Museum Collections on the Internet and in the Classroom

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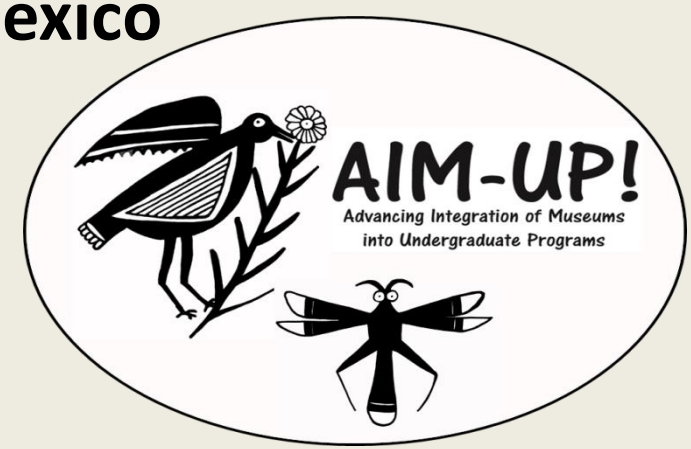
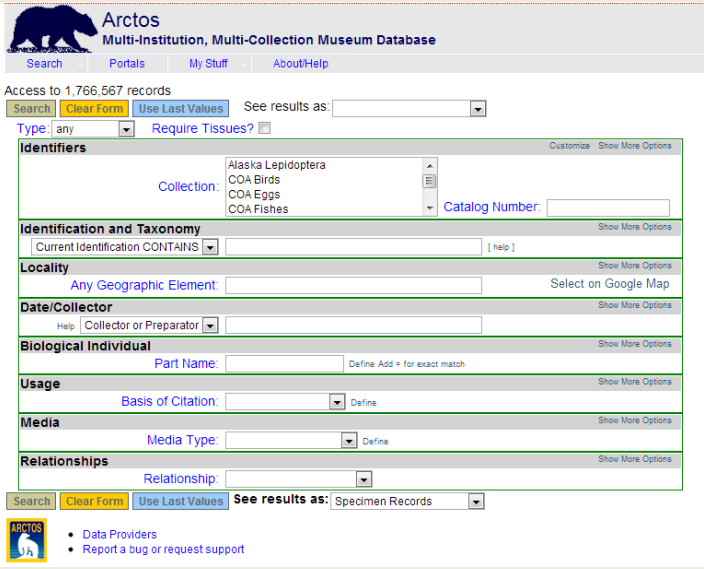
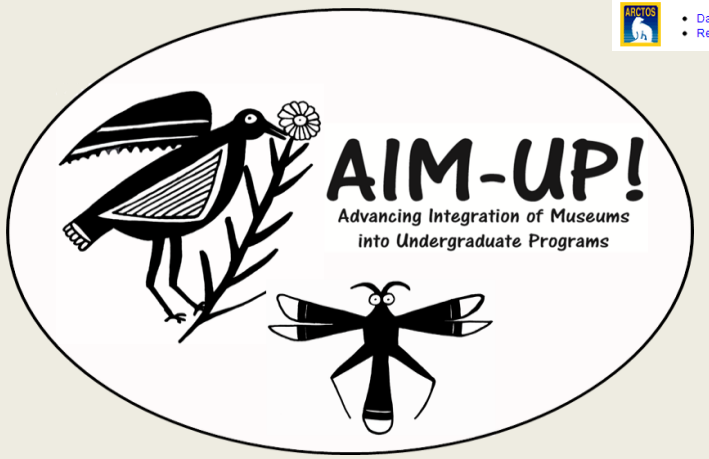


Education, Training, & Research





Natural History Collections

- Scale—time and space
- Integration
  - biotic and abiotic
  - genomic to organismal to ecosystems
- Database
- Scientific Process
  - experiential vs passive

