a unified research data policy.

The timing with the NIH policy was advantageous in that some of the key research support stakeholders for our institutional policy are also those who will be most likely helping to build and support a workflow for NIH grants, paving the way for ongoing coordination for the NIH policy.





# Education and Outreach

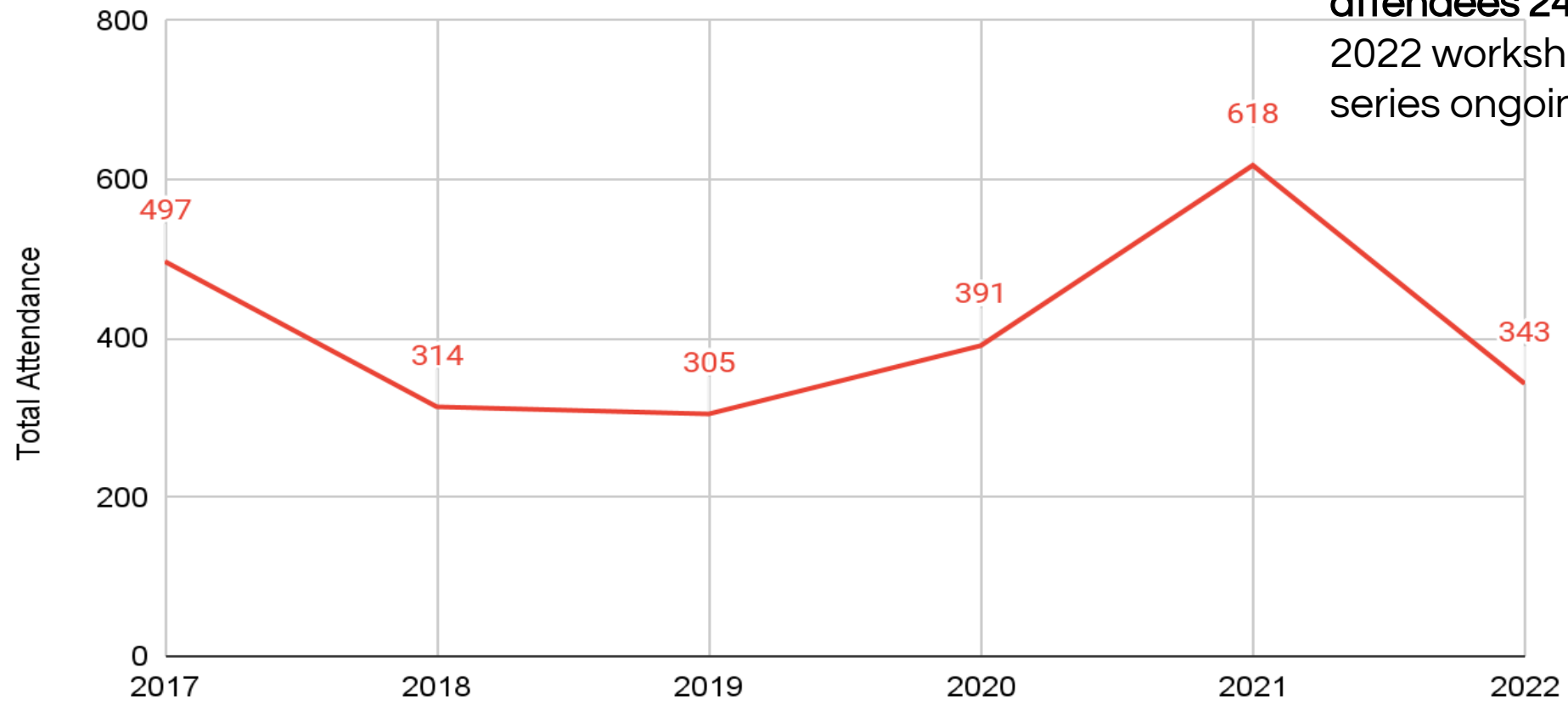
# Training and Consultations

The School of Nursing sought presentations and training on data sharing policy

Center for Data and Visualization Sciences (CDVS) partners with Duke Graduate School and Duke Office of Scientific Integrity to provide data management and sharing topics as part of RCR series

# Data Sharing Education

Total Attendance vs.



Total number of workshop attendees 2468. 2022 workshop series ongoing.

