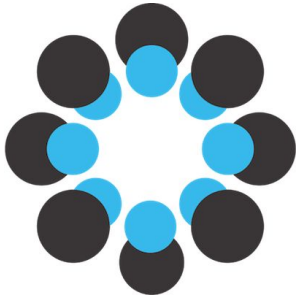

Reproducible Research with the Open Science Framework

DataFest 2020

Ceilyn Boyd & Julie Goldman

cos.io | osf.io

Workshop Objectives

- Describe benefits of open and reproducible research
- Understand how OSF supports sharing data and materials
- Create a collaborative project on the OSF & customize it
  - Explore project management features
  - Connect applications across multiple environments
  - Identify options for online publishing of projects and data

Agenda

1. OSF Overview (10 minutes)
    - Background
    - Use Cases
2. OSF Project Example (5 minutes)
    - 10 Key Features Checklist
3. Hands-on Activity (30 minutes)
    - Utilize Example Project & 10 Key Feature Checklist
4. Wrap up (10 minutes)
    - Activity Report Out
    - Q&A

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OSF Overview Background

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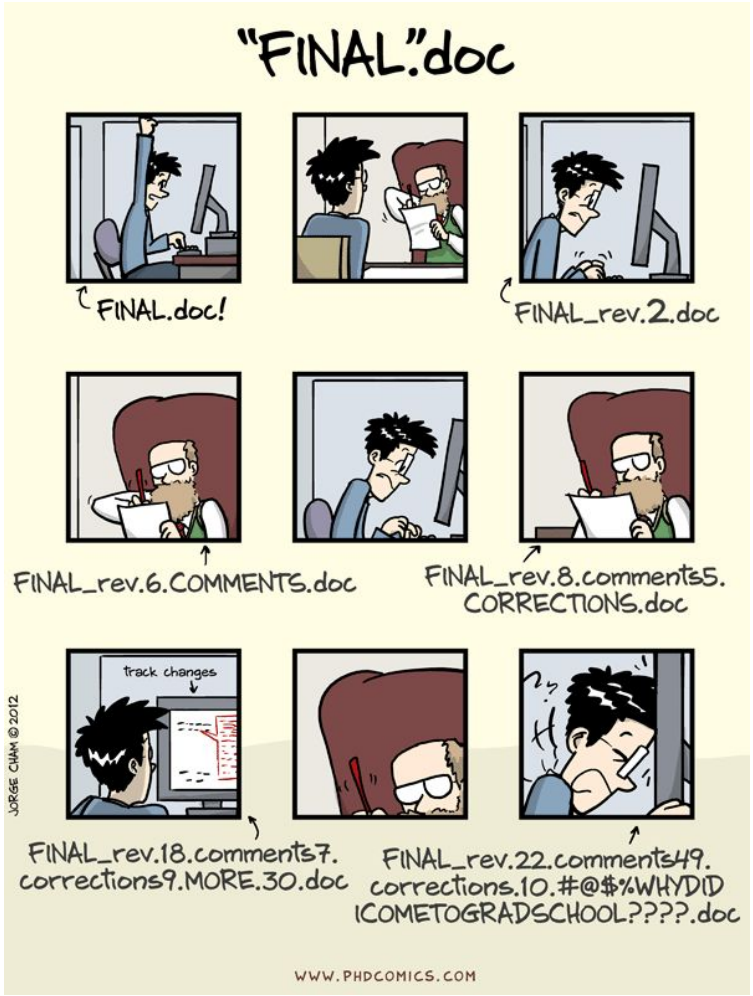
“You can't have any sort of reproducibility without good data and project management”

