Curatorial Methods - Intro to Natural History Museums
ANT 4930 / BOT 4935 / BSC 2930 / ZOO 4926
Spring 2018 (2-credits)

Meeting Details
Time: Thursday 1:55- 3:50pm
Location: Carr 222
Office hours: Immediately before class or by appointment

Instructor Information
Adania Flemming, David Blackburn
(Collection personnel)
Office: Dickinson Room 273
Email: aflemming@ufl.edu / dblackburn@flmnh.ufl.edu

Course description

This course is an exploration of careers in museum-based research. Students will be introduced to alternative career paths from pre-professional fields, through observation of and immersion into the roles of collection personnel. Many undergraduate students begin their Biology careers on a pre-professional track, without knowledge of careers as a naturalist; though naturalist have the ability to inform the medical field through museum research. Additionally, most people are familiar with the public face of natural history museums, but research collections remain in the shadows, even though they can help us understand climate change, the spread of diseases, and the impacts of draining a wetland. Museum collections are like libraries, but instead of containing an abundance of books they contain abundance of specimens. However, similar to the books, museum specimens can provide us with data, which is a vital resource for understanding today’s world and their potential for making connections between the past, present, and future. The research collections housed within natural history museums also provide rich opportunities for science learning.

This course will provide students with a general overview of curatorial procedures, and training within the research collections of the Florida Museum of Natural History (FLMNH). Students will spend three class sessions touring eleven different collections. They will then spend the next seven weeks in a collection of their choice (working with collection personnel to develop and carryout a collection project). The last two classes will consist of student oral or poster presentations highlighting and sharing their experience from their collection of choice.

Learning outcomes

After completion of this course, students will be able to:
- Explain some of the uses of museum collections
- Perform curatorial procedures used in museums
- Compare and explain museum collections (wet vs dry)
- Conduct independent research using museum specimens

Grading

Your course grade will be determined based on completion of the following three assignments.
1) Collection reflections (1 page reflection of what you learnt from each of the collections during the 3 collection visits). Due at the beginning of each class. 24%
2) Presentation (10 minutes) on your collection of choice (15%)
3) Paper on your collection of choice
   - Annotated Bibliography (7%)
   - Proposal for paper (5%)
   - Project Outline (10%)
   - Project Abstract (10%)
   - Project Introduction (10%)
   - Draft of paper (7%)
   - Final paper (12%)

Grading scale
90 – 100% = A;
80 – 89.9% = B;
70 – 79.9% = C;
60 – 69.9% = D;
below 60 = E
Course Prerequisites
There are no required courses. However, this course is designed for students with a background in science.

Course attendance and participation

Attendance and participation in collection explorations and activities is required and essential to achieve the learning outcomes. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Class etiquette

Students must arrive to class on time to be allowed admittance to the research collections. The use of cell phones and laptops is encouraged, for purposes related to the course. However, if students are caught using technology for purposes unrelated to the course, they may be asked to leave the class at the instructors (collection personnel or professor’s) discretion.

Students are expected to treat each other and their instructors with respect. Use encouragement instead of criticism. Non-constructive criticism will not be tolerated.

Textbooks and Other Readings

There are no required textbooks. Various readings will be handed out during the semester or made available by email to help inform students about the collections and collection uses.

