AgBioData Education Working Group Update

We gratefully acknowledge support from NSF, grant #2126334

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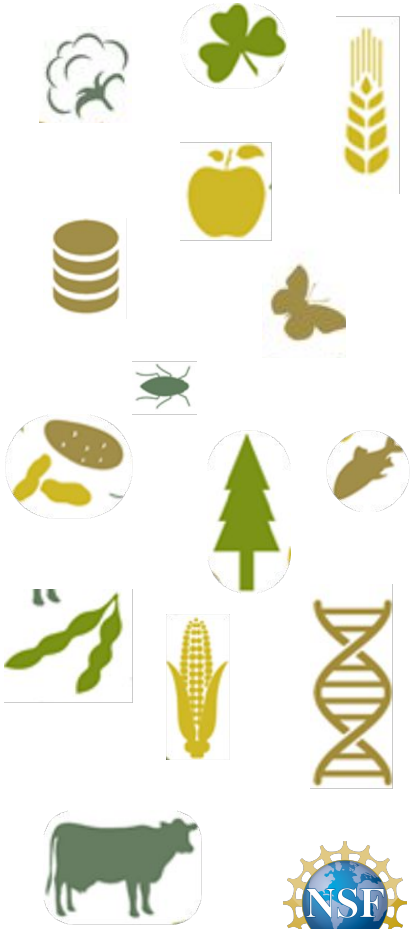
Educational Goals

Create an educational curriculum

- the history, importance, and current best practices for **FAIR data science** in genomics, genetics and breeding (GGB)

- history and structure of **GGB Databases** and how they benefit the entire scientific community via public data deposition/integration.



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Education WG Membership

Annarita Marrano	Phoenix Bioinformatics/AgBioData
Leyla Cabugos	California Polytechnic State University,
Alenka Hafner	Pennsylvania State University
Beant Kapoor	
John McNamara	
Megan O'Donnell	Iowa State University, University Library
Leonore Reiser	Phoenix Bioinformatics
Marcela Karey Tello-Ruiz	Cold Spring Harbor
Huiting Zhang	Washington State University
Meg Staton	University of Tennessee, Knoxville

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Curriculum

1. What is a Biological Data Repository?
2. FAIR and Databases
3. Bio-databases: Types of Data, Finding and Obtaining data
4. Creating and Sharing TRUSTworthy data
5. Submitting data
6. How to use your library resources
7. Databases for agriculture

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Curriculum

- What is a Biological Data Repository?
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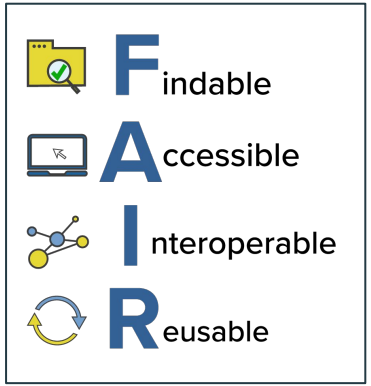
Wilkinson et al. 2016



Lin et al 2020

Transparency
Responsibility
User focus
Sustainability
Technology

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Defining Stakeholders

Database Users

Impacts

- Improve discovery and usage of DBs.
- Increase responsible data management and data reuse.
- Increase research quality and impact.

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Defining Stakeholders

Database Users

Database developers and curators

- Create awareness of available databases.
- Increase FAIR data submissions
- Create an appreciate for the often overlooked work that goes into database curation and development.

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Defining Stakeholders

Database Users

Database developers and curators

Publishers

- Create awareness of available databases.
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- Create an appreciate for the often overlooked work that goes into database curation and development.

- Improve peer review to assess FAIR data
- Increase reliability and public trust in journal publications.

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Defining Stakeholders

Database Users

- Create awareness of available databases.
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Database developers and curators

Publishers

- Improve peer review to assess FAIR data
- Increase reliability and public trust in journal publications.