— Vicky Steeves, New York University
Librarian for Research Data Management and Reproducibility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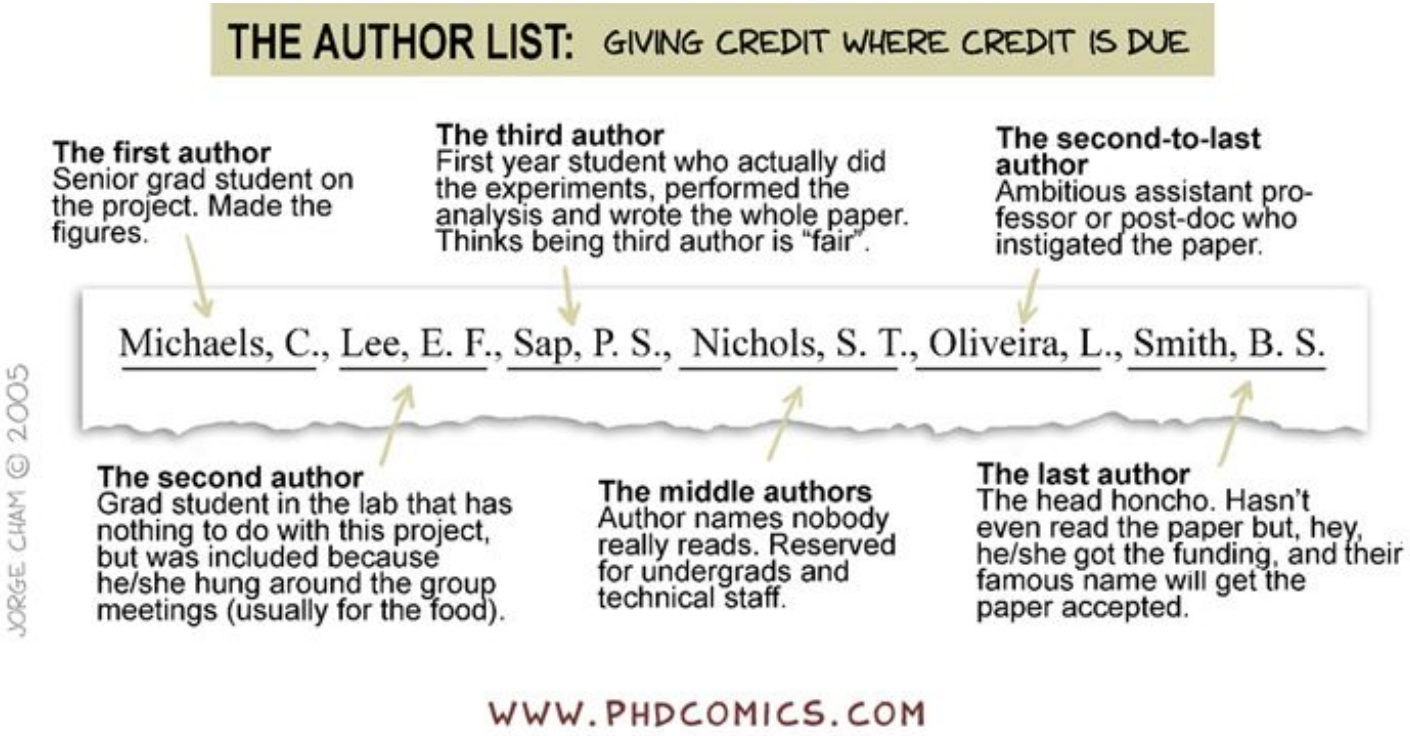
THE AUTHOR LIST: GIVING CREDIT WHERE CREDIT IS DUE
The first author
Senior grad student on the project. Made the figures.
The third author
First year student who actually did the experiments, performed the analysis and wrote the whole paper. Thinks being third author is "fair".
The second-to-last author
Ambitious assistant professor or post-doc who instigated the paper.
Michaels, C., Lee, E. F., Sap, P. S., Nichols, S. T., Oliveira, L., Smith, B. S.
The second author
Grad student in the lab that has nothing to do with this project, but was included because he/she hung around the group meetings (usually for the food).
The middle authors
Author names nobody really reads. Reserved for undergrads and technical staff.
The last author
The head honcho. Hasn't even read the paper but, hey, he/she got the funding, and their famous name will get the paper accepted.
JORGE CHAM © 2005
WWW.PHDCOMICS.COM

OSF

Free, **open-source** web app that **manages** research projects at all stages of the **research lifecycle** and connects the **tools researchers use**

Planning Execution Reporting Archiving Discovery

How OSF supports your research

Search and Discover

Find papers, data, and materials to inspire your next research project. Search public projects to build on the work of others and find new collaborators.

Design Your Study

Start a project and add collaborators, giving them access to protocols and other research materials. Built-in version control tracks the evolution of your study.

Collect and Analyze Data

Store data, code, and other materials in OSF Storage, or connect your Dropbox or other third-party account. Every file gets a unique, persistent URL for citing and sharing.

Publish Your Reports

Share papers in OSF Preprints or a community-based preprint provider, so others can find and cite your work. Track impact with metrics like downloads and view counts.


How OSF supports your research
Search and Discover
Find papers, data, and materia
to inspire your next research
project. Search public projects
build on the work of others and
find new collaborators.
research materials. Built-in
version control tracks the
evolution of your study.
third-party account. Every file
gets a unique, persistent URL for
citing and sharing.
Publish Your Reports
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a community-based preprint
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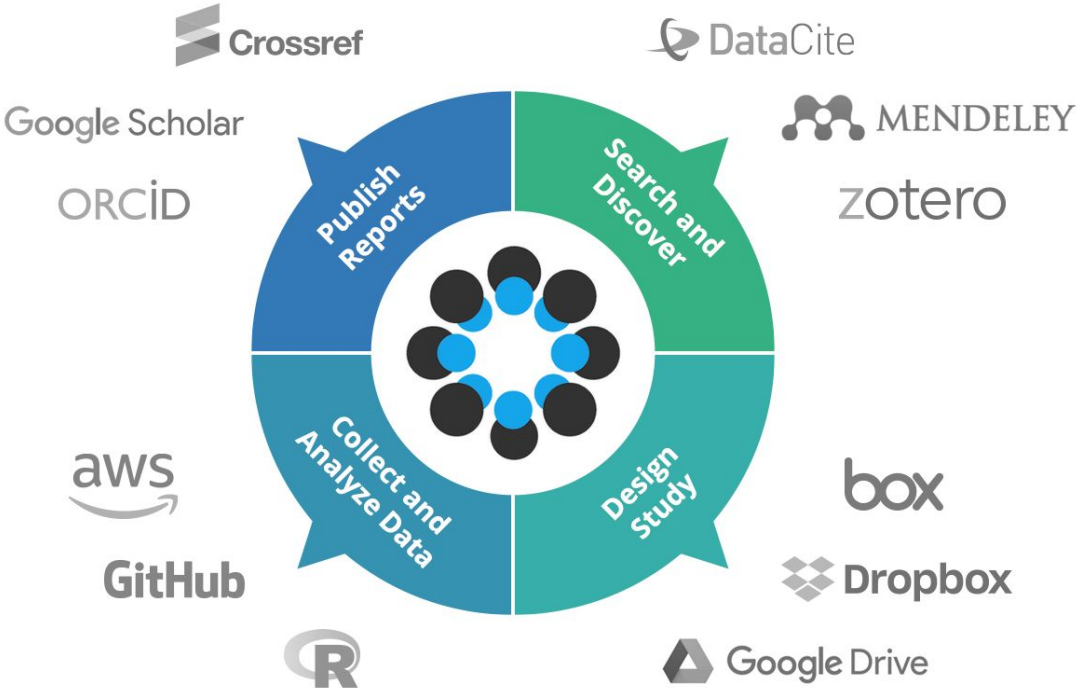
cite your work. Track impact with
metrics like downloads and view
counts.
It's not just for SCIENCE!!