Collections-based approaches and undergraduate education

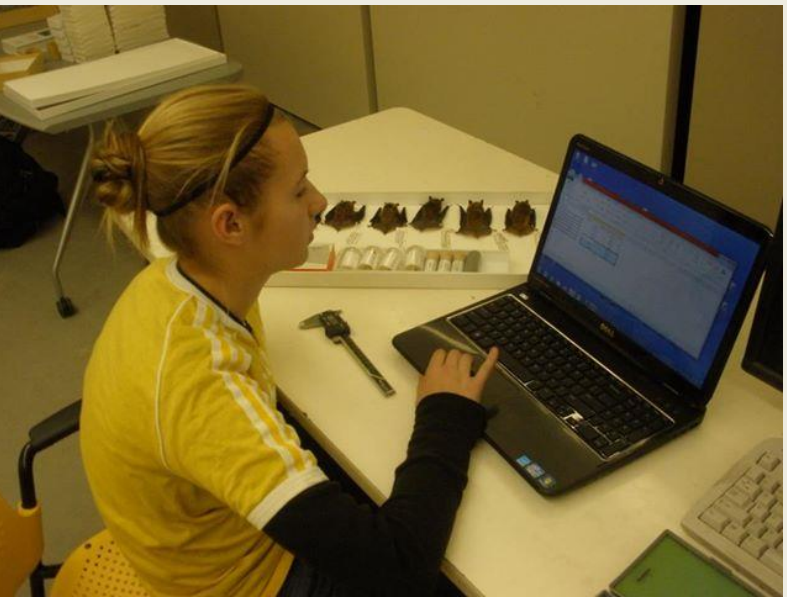
- Complexity-multiple views
- Web-based discovery
- Linking genomic data and physical specimens

Natural History Collections Data

- On-line databases
  - Global Biodiversity Information Facility
  - Taxonomic databases: MaNIS, Ornis, HerpNet, FishNet
  - Museum databases: Arctos (MVZ, UAM, MSB, many others), Field Museum, Smithsonian, American Museum of Natural History

Integrating in the Classroom

- Students can access and use databases
- Address questions of local relevance
- Inquiry-based learning



Challenges

- Few educators (& fewer students) seem to know:
  - about natural history collections
    or their role in development of key concepts
  - how to access museum information
  - how to incorporate specimen data in teaching