Science Funders

- Optimize funding by promoting data reuse
- Support large scale discoveries from public data aggregation

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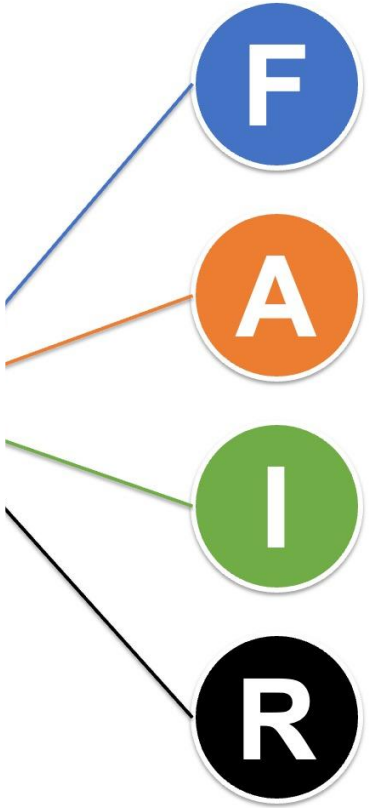
FAIR data relies on databases



FINDABLE

- Public portals for searching and discovery
- Assign and maintain persistent IDs
- Require “rich” metadata

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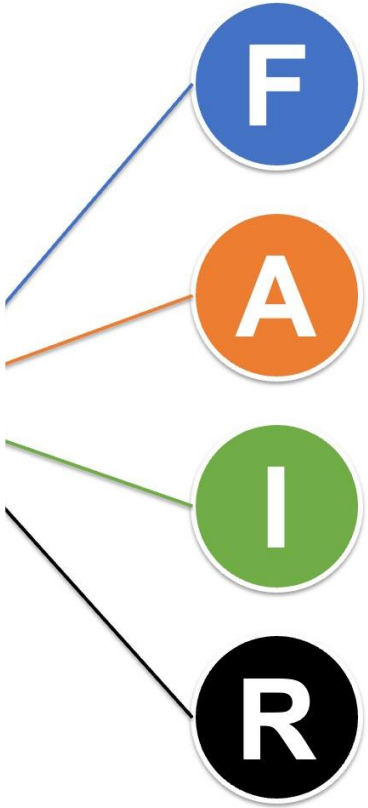

ACCESSIBLE

- Web access
- Programmatic access (APIs)
- Often public and open access

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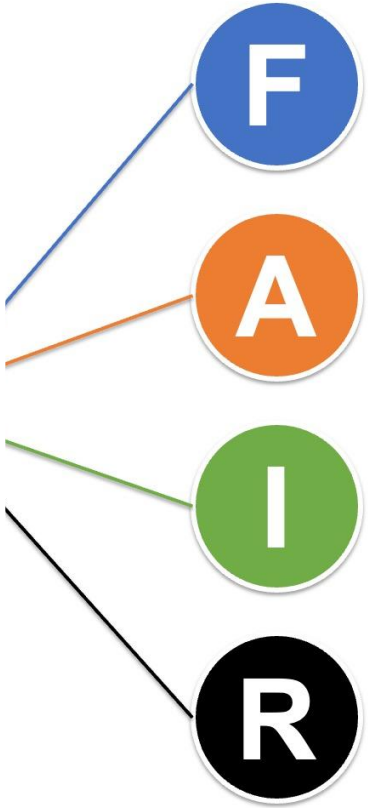
FAIR data relies on databases



INTEROPERABLE

- Enforcement of community standards during submission
- Biocuration actively integrates data
- Ontologies to organize knowledge

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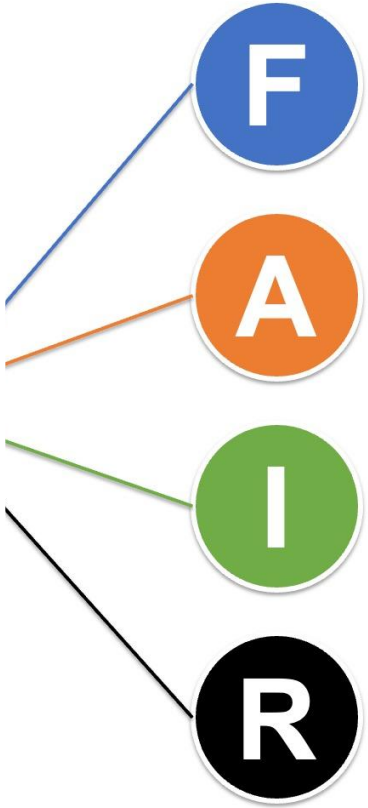
FAIR data relies on databases



