

AIM-UP! Advancing Integration of Museums into Undergraduate Evolution Programs

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<http://aimup.unm.edu/>

US National Science Foundation Sponsored Research Coordination Network in Undergraduate Biology Education



Photo: Christopher Witt

As archival observatories, museums provide extensive biodiversity sampling for evolutionary investigations and a window on historic conditions by establishing the baselines necessary to assess change and predict future impacts. To maximize their contribution we need to train the next generation of scientists and educators to creatively explore, utilize, and integrate these vast resources into science and education initiatives.

Advancing Integration of Museums into Undergraduate Programs

We are an NSF-funded research coordination network (RCN) that aims to increase the integration of natural history collections into undergraduate biology education.

Our goals are to:

1. Explore ways to train undergraduates in specimen-based research
2. Develop prototype instructional tools that use museum specimens & databases
3. Introduce educators to the instructional power of natural history collections
4. Increase public awareness of the importance of natural history collections

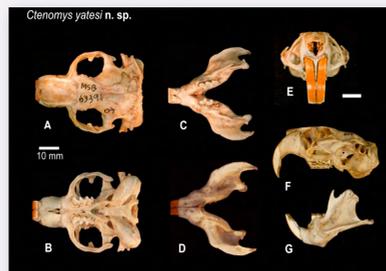


Target Audiences

- Natural history collections (academic and free-standing)
- Educators at institutions with or without collections
- Educators and students in developing countries

Collections-based educational approaches offer important opportunities to integrate:

- Temporal & spatial scales
- Concepts & analytical skills
- Data from diverse taxa & sources
- Traditional and modern biodiversity data
 - morphological
 - genomic



They also offer opportunities to create learning experiences that are:

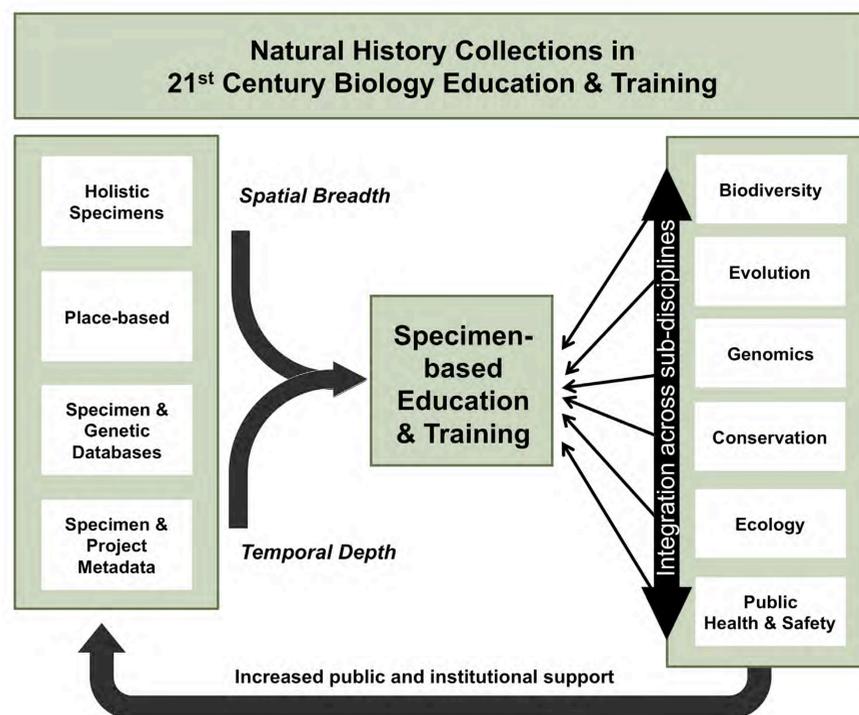
- Inquiry-driven
- Experiential
- Authentic for the scientific process
- Place-based
 - accessible via digitized collections for local biodiversity data
 - available to international students
 - available to small institutions without collections
 - available to rural and indigenous populations



Denver Museum of Nature & Science, ZM.2723

The Challenge

Educators and students are mostly unaware of the educational potential of collections and associated databases. Clearly, a significant **challenge** is to **inform students and instructors** about the potential **role of collections** in **undergraduate teaching** and research at universities



Annual Themes

- Year 1 – Integrative Inventories
- Year 2 – Geographic Variation
- Year 3 – Evolutionary Dynamics of Genomes
- Year 4 – Biotic Response to Climate Change
- Year 5 – Human Dimension of Natural History

Module Development

- Materials and background for integrating collections into undergraduate courses.
- Topics developed for introductory and advanced level courses.
- Modules provide the tools to access and incorporate collections data.



How can you participate?

- First, explore the on-line databases vertnet.org, mol.org, arctos.database.museum, www.gbif.org
- Use a module in your course & give us feedback aimup.unm.edu/for-educators
- Develop a module based on your own specimen-centered research program
- Contribute specimen data to on-line databases
- Share modules and ideas that utilize biodiversity data in undergraduate coursework
- Join the discussion!