A Few More Challenges

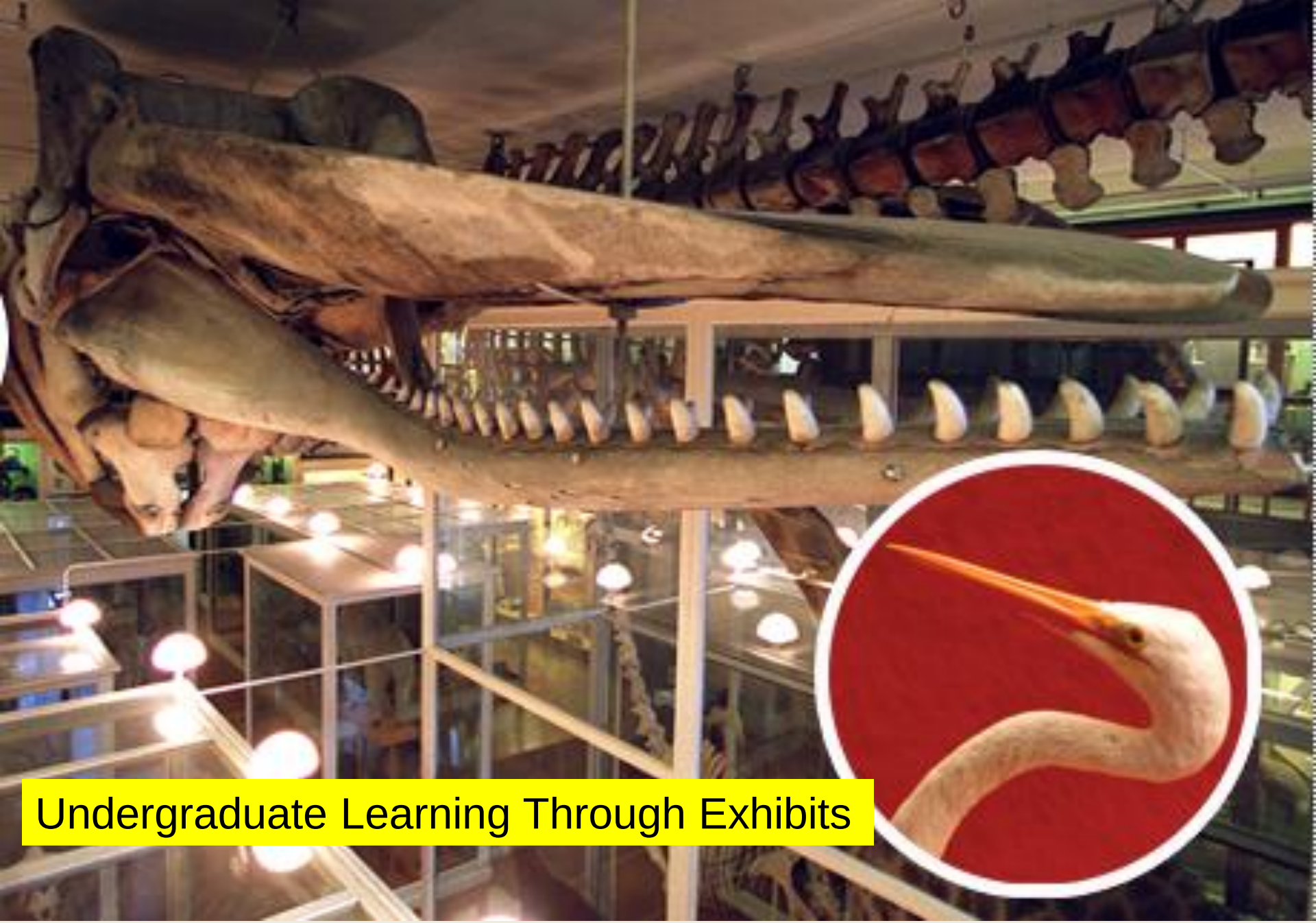
Collections (and databases)
have limitations

Specimen availability
Narrow view of possibilities (systematics)
Collections developed for research
Databases developed for collection management, not education.

