



Data Management

(or how I learned to love my data)

*Reaching Graduate Students through a
Responsible Conduct of Research Program*

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Responsible Conduct of Research @ Duke

- All graduate students required to attend a 4 hour RCR training during orientation
- Master's students must attend one 2-hour RCR forum
- PhD students must attend at least 6 hours of RCR training forums
- Faculty and staff engaged in research must take one online self-directed course and at least one 1-hour interactive workshop

Responsible Conduct of Research @ Duke

“The RCR training requirement reflects our expectation that every graduate student will be aware of academic standards and well-qualified to address the growing ethical challenges that arise when teaching or conducting scholarly research.”

Responsible Conduct of Research @ Duke

The libraries have been actively engaged in coordinating with the graduate school to support this program over the years. For academic year 2018-2019:

- Librarians taught sessions at the annual RCR orientations
- Librarians and library staff taught 478 students through the RCR forums
- Students were from 48 different graduate degree programs
- Library-taught forums represented **28 out of the 43** offered that academic year - some open and some for specific departments

Responsible Conduct of Research @ Duke

Acquiring and preparing a corpus of texts

Building blocks for reproducibility

Digital publishing: multimodal storytelling

Digital publishing: reaching and engaging audiences

Ethics and visualization

Finding a home for your data: an introduction to archives and repositories

Image copyright and acquisition for scholars

Open science: general principles and practices

Research data management 101 for humanists

Research data management 101 for scientists

Research data management 101 for social scientists

Research impact concepts and tools

Retractions in science and social science literature

Shaping your professional identity online...

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Data Management within the Libraries

- Program development began in January 2017
- 4 primary staff members
 - 2 Research Data Management Consultants
 - 2 Digital Repository Content Analysts
- Key support areas: Education Program, Lifecycle Consulting Services, and Curation/Repository Services

Why Librarians, though?

- Librarians at Duke work collaboratively with data and tools for managing data during consultations, for example:
 - synthesis reviews in a variety of disciplines (scoping reviews; ethnography)
 - population data sets in public policy (purchased or freely available data sets)
 - systematic reviews (citation managers/citation management best practices)
 - mixed methods research (NVivo)
- Science Librarians work to promote openness in scientific and social scientific research e.g. data description (metadata), open research practices (data sharing), open access, registering research & methods

Why Libraries though?

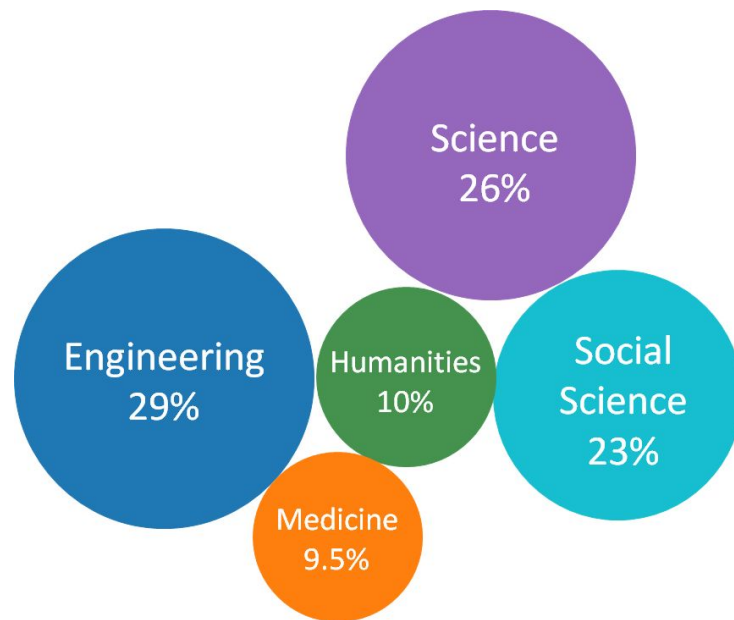
At Duke, librarians are not faculty so we have the flexibility to start with the student where they are, without being committed to a single methodological approach or discipline.

This makes librarians and libraries a good fit to help graduate students across disciplines or those who want to use mixed methods.

Librarians also pay attention to policy e.g. NIH RFI's; Duke University actively works to shape national policy around University research and grant funding agencies; disciplinary repositories, the data landscape and technology around data (e.g. failed repositories, obsolescence, data loss) and research support more broadly via collaboration(s) with the Center for Data and Visualization Services and other campus partnerships, such as Dukes Data Repository.