# Researchers Speaking to Researchers

## Dr. Mark Palmeri: An honest assessment of openness

🕒 2022-04-12    👤 SOPHIA LAFFERTY-HESS

*This post is part of the Duke Research Data Curation Team's 'Researcher Highlight' series.*

In the field of engineering, a key driving motivator is the urge to solve problems and provide tools to the community to address those problems. For [Dr. Mark Palmeri](#), Professor in Biomedical Engineering at Duke University, open research practices support the ultimate goals of this work, and helps get the data into the hands of those solving problems: “It’s one thing to get a publication out there and see it get cited. It’s totally another thing to see people you have no direct professional connection to accessing the data and see it impacting something they’re doing...”



# Researchers Speaking to Researchers



## *Benefits of Data Management Plans in Clinical Research*

A Data Management Exemplar Series Interview  
With **Ryan Shaw, Ph.D., R.N.**

<https://research.duke.edu/story/benefits-data-management-plans-clinical-research>

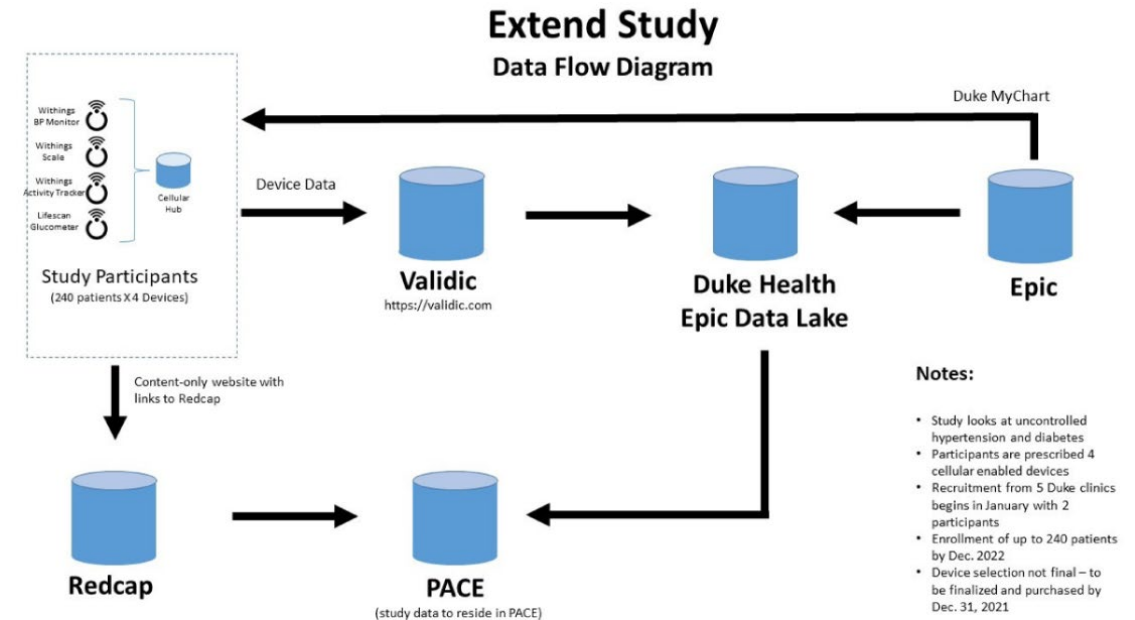



Figure 1: Example of a Data Flow Diagram from an ongoing NIH study. Credit: Ryan, Shaw, Ph.D., R.N.

# Making data sharing visible

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## Patrick Charbonneau

Professor of Chemistry


Professor Charbonneau studies soft matter. His work combines theory and simulation to understand the glass problem, protein crystallization, microphase formation, and colloidal assembly in external fields.

### Current Appointments & Affiliations

- ▶ Professor of Chemistry, [Chemistry, Trinity College of Arts & Sciences](#) 2020
- ▶ Professor of Physics, [Physics, Trinity College of Arts & Sciences](#) 2020

### Contact Information

5329 French Science, 124 Science Drive, Durham, NC 27708  
Box 90347, Durham, NC 27708-0347  
✉ [patrick.charbonneau@duke.edu](mailto:patrick.charbonneau@duke.edu) ☎ (919) 613-6261  
🔗 [Charbonneau Research Group](#)

[Manage This Profile](#)  
[Add Data to my Website](#)  


## Datasets

Morse, Peter, Patrick Charbonneau, Caitlin Gish, and Robert Hoy. "[Data from: Thermodynamic stability of hard sphere crystals in dimensions 3 through 10.](#)" July 28, 2021. <https://doi.org/10.7924/r4jh3mw3w>.