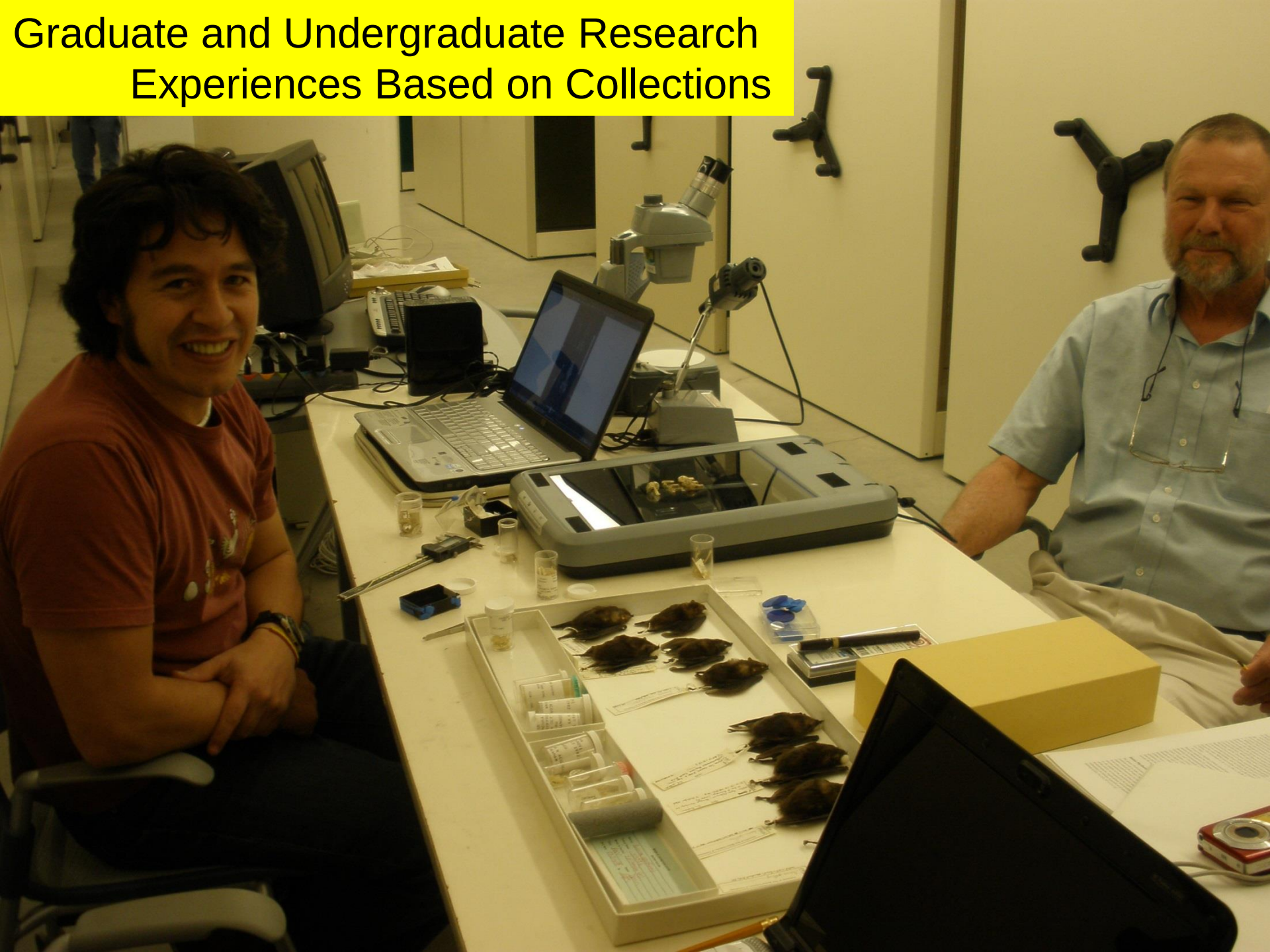
How do we unleash potential for teaching?

Undergraduate Experiences in Curation

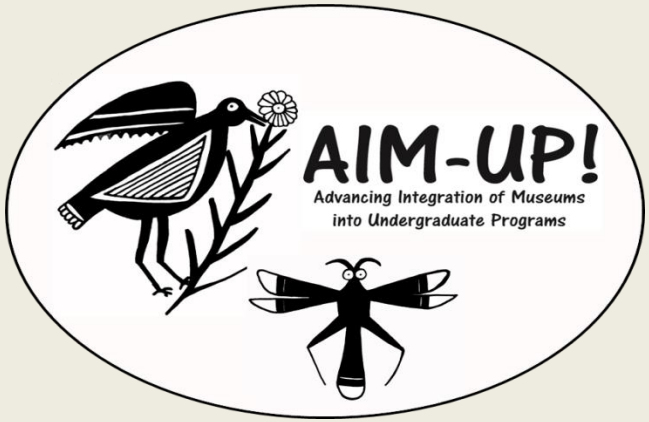
Undergraduate Experiences in Museum Fieldwork


Undergraduate Learning Through Exhibits

Graduate and Undergraduate Research Experiences Based on Collections



Expand traditional museum experiences



- Develop novel ways of using collections and data.

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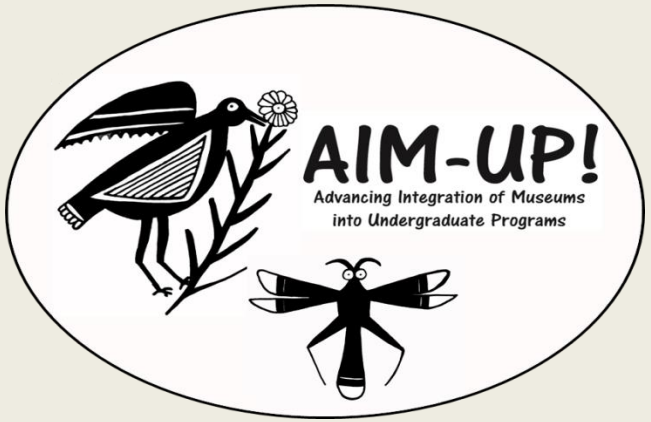
Expand traditional museum experiences



- Develop novel ways of using collections and data.