Progression of the RDM 101 Program - V1

In Spring 2017 & Spring 2018 we taught 241 students in general “Research Data Management Fundamentals” courses.



Attendance distribution by discipline

Progression of the RDM 101 Program - V1

“How could this workshop be improved” - we gathered paper feedback forms from 99 workshop participants.



Be more discipline specific, because some data do not apply to certain fields.

More focus on specifics, although that might be better conveyed in separate sessions.

*More focused on specific areas.
Maybe.*



Progression of the RDM 101 Program - V2

In the Fall 2018 we partnered with subject specialists to revise our curriculum and co-teach a new workshop series.

Humanities:

Liz Milewicz · Head of Digital Scholarship Services

Lee Sorensen · Librarian for Visual Studies and Dance

Social Sciences:

Lorrie Schmid · Research Data Infrastructure Manager, Social Science Research Institute

Sciences:

Ciara Healy · Librarian for Psychology and Neuroscience, Mathematics, and Physics

Elena Feinstein · Head Natural Sciences and Engineering Section and Librarian for Biological Sciences

Progression of the RDM 101 Program - V2

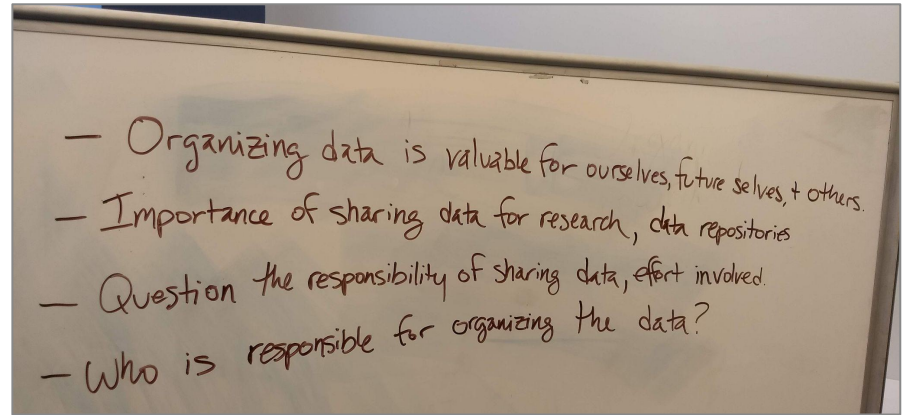
We used the following guiding questions to revise our existing curriculum:

- How does this disciplinary community conceptualize “data” and what are some representative examples?
- What types of documentation and metadata standards are common in these fields?
- What are the expectations from stakeholders including funders and journals?
- What disciplinary repositories are available to this community?
- Where can we integrate additional active learning exercises?

Progression of the RDM 101 Program - V2

In our rebooted RDM 101 for disciplinary groups, we included high level concepts with disciplinary examples and active learning discussions.

Concepts Covered
Importance and Planning (Rationale, DMPs)
Active Management (Storage, Organization, Documentation)
Sharing and Preservation (Formats, Repositories)



Progression of the RDM 101 Program - V3

Then we iterated again and added tools relevant to specific disciplines to the workshops...



Pedagogical strategies

In every class, I commit to pro-sociality as a means to enhance learning.

- Humor
- Narrative
- Active/peer-to-peer learning
- Use of mixed modalities
- Context re: information organization and access (libraries are not neutral.)
 - Ethical considerations of research and scholarly publication

Pedagogical strategies

I also teach a stand-alone RCR courses covering scientific and social scientific retractions; And I teach regular bibliographic instruction sessions for psychology, neuroscience, mathematics and physics courses.


Bonus content: I follow up online with “takeaways” for students by creating and sending screencasts.

Impact and Engagement

Why graduate students are the right population for RCR courses:

- Teach them early and often about sound research (a.k.a. No one *plans* to cook data.)
- RCR skills make graduate students more hireable, flexible
- Scientific misconduct costs universities millions... that could go to funding research
- “This is how it is now.” Carry these skills and concepts into the future, when running labs, applying for grants, doing research, teaching, mentoring, going to conferences, publishing, participating in scientific and social scientific inquiry

We help shape the research landscape needed now and in the future!



Thanks!
Questions?

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