[Data Access](#)

Hu, Yi, Patrick Charbonneau, Benoit Charbonneau, and Zhen Yang. "[Data and scripts from: High-dimensional percolation criticality and hints of mean-field-like caging of the random Lorentz gas.](#)" July 2, 2021. <https://doi.org/10.7924/r4s46r07b>.

[Data Access](#)

Charbonneau, Patrick, and Marco Tarzia. "[Data from: Solution of disordered microphases in the Bethe approximation.](#)" June 29, 2021. <https://doi.org/10.7924/r42v2m409>.

[Data Access](#)

Zheng, Mingyuan, and Patrick Charbonneau. "[Data and scripts from: Characterization and efficient Monte Carlo sampling of disordered microphases.](#)" June 7, 2021. <https://doi.org/10.7924/r4w37th8b>.

[Data Access](#)

Hu, Yi, and Patrick Charbonneau. "[Data and scripts from: Percolation thresholds on high-dimensional D<sub>n</sub> and E<sub>8</sub>-related lattices.](#)" June 2, 2021. <https://doi.org/10.7924/r4fx7bk95>.

[Data Access](#)

Hu, Yi, Grzegorz Szamel, Francesco Zamponi, Patrick Charbonneau, Giulio Biroli, and Harukuni Ikeda. "[Data from: Mean-field caging in a random Lorentz gas.](#)" May 25, 2021. <https://doi.org/10.7924/r4sb44m3b>.

[Data Access](#)

Hu, Yi, Patrick Charbonneau, Francesco Zamponi, Harukuni Ikeda, Giulio Biroli, Eric Corwin, and Grzegorz Szamel. "[Data and Scripts from: Interplay between percolation and glassiness in the random Lorentz gas.](#)" March 1, 2021. <https://doi.org/10.7924/r4qz29054>.

[Data Access](#)

Charbonneau, Patrick, Joyjit Kundu, and Ludovic Berthier. "[Data from: Finite-dimensional vestige of spinodal criticality above the dynamical glass transition.](#)" August 5, 2020. <https://doi.org/10.7924/r4jh3m094>.

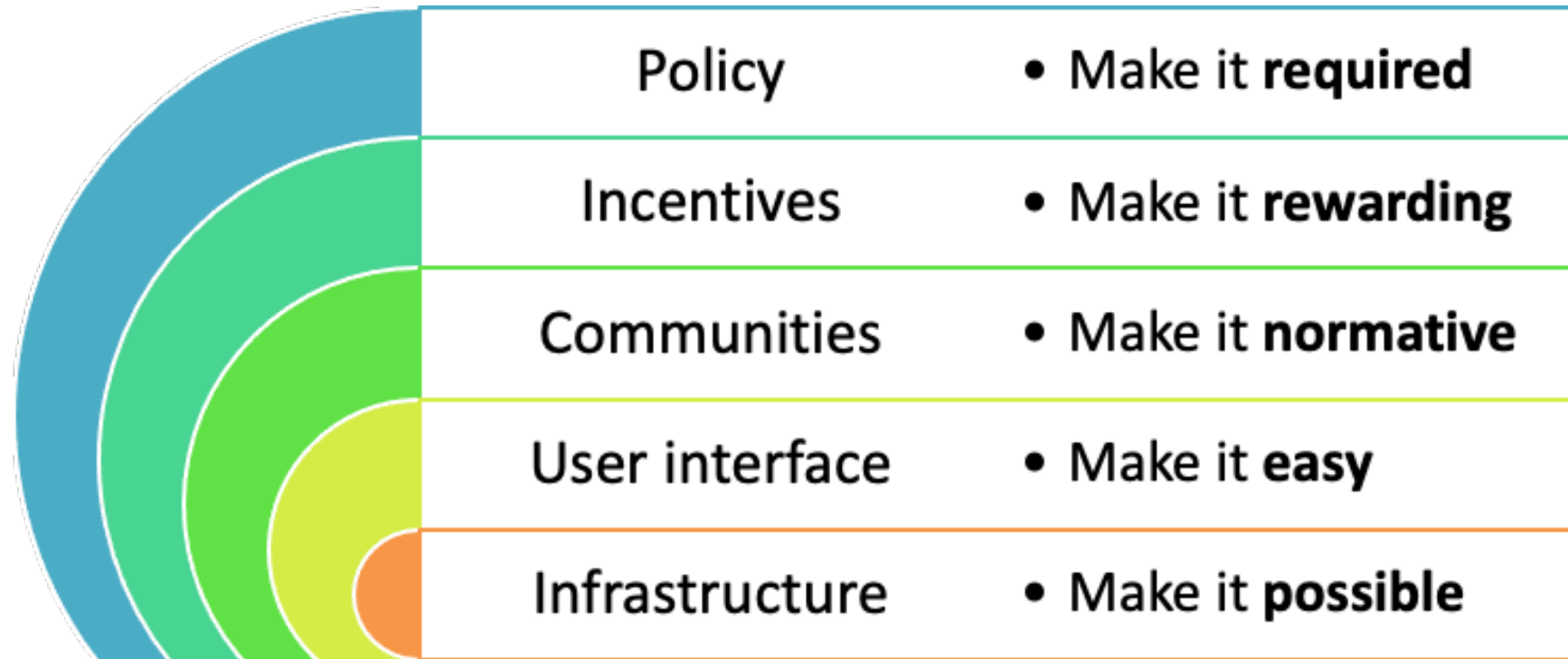
[Data Access](#)