- Increase accessibility of natural history collections to educators/public through databases.

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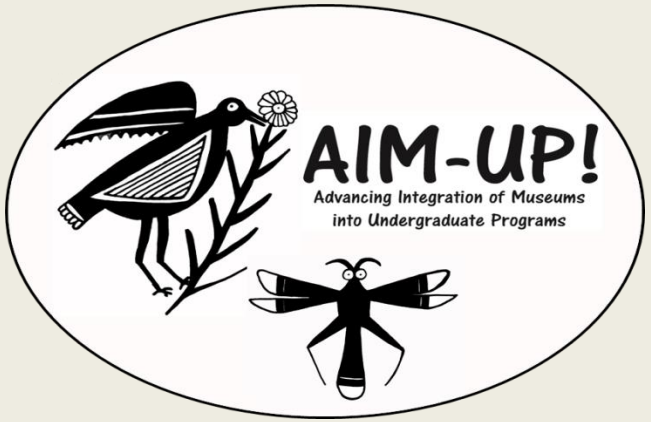
Expand traditional museum experiences



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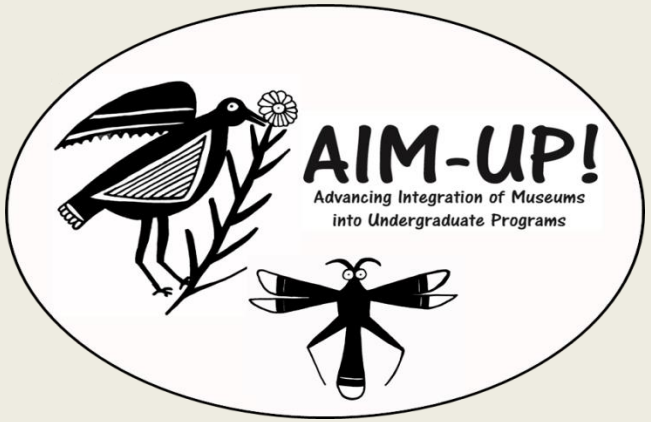

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- Increase accessibility of natural history collections to educators/public through databases.
- Partner with other non-traditional museum users (e.g., Behavior, Geography, Art)
- Implement education modules that use museum collections and data