Tools Throughout the Lifecycle



OSF Overview
Use Cases

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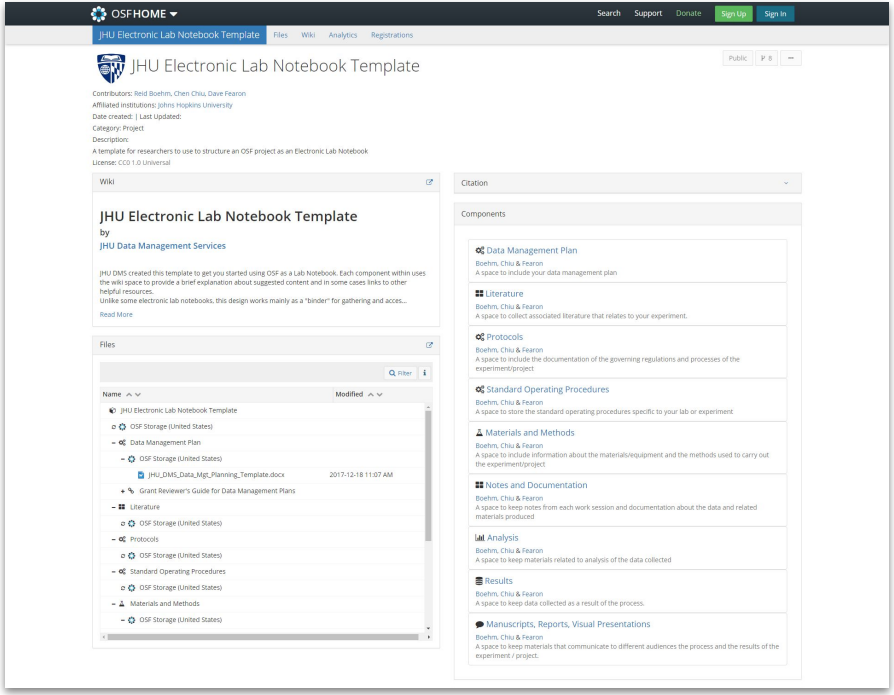
Electronic Lab Notebook

OSF supports fundamental features of an ELN:

- record daily activity
- store images or arbitrary data files
- invite collaborators
- view old versions of files
- connect to more complex structures that support the full work of a lab across multiple projects and experiments



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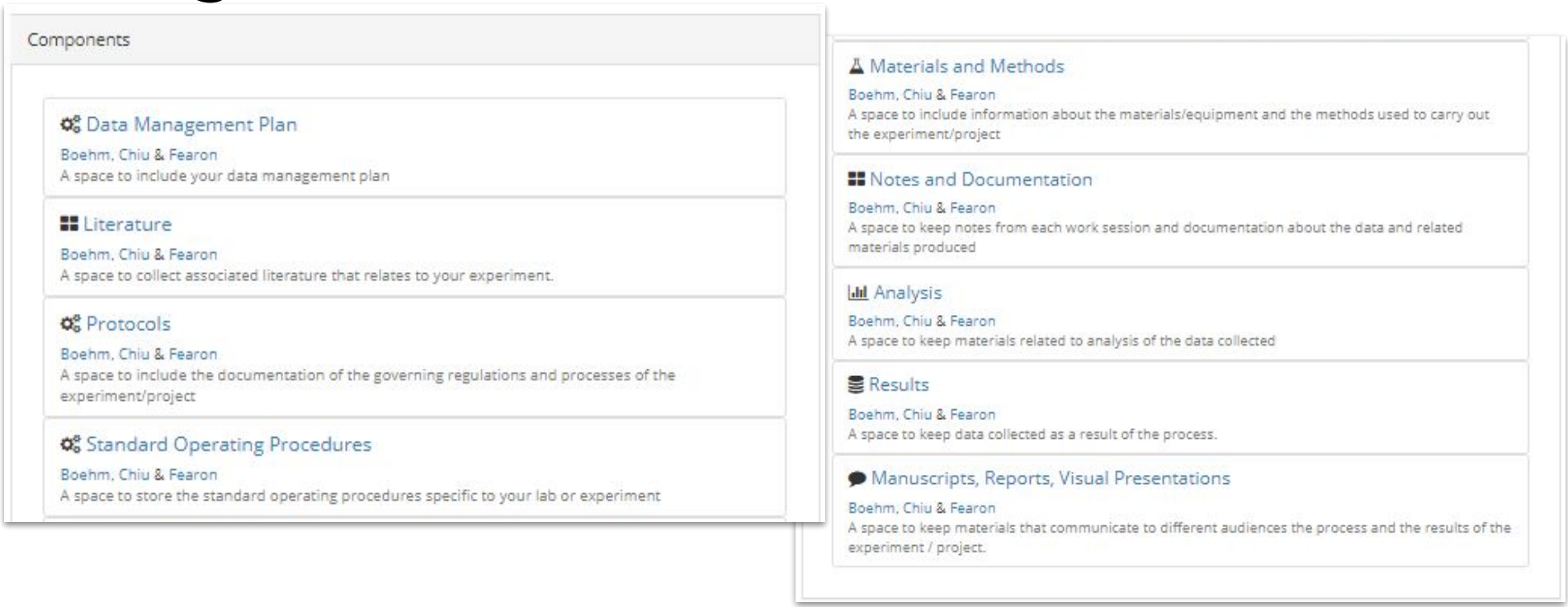
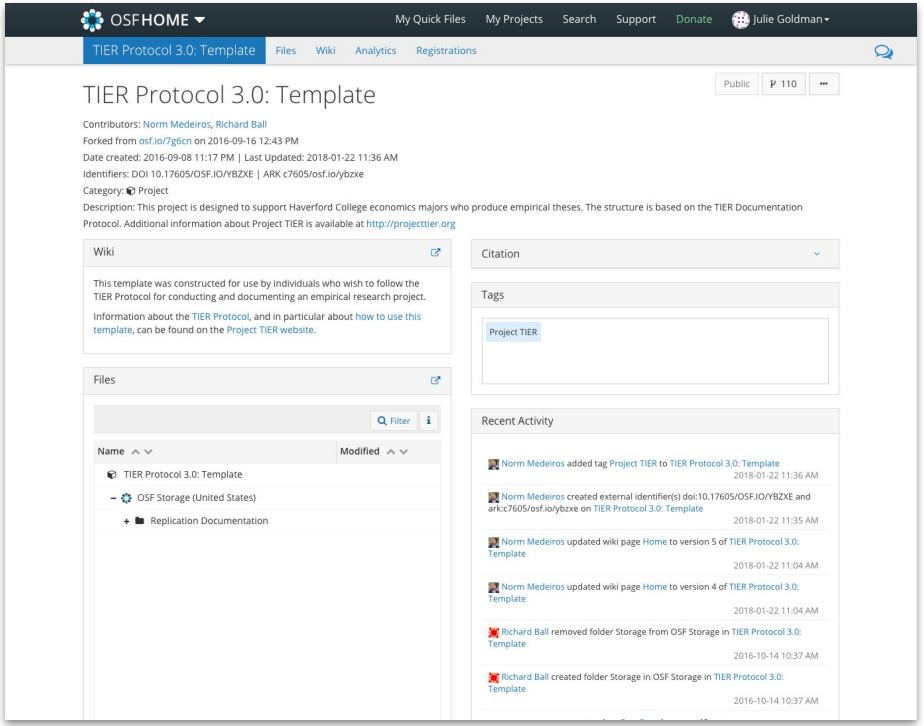
Feature: Robust component organization