A background graphic consisting of several light blue, 3D wireframe cubes of varying sizes, stacked and arranged in a way that suggests depth and connection. The cubes are positioned behind the main title text.

# Connections and Collaborations

# ...with the Research Community



Adapted from Mellor Talk at BMTS meeting, January 2020.



# ... with Duke Research Support

- Clear and frequent communication is a key strategy for coordinating our response to the NIH policy
- Research support stakeholders that have been working directly with us on determining the NIH DMSP support landscape include:
  - Office for Research and Innovation
  - Office of Scientific Integrity
  - Office of Research Initiatives
  - Research Administration Offices
  - Duke University Medical Center Library and Archives
  - Duke University Libraries
- Shared resources and guides (e.g. the AAU-APLU guide, the COGR Guidelines, NIH Guidelines) as well as literature on emerging practices have also been useful tools to build shared understanding of the landscape, institutional resources, and next steps for increasing public access to data
- More planning and potential projects will likely emerge throughout the fall and into the launch of the actual requirements.

# ... with Information Professionals

- The Libraries Research Data Working Group includes representation from professional school libraries at Duke collaborating on how to best support liaison librarians working with researchers during implementation of the policy
- Our community of practice has been asked by the National Library of Medicine and NIH to help educate NIH program officers, researchers, librarians and research support staff on what it means to curate data for FAIRness

# ... Duke Researchers to Resources

**myRESEARCHhome:** a Duke-created portal (with support from CTSA\*) that helps members of the research community manage their research projects and compliance requirements in one place

The screenshot displays the myRESEARCHhome portal interface. The top navigation bar includes the Duke logo, the portal name, and links for 'SUBMIT A REQUEST', 'WIDGETS', and a user profile. A secondary bar features a 'COVID-19 Research & Activities' notification and a 'GO TO RESEARCH DASHBOARD' button. The main content area is organized into three columns: 'my Reports' (with sub-tabs for PROJECTIONS, FINANCES, and OTHER), 'my Portfolio' (with sub-tabs for PROJECTS, FINANCES, PERSONNEL, and IRB), and 'my App'. The 'my Reports' column lists various summary and effort reports. The 'my Portfolio' column lists active awards, personnel roles, and other project-related activities. The 'my App' column lists various administrative tasks and approvals, each with a corresponding icon and a count. A dropdown menu is open under the 'SUBMIT A REQUEST' button, showing options: 'Intent to Submit', 'SOM Research Building Access', 'Connect Me To A Resource', 'Data Management Planning' (highlighted with a red arrow), 'Invention Disclosure', and 'Other Research Help'.

\*UL1TR002553

# ... Duke Researchers to Resources

**myRESEARCHhome** Data Management Planning request links to a REDCap survey where researchers can request additional assistance related to:

- Developing a data management and/or sharing plan for a funder requirement, service center, or a project/research group
- Depositing data into a repository
- Sharing or curating data
- Other needs

Survey is submitted to a central e-mail account which is managed by ASIST and CDVS who then reach out for follow-up consultation.