Tentative Schedule - Subject to change

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Objective</th>
<th>Discussion/activity- Instructions</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 11th</td>
<td>Introduction to Natural History</td>
<td>Introduce students to FLMNH Research Collections</td>
<td>Discuss class outline, assignments and the use and functions of museums. Field trip through Dickinson Building.</td>
<td>N/A</td>
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<td></td>
<td>Museums</td>
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<tr>
<td>Jan 18th</td>
<td>Collection tours</td>
<td>Students will get introduced to four different collections.</td>
<td>The 2nd 3 classes will be designated to 3-4 twenty minute collection visits, where students will get a brief overview of the collection. Students will write a one page reflection after each collection visit.</td>
<td>N/A</td>
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<tr>
<td></td>
<td>• Archaeology</td>
<td></td>
<td>Students will explore one of the nation’s largest and fast-growing natural history museums with collection staff and their students.</td>
<td>Reflection of Archaeology/Vert Paleo/Botany/Ornithology due</td>
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<td></td>
<td>• Vert Paleo</td>
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<tr>
<td></td>
<td>• Botany</td>
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<td></td>
<td>• Ornithology</td>
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<tr>
<td>Jan 25th</td>
<td>Collection tours</td>
<td>Students will get introduced to four different collections.</td>
<td>Students will explore one of the nation’s largest and fast-growing natural history museums with collection staff and their students.</td>
<td>Reflection of the Soltis lab/Mammals Invert Zoology/Invert Paleo due</td>
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<tr>
<td></td>
<td>• The Soltis lab</td>
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<td></td>
<td>• Mammals</td>
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<td></td>
<td>• Invert Zoology</td>
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<td></td>
<td>• Invert Paleo</td>
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<tr>
<td>Feb 1st</td>
<td>Collection tours</td>
<td>Students will get introduced to three different collections.</td>
<td>Students will explore one of the nation’s largest and fast-growing natural history museums with collection staff and their students.</td>
<td>Reflection of the Soltis lab/Mammals Invert Zoology/Invert Paleo due</td>
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<tr>
<td></td>
<td>• Herpetology</td>
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<td></td>
<td>• Ichthyology</td>
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<td></td>
<td>• Lepidoptera</td>
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<tr>
<td>Feb 8th</td>
<td>Intermittent Reflection</td>
<td>Students will have the opportunity to</td>
<td>Students will summarize their collection experiences through an</td>
<td>Reflection of Herpetology/Ichthyology/</td>
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<tr>
<td>Date</td>
<td>Activity</td>
<td>Description</td>
<td>Due Date</td>
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<tr>
<td>Feb 15th</td>
<td>Collection of choice</td>
<td>Students get experience in their collection of choice</td>
<td>Lepidoptera collection due</td>
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<td></td>
<td>Week 1</td>
<td></td>
<td>Discussion of paper.</td>
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<td>Abstract practice.</td>
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<td>Collection of choice due by 10:00am.</td>
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<tr>
<td>Feb 22nd</td>
<td>Collection of choice</td>
<td>Students get experience in their collection of choice</td>
<td>Annotated Bibliography due by 11:59pm.</td>
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<td>Week 2</td>
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<tr>
<td>Mar 1st</td>
<td>Collection of choice</td>
<td>Students get experience in their collection of choice</td>
<td>Proposal for paper due by 11:59pm.</td>
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<td></td>
<td>Week 3</td>
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<tr>
<td>Mar 8th</td>
<td>NO CLASS</td>
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<td>Spring Break</td>
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<tr>
<td>Mar 15th</td>
<td>Intermittent Reflection</td>
<td>Students will have the opportunity to provide feedback on collections visited</td>
<td>N/A</td>
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<tr>
<td>Mar 22nd</td>
<td>Collection of choice</td>
<td>Students get experience in their collection of choice</td>
<td>Project Outline due by 11:59pm.</td>
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<td>Week 4</td>
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<tr>
<td>Mar 29th</td>
<td>Collection of choice</td>
<td>Students get experience in their collection of choice</td>
<td>Project Abstract due by 11:59pm.</td>
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<td>Week 5</td>
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<td>April 5th</td>
<td>Collection of choice</td>
<td>Students get experience in their collection of choice</td>
<td>Project Introduction due by 11:59pm.</td>
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<td>Week 6</td>
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<tr>
<td>April 12th</td>
<td>Collection of choice</td>
<td>Students get experience in their collection of choice</td>
<td>Project draft due by 11:59pm.</td>
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<td>Week 7</td>
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<tr>
<td>April 19th</td>
<td>Final Presentation</td>
<td>Students get experience giving a presentation.</td>
<td>In class presentation. Final paper due</td>
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<td>by 11:59pm.</td>
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<tr>
<td>April 26th</td>
<td>Final Presentation</td>
<td>Students get experience giving a presentation.</td>
<td>In class presentation continued.</td>
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<tr>
<td>May 2nd</td>
<td>NO CLASS</td>
<td></td>
<td>Finals week</td>
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</tbody>
</table>
Intensive collection details