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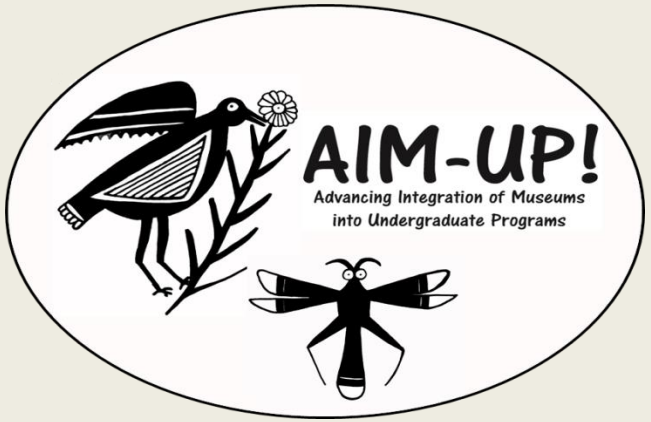
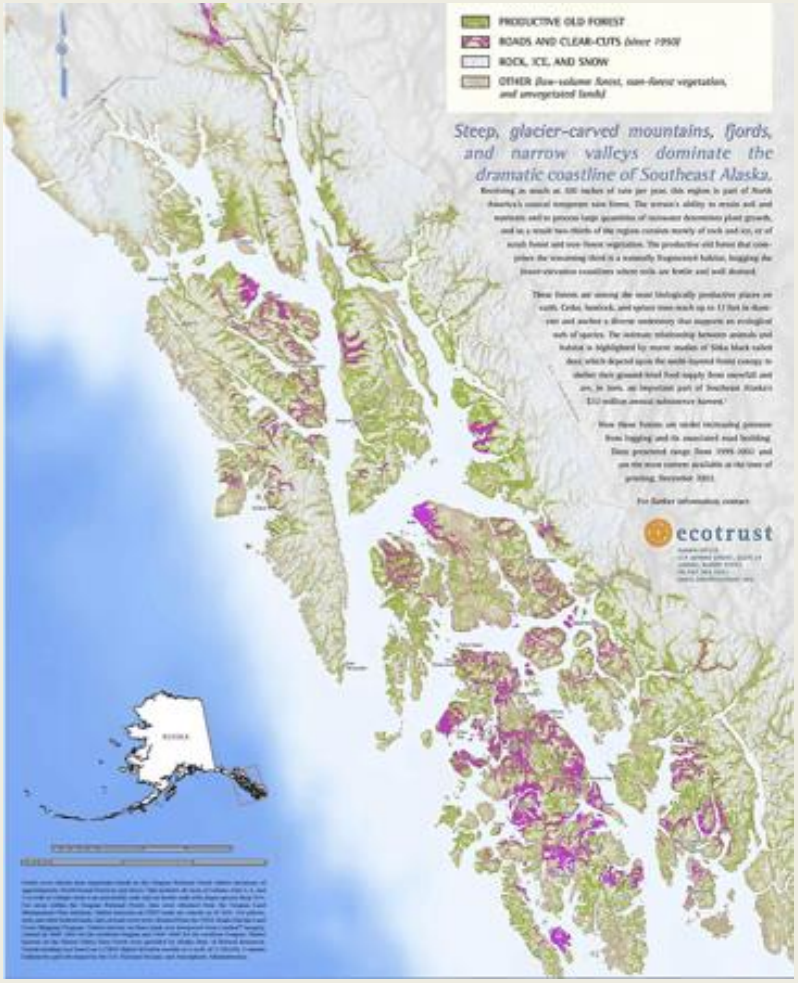
Modules should:



- Provide all background material for instructors
- List key concepts and skill sets
- Be easy to incorporate to already established curricula
- Be easy to modify to better fit an instructor's particular needs.

Educational Modules

Island Biogeography:
Species Richness Across a Northern Archipelago



Key Concepts and Skills:

Evolution & Ecology

- Body size on islands
- Competitive exclusion/release
- Isolation and Divergence
- Island biogeography

Conservation biology
Scientific process & hypothesis testing
Statistical methods
Management & analyses of large-scale databases

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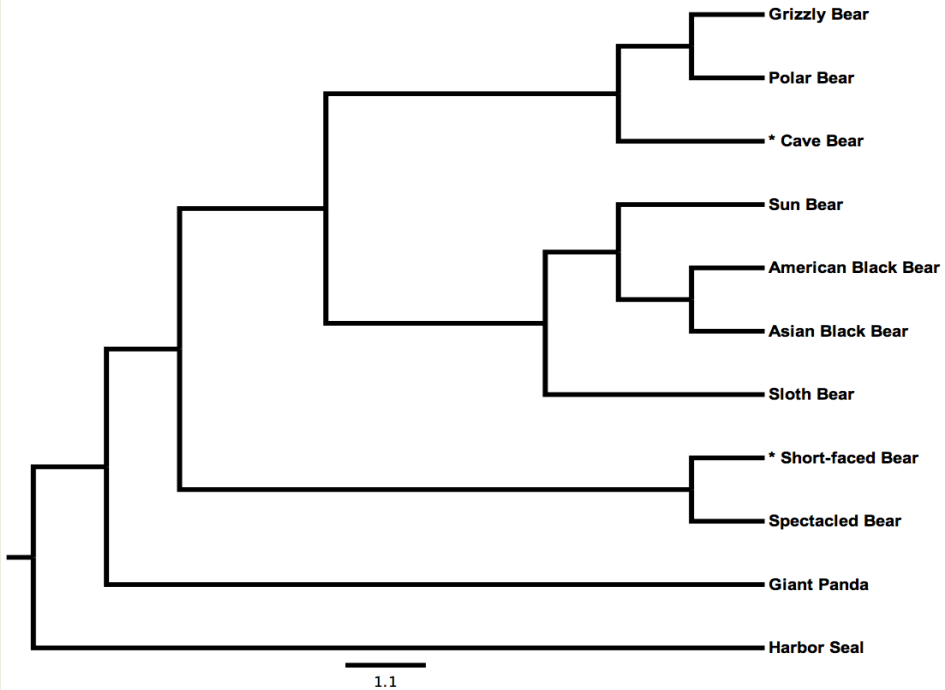
Educational Modules