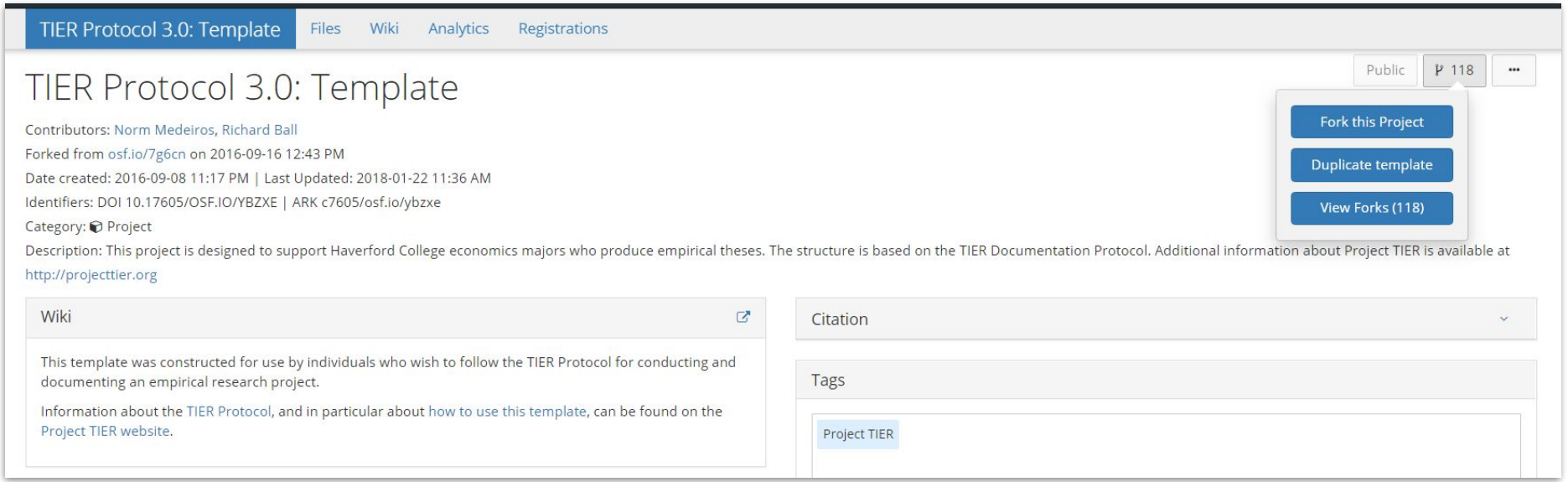


Provide Teaching Templates

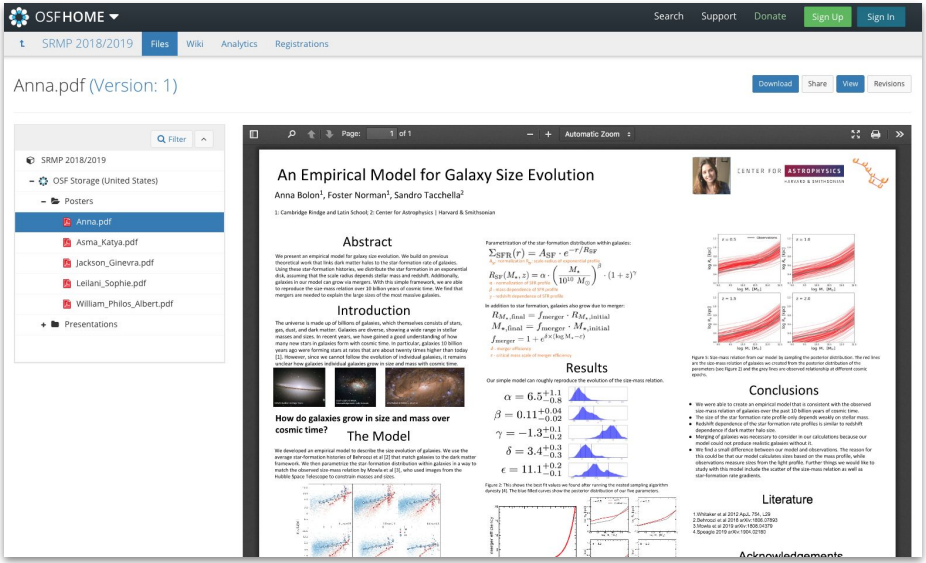
- Project TIER: Teaching Integrity in Empirical Research
- Created a clonable template on OSF that students can use to create a new hierarchy of folders that matches the TIER Protocol Specifications
- Students can modify the structure of the folders in any way they see fit



Feature: Forking a template for standardize use



Share Program Outputs



- Science Research Mentoring Program
- Center for Astrophysics, Harvard & Smithsonian (CfA) and Massachusetts Institute of Technology (MIT)
- High-school juniors and seniors work on a year-long independent research project
- Students learn what it is actually like to conduct real, cutting-edge research
- Students talks and posters are archived and shared via the OSF

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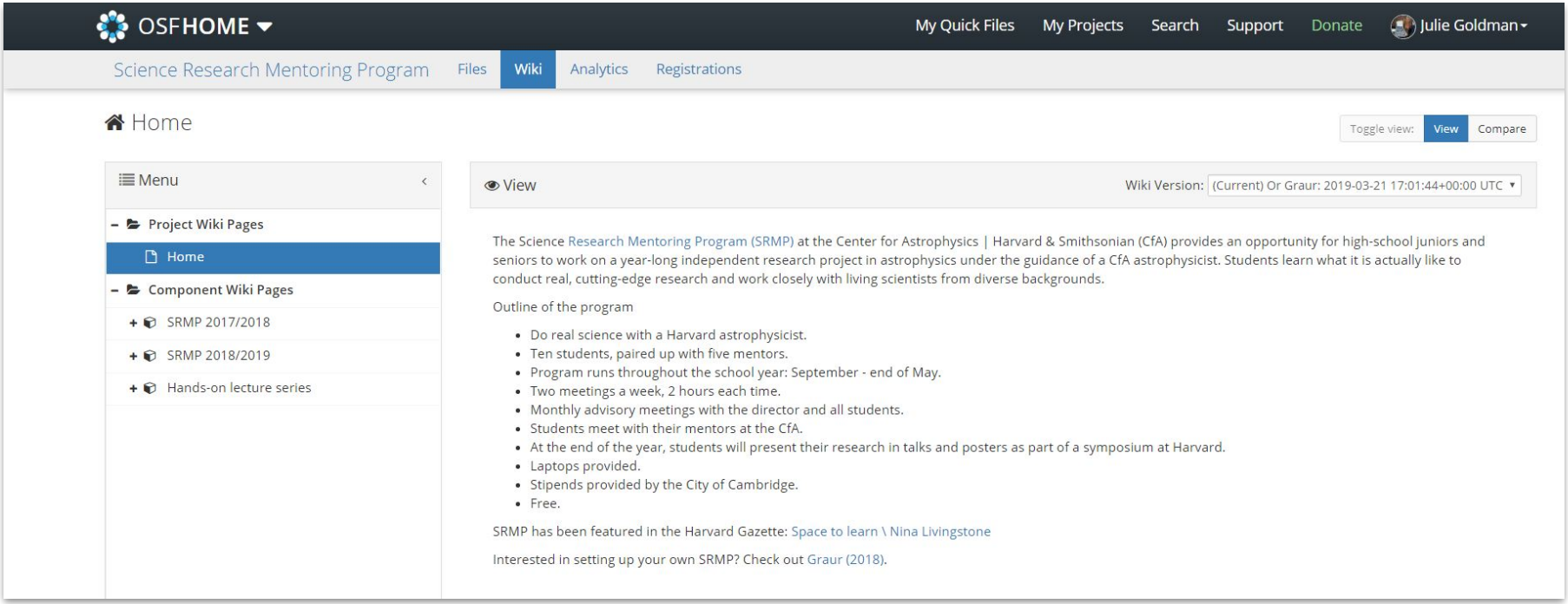
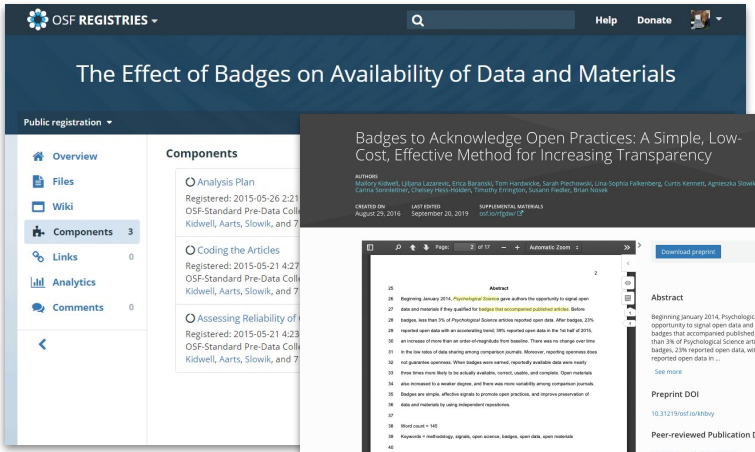
Feature: Provide descriptive documentation and information