Students will spend eight class sessions in one particular collection of their choice. Students are expected to make their decision based on their one time experience in the collection (from the collection tours) and or additional research or interest of the collections. Students will be expected to list their first three collections choices, by midnight on February 7th. All attempts will be made to give students their first choice.

Potential opportunities within the collections

<table>
<thead>
<tr>
<th>Collection</th>
<th>Overview</th>
<th>Specific Collection Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archaeology</td>
<td>The South Florida and North Florida Archaeology Collections offer great opportunities to learn about Florida’s history. There are 7 different Archaeology collections in addition to the two mentioned above that one can work in.</td>
<td>• Learn how museum personnel study how stone tool types are refined and built upon through the years</td>
</tr>
<tr>
<td>Botany/Paleo Botany</td>
<td>The Botany/Paleo Botany collection offers a great opportunity to learn how plant specimens are used for biomedical purposes. The Soltis lab offer great opportunity to learn about evolution of flowering plants.</td>
<td>• Learn how to curate plant specimens and extract DNA • Learn how we investigate the mechanisms of speciation, evolutionary relationships and character evolution in flowering and land plants at all taxonomic levels</td>
</tr>
<tr>
<td>Lepidoptera (McGuire Center for Lepidoptera and Biodiversity)</td>
<td>The center houses Florida Museum specimens formerly stored at the Allyn Museum in Sarasota, and other collections from UF and the Florida Division of Plant Industry. With more than 10 million specimens, the McGuire Center houses one of the world’s largest Lepidoptera collections, representing most of the world’s 20,000 butterfly species and many of the estimated 245,000 moth species.</td>
<td>• Learn how to pin butterflies and make scientific insect collection • Learn how we investigate the evolution and diversity of invertebrates, especially the butterflies and moths</td>
</tr>
<tr>
<td>Invert Zoology</td>
<td>The Invertebrate Zoology collection is charged with their curator’s objective of documenting the marine biota of coral reefs. They focus on the Indo-West Pacific (IWP), the largest and most diverse marine biogeographic region, with efforts concentrated in Oceania</td>
<td>• Learn how some groups of mollusks are used in biomedical research • Learn how diverse invertebrate taxa are, and how many have yet to be discovered.</td>
</tr>
<tr>
<td>Invert Paleo</td>
<td>The Invertebrate Paleo collection studies a wide range of invertebrates.</td>
<td>• Learn how invertebrate paleontologist inform biomedical sciences</td>
</tr>
<tr>
<td>Vert Paleo</td>
<td>The Florida Museum’s collections provide the most complete basis available for study of Cenozoic vertebrate life and evolution in the eastern United States and the circum-Caribbean Basin area.</td>
<td>• Learn how fossils are prepared • Learn the geographic time scale</td>
</tr>
<tr>
<td>Herpetology</td>
<td>This collection is world-wide in scope, and at &gt; 287,000 specimens/specimen lots it is ranked #1 largest in the southeastern United States and #8 largest in North America. The Blackburn Lab focuses on understanding the diversity, evolution, and natural history of amphibians and reptiles.</td>
<td>• Learn how CT scanning of herps helps inform science • Learn how reptiles and amphibians are prepped for the collection</td>
</tr>
</tbody>
</table>
| Ichthyology | The Florida Museum of Natural History Ichthyology Collection ranks as an international resource. The FPSR monitors shark attacks through the International Shark Attack File. In addition, the FSPR focuses on the study and conservation of smalltooth sawfish and maintains the International Sawfish Encounter Database. | • Learn about the areas that have the most sharks and how shark attacks are monitored by the FLMNH  
• Learn how the public can search fish specimens though digitized records. |
|---|---|---|
| Ornithology | This collection of 24,500 specimens, representing about 3,000 species, is approximately fifth largest in the world in number of specimens and species. | • Learn how to do taxidermy of birds  
• Learn how bird songs are used to inform science |
| Mammals | At the Museum the Mammal collection studies the evolutionary history of mammals. We primarily do this by examining their DNA, which carries a written record of their past. We also study the parasites of mammals, which in many cases have evolved in tandem with their mammalian hosts for millions of years. You can explore our research projects using the link on the right. | • Learn how mammal skins are prepared  
• Learn how the study of parasites in mammals helps inform biomedical sciences. |