Reading, Constructing, & Using Phylogenies



Key Concepts and Skills

Learn about scientific process

Gain appreciation for evolutionary connections across the Tree of Life

Interpret a phylogeny

Learn how phylogenetic trees are constructed

Introduce the different ways to study evolutionary relationships

Learn how comparative phylogenetics is used to understand the biology of organisms

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More Educational Modules

Climate change

Adaptable to local flora and fauna

Activities for other disciplines (art, geography, etc.)

Scalable – high school and undergraduate

Develop Spanish-language Modules

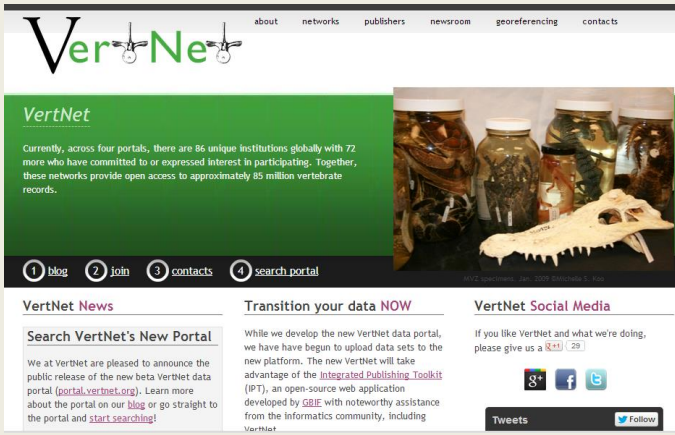
AIM-UP!
Advancing Integration of Museums into Undergraduate Programs

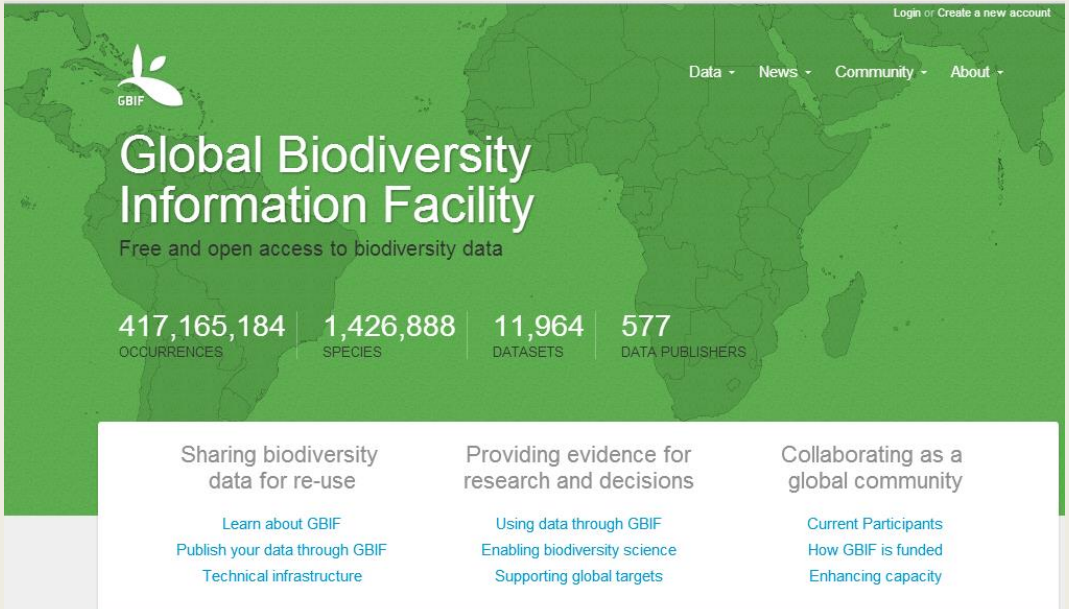
Need suggestions for use, modification, and development of new modules