Preprint Service

- Share your research quickly, receive feedback from the community, and gain a wider audience for your work
- OSF Preprints receive a DOI and persistent URL to allow your preprint to be cited
- Option to add supplemental files, data or analysis scripts

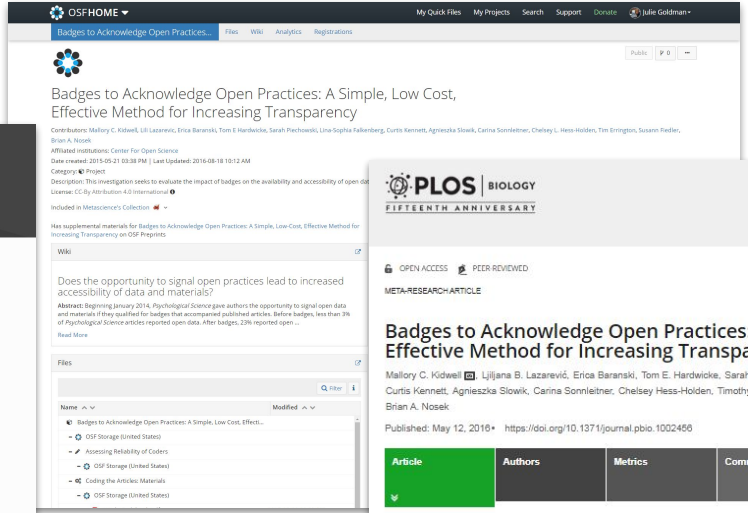
Feature: Preprint ties all the research outputs together