REUSABLE

- All of the above!
- Bulk download of data

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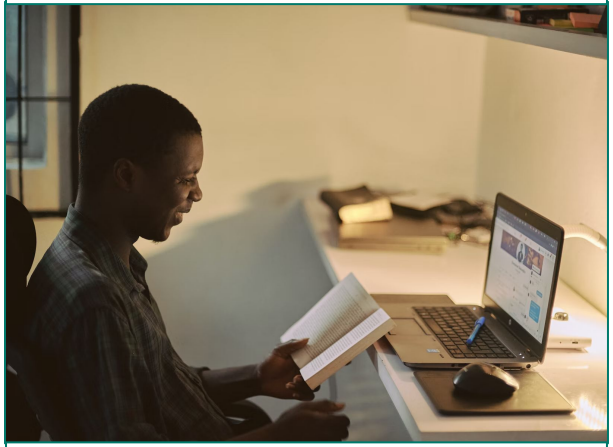
Modalities

In person, interactive

- Slides
- Activity Descriptions
- Discussion Prompts

Self directed, asynchronous



- Videos
- Activity Descriptions
- Reflection Exercises

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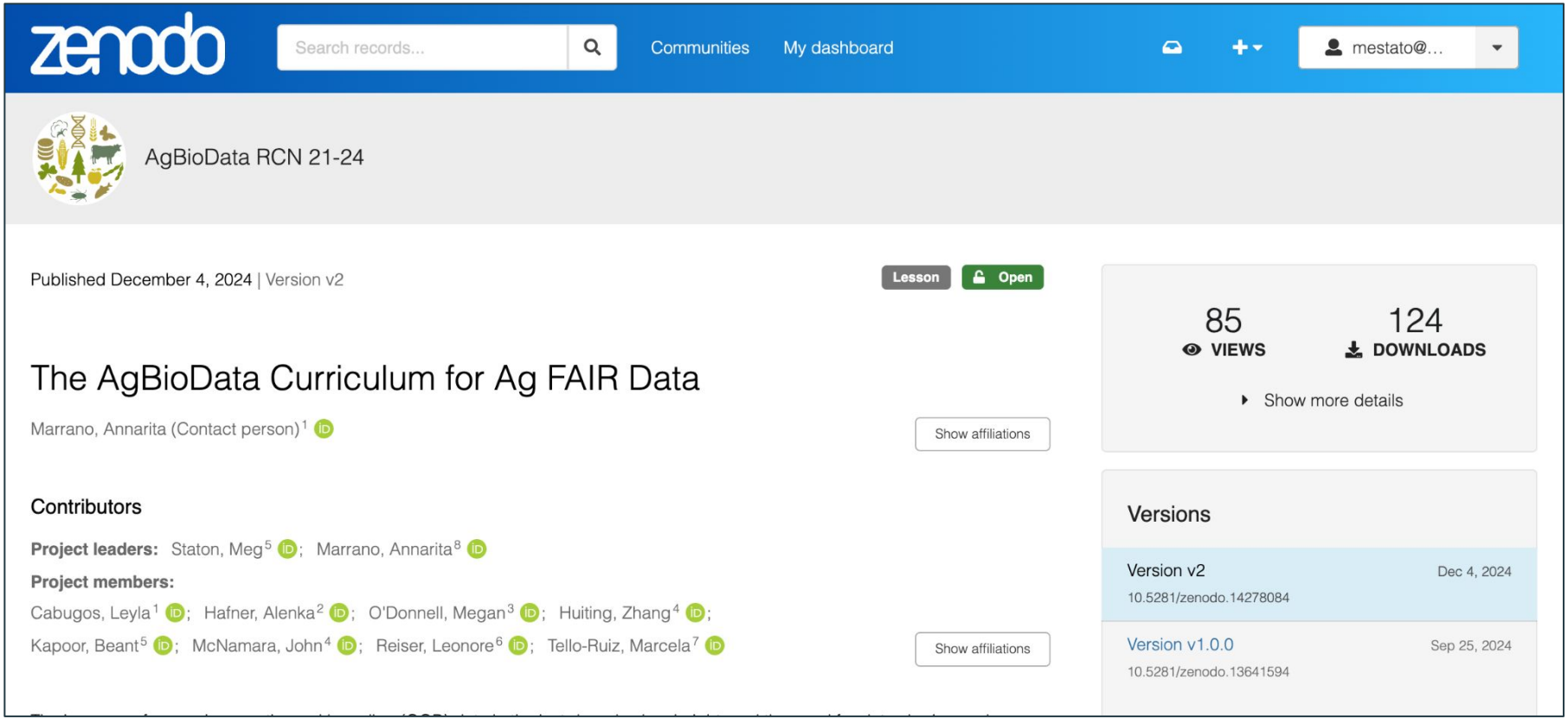
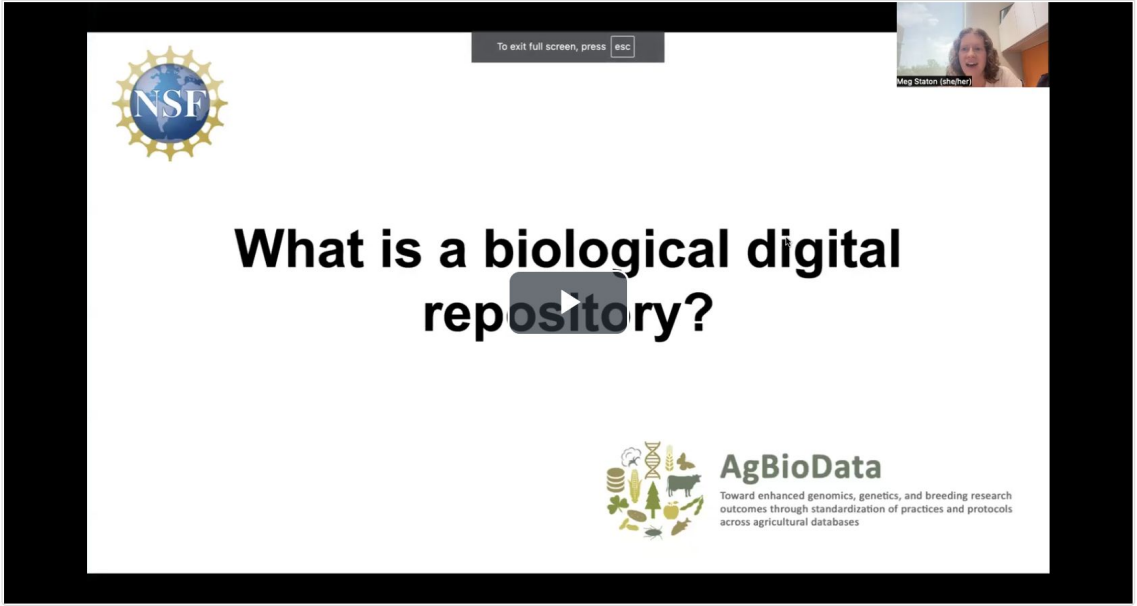