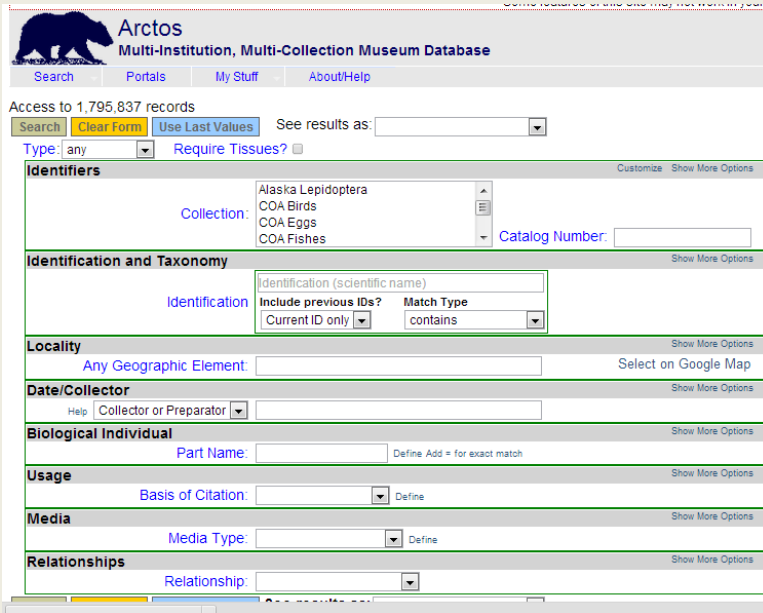
Digital Collections!

Having collections available on-line make these educational opportunities possible.

Emphasize the value of collections to an audience that otherwise may not even know they exist.







Join us!

AIM-UP! is recruiting people to join the network.

The network is looking for people interested in implementing modules and developing new modules.

Contact:
Joe Cook, tucojoe@gmail.com
Kayce Bell, kayce.bell@gmail.com

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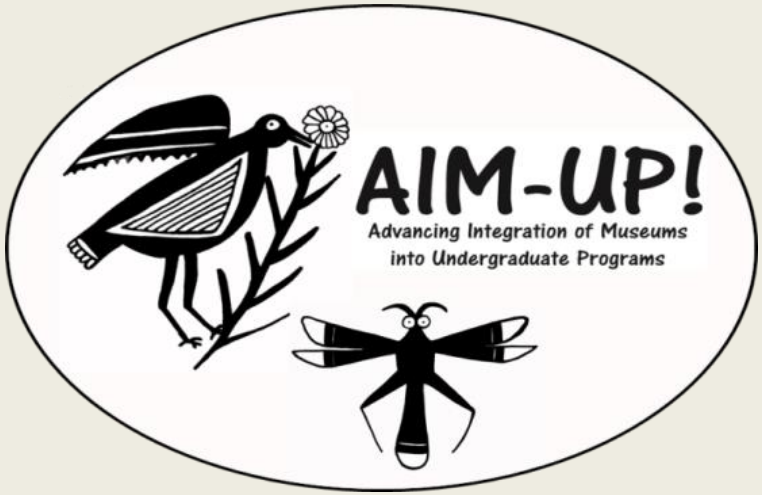

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