Registry

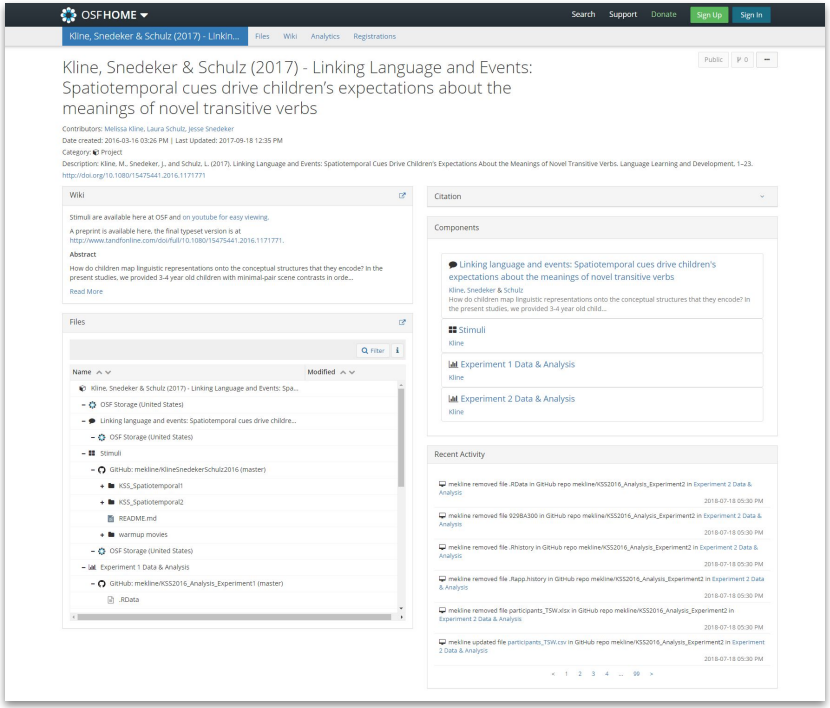
Preprint

Project data and materials



Peer-reviewed Publication

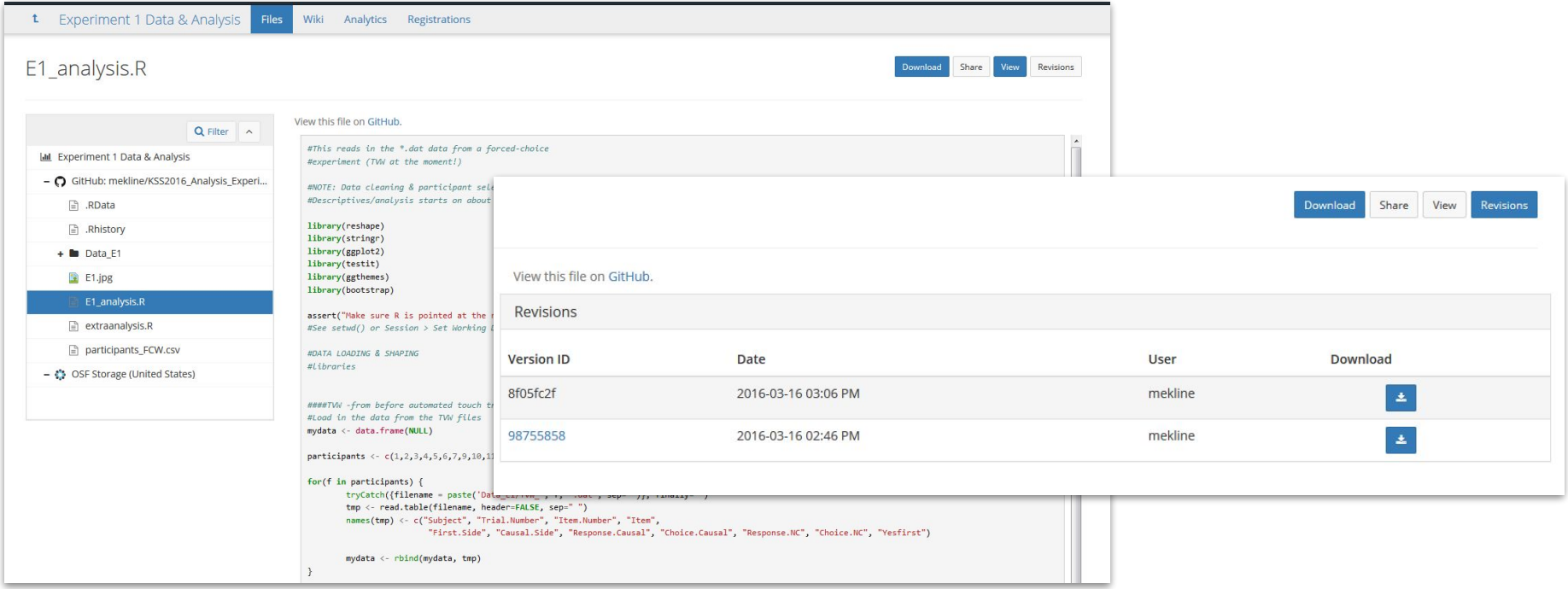
Host Article Supplemental Materials



Results and analyses for experiments reported on in the article are available on the Open Science Framework at http://osf.io/u6s79/

Melissa Kline, Jesse Snedeker & Laura Schulz (2017) "Linking Language and Events: Spatiotemporal Cues Drive Children's Expectations About the Meanings of Novel Transitive Verbs." *Language Learning and Development* 13(1): 1-23. http://dx.doi.org/10.1080/15475441.2016.1171771

Feature: Link to GitHub files; view & edit right in OSF; track versions



OSF Project Example Example

Project Management Template

https://osf.io/meyva

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OSF Project Example
10 Key Features Checklist

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OSF Key Features Checklist

1. Use components to build your project into a structured workspace
2. Incorporate documentation utilizing the Wiki (hint: add a new wiki page)
3. Add contributors to your project or individual components