# ... Duke Researchers to Resources

**myRESEARCHpath:** a Duke-developed roadmap (with support from CTSA\*) that navigates individuals through the research project lifecycle and includes processes, policies, and resources to allow individuals to find information needed to facilitate their research

STAGE

- Plan and Refine Project

TOPIC

**Develop the data management plan**

Need assistance with data management planning? [Get Help](#)

*myRESEARCHpath* Home About Feedback Log in Search

The roadmap for navigating research policy, process, and resources at Duke University

- 1 Generate Idea
- 2 Plan and Refine Project
- 3 Develop and Submit Proposal
- 4 Initiate Project
- 5 Conduct and Oversee Project
- 6 Manage Award and Finances
- 7 Disseminate and Close Out

**Customize Your Path** Collapse

Select all filters that apply to your project, including its oversight and management. Applying the filters will customize your experience by: 1) removing topic-based pages and "Related Resources" that do not apply to your project, and 2) hiding non-applicable topic pages and resource links from any search results.

**Project includes:**

- ☐ Human participants or human data
- ☐ Vertebrate animals or cephalopods

**Project managed by:**

- ☐ Campus Schools or Provost Area
- ☐ Schools of Medicine or Nursing, or Duke Health System

\*UL1TR002553

# ... Duke Researchers to Resources

The **myRESEARCHpath** page for Data Management Plan development includes many resources:

Online learning

Example DMS  
plans

Policies,  
procedures,  
and guidance

Training and  
job aids

Resources for  
consultation  
and assistance



# Budget Considerations

- NIH's website includes a list of allowable and unallowable costs—many of these functions may not exist within one unit at your institution—at Duke, we have experts/services in needed areas, but they exist across multiple offices and may even only be available within a specific school
- Duke is looking at the most efficient, compliant, and cost-effective way to provide the necessary support to investigators with discussions ongoing in the following areas (non-exhaustive list):
  - Existing infrastructure that will require additional IT, data management, and research administration resources
  - A central service center to streamline the process and ease of use
  - The "Administrative Cap" and how to appropriately manage competing requirements with limited resources
  - Personnel that have expertise in proper costing, data management, and research administration are few and far between

# Budget Considerations

COGR is working on two items that will help inform decisions related to costing for DMSP

## Roles & Responsibilities Matrix

- List of specific activities required across the data lifecycle
- Timing of requirements
- Role(s) for activities

## Administrative and Cost Burden Survey

- Burden and resourcing needs for each stage of the data lifecycle
- Ability to answer for all levels of the institution from Grad Students and PIs to central offices, Deans, and VPRs

# Compliance Monitoring

- We anticipate our pre-award office could review Plans to ensure the required elements are included before submission, but this would not include the adequacy of the content
- NIH stated that they will monitor compliance with Plans over the course of the funding period via RPPR and that noncompliance with Plans may result in special award conditions or termination of the award (see FAQ D.1.)
- Duke will likely include some level of Plan monitoring as part of our general compliance review
- Ongoing discussion as to how we review plan-by-plan compliance, but we hope through our "Intent-to-Submit" initiative, we can pick projects up early and guide them to appropriate resources before proposal submission

# DMP Boilerplate Language

The data will be deposited into the Duke Research Data Repository (RDR) an openly accessible preservation archive maintained by the Duke University Libraries. The RDR will assign **appropriate metadata** (Dublin Core) for discoverability and provide a **Digital Object Identifier (DOI)** for persistent access and unique identification of the data. Reuse conditions and expectations will be communicated to end users through the assignment of a **standardized Creative Commons license or waiver**.

The data will be preserved in the RDR for the long-term according to [RDR policies and procedures](#). When the data are transferred to the RDR, data curators will review deposits to help ensure they are complete and in a structure and format that supports long-term preservation, access, and reuse. The RDR provides for automated backup of all data, which provides an added layer of protection and security for the data.

# Curation in Practice

*Data curation includes activities that may be taken to ensure data are fit for purpose and available for discovery and reuse.*

- ✓ Open files
- ✓ Check documentation for completeness
- ✓ Assess file formats
- ✓ Perform high-level disclosure review
- ✓ Identify other data and code enhancements



Alfred P. Sloan  
FOUNDATION



# Partnerships to support data sharing

## DATA CURATION NETWORK



RESEARCH  
COMPUTING





# Thank you!

**Tim McGeary, Associate University Librarian for Digital  
Strategies & Technology**

**Lindsey Spangler, Associate Dean, Research Integrity**

**Hosted by COGR and  
the Association of Research Libraries**

**September 30, 2022**