zenodo
Search records...
Communities
My dashboard
mestato@...
AgBioData RCN 21-24
Published December 4, 2024 | Version v2
Lesson
Open
The AgBioData Curriculum for Ag FAIR Data
Marrano, Annarita (Contact person)[1]
Show affiliations
Contributors
Project leaders: Staton, Meg[5]; Marrano, Annarita[8]
Project members:
Cabugos, Leyla[1]; Hafner, Alenka[2]; O'Donnell, Megan[3]; Huiting, Zhang[4];
Kapoor, Beant[5]; McNamara, John[4]; Reiser, Leonore[6]; Tello-Ruiz, Marcela[7]
Show affiliations
85
VIEWS
124
DOWNLOADS
Show more details
Versions
Version v2
Dec 4, 2024
10.5281/zenodo.14278084
Version v1.0.0
Sep 25, 2024
10.5281/zenodo.13641594

AgBioData-1-What-is-a-biological-digital-repository_recording.mp4



Files (2.0 GB)

Name	Size	Download all
AgBioData-0-Overview-of-the-curriculum.pptx md5:40f8a3f10dd0fcb8735b45927a13bc7e	2.9 MB	Download

Community Feedback and Participation

- Additions and edits to the existing lessons
- Future Lesson Additions?
  - Technology of databases
  - Ontologies

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Small grants for teaching and contributing to the curriculum

- Five $600 awards
- Summer workshop at your university
- Workshop with a conference or meeting
- Integration into a full credit hour course

Online application coming soon!
Join our mailing list for updates.

www.agbiodata.org

White Paper:
“A teaching and training framework as essential sources for FAIR data, scientific knowledge, and new knowledge generation”

Submitted and in review at Oxford DATABASE

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Beant Kapoor	Huiting Zhang
John McNamara	

Curriculum:

Get In Touch

PAG 32

Booth #210

https://www.agbiodata.org/ Sign up for our mailing list.

https://www.agbiodata.org/join-slack Join us on Slack.

mstaton1@utk.edu Email me.