4. Configure access permissions for the research team (hint: get granular!)
5. Connect storage add-on (e.g. Google Drive, Dropbox) (hint: share a folder)
6. Upload and document any type of file
7. Implement version control of a file (hint: use the same file name)
8. Edit a plain text file (e.g. R script) directly through OSF (hint: this is also version control!)
9. Add tags to your project or components to enhance discoverability
10. Share your project or components (hint: make it “public” or create a view only link to share anonymously)

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Hands-on Activity
Get Started with OSF

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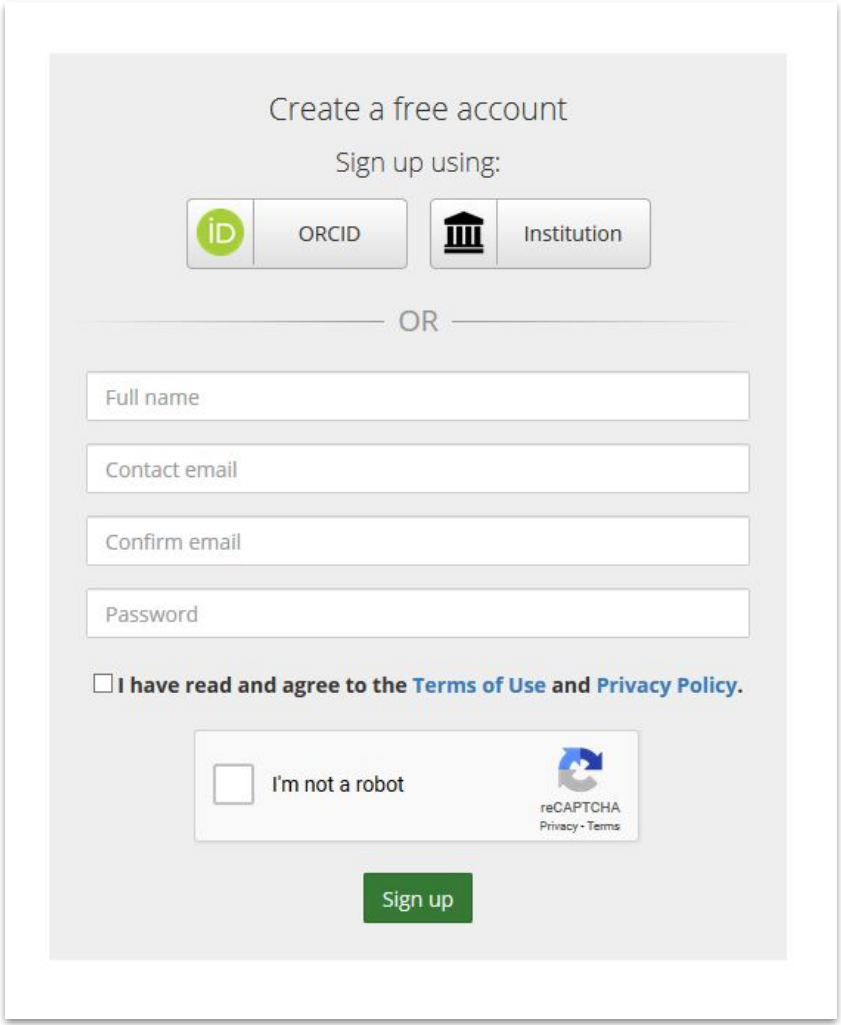
OSF
Browse
Support
Sign Up
Sign In
Open Science Framework
A scholarly commons to connect the entire research cycle
FREE AND OPEN SOURCE. START NOW.

osf.io


Create a free account
Sign up using:
ORCID
Institution
OR
Full name
Contact email
Confirm email
Password
I have read and agree to the Terms of Use and Privacy Policy.
I'm not a robot
reCAPTCHA
Privacy - Terms
Sign up

Hands-on Activity
Create a Project

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Let’s try OSF!

