

Data Science Academy and Interdisciplinarity

General Faculty Meeting

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Executive Director of the Data Science Academy
Professor of Mathematics
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The NC State Data Science Academy launched July 1, 2021.



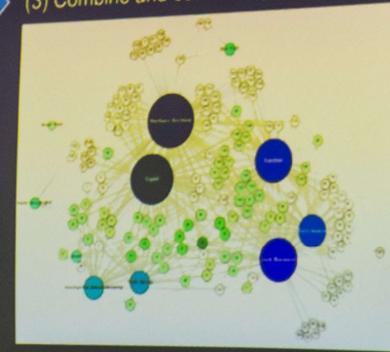
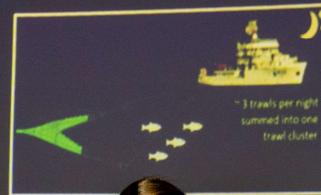
What's an NC State Academy?

At NC State, an academy identifies a **true university-wide effort involving all 10 colleges**. It encompasses multiple departments, centers and institutes and addresses **all three pillars of the university's land-grant mission**: education, research and service to the state of North Carolina.

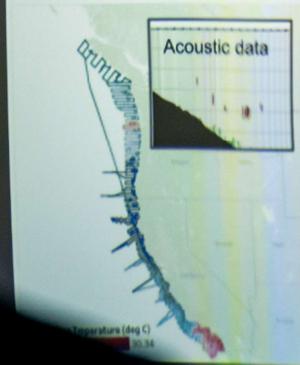
The goal of the DSA is to operationalize the idea that

Understanding the NOAA Acoustic Trawl Survey Methodology

(1) Collect acoustic data → (2) Trawl for coastal pelagic species → (3) Combine and estimate species biomass



Acoustic Intervals Sea Surface Temperature

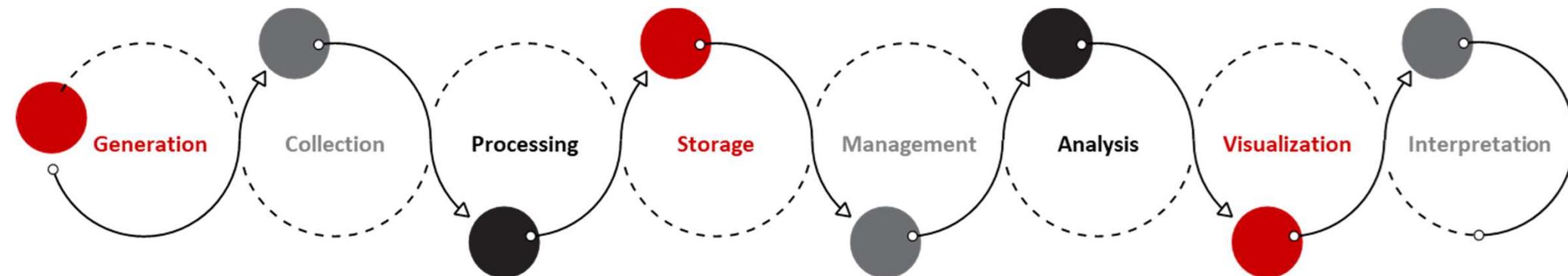


Common Name
Pacific Herring
Northern Anchovy
Pacific Sardine
Pacific mackerel
Jack Mackerel



Data Science is for everyone.

The Academy engages the entire data lifecycle.



We can collect, store, and analyze increasingly large and heterogeneous data sets. This has led to fundamental changes in the kind of questions we can ask and the ways that we can answer them. **Interdisciplinarity is often key to insights.**

Note “visualization” may include sonification, physicalization, visceralization... 4

DSA STRATEGIC FOCUS AREAS

EACH AREA HAS
INTERDISCIPLINARY
AND MULTI-
DISCIPLINARY
OPPORTUNITIES.





Research
enable-
ment

Look for new request for proposals soon!

2021-22 DSA- ORI Interdisciplinary Data Science Seed Grant Workshops

- **Promoting Youth Critical Data Literacy Through Computing and Community Storytelling With Data.** Pls: Shiyang Jiang (TELS), Bitu Akram (CSC).
- **Machine Learning-based Mathematical Representation of Model Uncertainty for Bayesian Inverse Uncertainty Quantification.** Pls: Xu Wu (Nuclear Engineering), Ralph Smith (Mathematics).
- **Think and Do: A Workshop to Advance Open Climate Data Science in North Carolina.** Pls: Kathie Dello (State Climate Office), Jessica Matthews (NCICS) with collaborators Carl Schreck (NCICS), Bjorn Brooks (NCICS), Sheila Saia (BAE), Yuhang Rao (NCICS) and Micah Vandegrift (Libraries).

DSA research ideation consults available soon.

Research
enable-
ment

DSA provides consulting services in collaboration with the NC State Libraries.



ORI Fellow and DSA
Director of Data Analytics Consulting
Dr. Emily Griffith, Statistics



graduate research assistant (GRA)
consultants often work in interdisciplinary pairs



Data Science Academy courses are developed within a three-level framework.



All-campus **D**ata Science **A**ccessible **P**roject-Based **T**eaching and Learning (ADAPT)



Project-
based
courses

What makes a data science course interdisciplinary?

Possible interdisciplinary elements:

- Assignments integrate data + contextual & disciplinary knowledge + data science process
- Learners from programs across NC State may bring disciplinary perspectives (requires intention and facilitation)
- Some courses team taught (e.g. with CHASS + COS pair)
- Project-based learning can lend to multiple ways of investigating and communicating

The NC State Data Science Academy will build partnerships to catalyze workforce development and interdisciplinary innovation across NC State, North Carolina and beyond.

Let's talk!

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