**ASSIGNMENTS**

**Reflection of Collections** - due weekly at the beginning of class (Jan 24th, 31st and Feb 7th)

Students will be expected to turn in a reflection from each collection (after each tour of the four collections), at the beginning of the next class session. These reflections should include, but are not limited to:

- Lessons learned in the collection.
- Relevance to Biomedical sciences.
- Explanation of best practices in the collection.
- List of potential jobs that one could obtain using the expertise gained as a collection personnel.
- What students enjoyed most about the collection visit?
- What student did not enjoy about the collection visit?
- What students would like to do if given the opportunity to visit the collection?
- Any other relevant points about the collection visit.

Students must speak about (address the points above) for each of the 3 or 4 collections visited on each tour day, in these reflections.

**Paper**

Within their collection of choice students will work on learning collection procedures that would allow them to formulate a research project. Students are expected to communicate with their supervisor (this will be provided after collection assignment) in the collection to come up with their research project. The project must be undertaken within the scope of the class time (7 weeks of their collection sessions). The project must encompass some of the curatorial processes involved within the collection. It can include but is not limited to updating curatorial processes, digitizing specimens, extracting DNA for analysis for example.

Students will use knowledge gained to write a scientific paper explaining their proposed research project. The paper should include an abstract, introduction, methods, results and discussion section.

Due dates have been established to provide feedback for the students along the process of creating their paper for this project (see below or the schedule for details).
Project Outline
Create a project summary

Title the project at the top of the outline. Briefly summarize each step required to complete the project, detailing associated costs and proposing a timeline. Include a list of administrative officials associated with the project.

Identify the major milestones of the project

Establish the main objectives necessary to complete the project, and list them using Roman numerals. Be succinct in describing the objectives, and restrict them to a manageable amount.

List the tasks needed to accomplish each milestone

Below each of the major milestones, list the subtasks needed to complete each one. For example, if one of the milestones is to design a workshop or seminar, the subtasks would include researching the subject of the workshop, developing a lesson plan and creating handouts and visual aids. Alphabetize the subtasks using capital letters. For added specificity, break down the steps of each subtask using lowercase bullets, and break down these tasks until the outline is complete.

Presentation

Students will also be expected to give a presentation about their experiences and lessoned learned from their collection of choice. Students can give either a poster or oral presentation. Students will have the choice of which type of presentation they will give. The presentations should allow students to get an understanding of the presenter’s collection of choice.

Students will get the opportunity to pick the date of their presentation (either April 18th or April 25th). If there are not sufficient students for each date, students will be expected to have their presentations ready for April 18th and will be selected at random to present.

Due date: April 18th and April 25th last day of class (during class)

NB: Students MUST be present for both presentation classes (April 18th and April 25th) or they will lose the 10% for their own presentation!

OTHER NOTES

The second part of our class will be held at the Florida Museum of Natural History public exhibit hall on January 31st. Students will follow the schedule provided for collection tours. Students will be taken to the Powell hall (the Butterfly museum) in museum transportation and will leave Powell hall for Dickinson Hall at 3:47pm.