Find Your Research Team

Get into groups of 2-4 people and introduce yourselves

Modify the project template to...

- reflect an Electronic Lab Notebook to support the full work of a lab across multiple projects and experiments
- reflect a collaborative project from a course you have taken
- reflect a collaborative research study that you and co-authors have undertaken
    - Mixed methods study
    - Qualitative study
    - Quantitative study

Hands-on Activity

1. Get into groups of 2 - 4
2. Decide on your collaborative project
3. Create your project site:
    - Fork the example project template & modify, or
    - Create a project from scratch
4. Implement at least 5 of the features on the checklist
5. Report out

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Wrap up
Report Out

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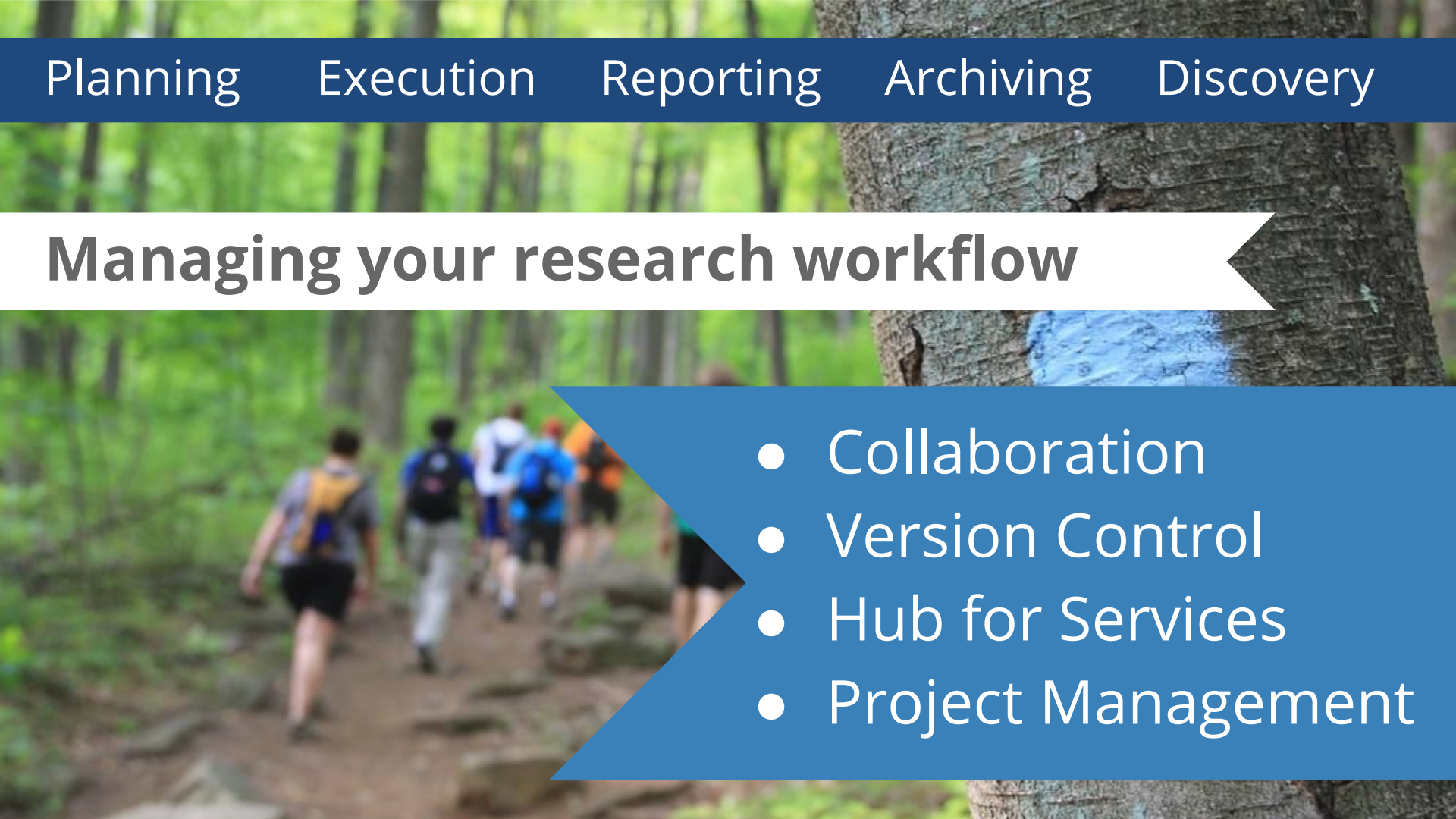
Wrap up
Q&A


Planning
Execution
Reporting
Archiving
Discovery
Managing your research workflow
Collaboration
Version Control
Hub for Services
Project Management

Harvard Library RDM Program

projects.iq.harvard.edu/hlrdm

http://bit.ly/datafest_eval

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