

**Curatorial Methods- Intro to Natural History Museums**  
**BOT 4935 / BSC 2930 / ZOO 4926/ ANT 4930**  
Spring 2020 (4-credits)

**Meeting Details**

*Time:* Tues period 7/Thurs period 7 - 9

*Location:* Psychology 129/ Bartram, Room 109

*Office hours:* Tues/ Thurs period 6 or by appointment

**Instructor Information**

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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 museum collections personnel. Many undergraduate students begin their Biology careers on a pre-professional track, without knowledge of careers as a naturalist or museum professional.

Additionally, while most people are familiar with the public face of natural history museums, research collections often remain in the shadows even though they can help us understand climate change, the spread of diseases, and the impacts of draining a wetland as well as facilitate many medical breakthroughs. Museum collections are like libraries whose books are carefully cataloged specimens that also contain a wealth of knowledge. The data these specimens provide are a vital resource for not only understanding today's world, but also for making connections to the past and the future. The research collections housed within natural history museums also provide rich opportunities for science learning, and can provide an introduction to research.

This course will provide students with an opportunity to be exposed to the research, using the museum as a resource. Students will be adopted into labs where they will get a general overview of curatorial procedures and training within the research collections of the Florida Museum of Natural History (FLMNH). Students will spend four class sessions on Thursdays touring ~twelve collections. They will then spend the next seven weeks in a collection of their choice working with collection personnel to develop and carry out a specimen- based project. 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 number and justify the list of collections for collection assignment. On Tuesdays, students will have discussions about their experiences in the collections and the various components that contribute to natural history collections, as well as hear from guest speakers from related fields. The last two classes will consist of student oral and/or poster presentations highlighting and sharing their experiences during the semester.

Learning outcomes

After completion of this course, students will be able to:

- Understand the Nature of Science
- Explain some of the uses of museum collections
- Perform activities used in museums for research and curation
- Compare and explain museum collections (wet vs dry)
- Conduct independent projects using museum specimens
- Create a scientific poster and/or oral presentation
- Write a paper on a scientific topic

## Grading

The course grade will be based on completion of the following assignments:

1. Post about the syllabus (1%)
2. Collection reflections (10%)
  - ▣ 1 page reflection of your experience from the collection tours (8%)
  - ▣ 1 page reflection of the course (2%)
3. Journal entry discussion of progress in the collections (5%)
4. Poster Presentation on your collection project (25%)
  - ▣ Draft of Poster (10%)
  - ▣ Peer Review of Poster (5%)
  - ▣ Final Poster and presentation (10%)
5. Reflection from lab meetings/field experience, etc. (5%)
6. Paper on your collection project (total = 40%)
  - ▣ Annotated Bibliography (5%)
  - ▣ Paper topic (2%)
  - ▣ Proposal for paper (4%)
  - ▣ Project introduction and outline (8%)
  - ▣ Peer review of introduction and outline (2%)
  - ▣ Project abstract (4%)
  - ▣ Draft of paper (8%)
  - ▣ Peer review of paper draft (2%)
  - ▣ Final paper (4%)
7. Participation (15%)

| <u>Overall Course Percent</u> | <u>Grade</u> |
|-------------------------------|--------------|
| 93.0% - 100%                  | A            |
| 90.0% - 92.9%                 | A-           |
| 87.0% - 89.9%                 | B+           |
| 83.0% - 86.9%                 | B            |
| 80.0% - 82.9%                 | B-           |
| 77.0% - 79.9%                 | C+           |
| 73.0% - 76.9%                 | C            |
| 70.0% - 72.9%                 | C-           |
| 67.0% - 69.9%                 | D+           |
| 63.0% - 66.9%                 | D            |
| 60.0% - 62.9%                 | D-           |
| 59.9% or less                 | E            |

## Prerequisites

There are no required prerequisites. However, this course is designed for students with a background or interest in science.

## Course attendance and participation

Attendance and participation in collection explorations and activities are required and essential to achieve the course 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 instructor's (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. **However, a laptop computer or tablet will be required for some classes.** Various readings will be handed out during the semester or made available by email to help inform students about the collections and collection uses. Be ready to discuss readings in class.

Tentative Schedule- Subject to change

**Vert-**Vertebrate

**Paleo-**Paleontology

**Invert-** Invertebrate

| Date                          | Topic   | Objective  | Discussion/activity-Instructions  | Assignment Due   |
|-------------------------------|---|--|---|--|
| Tues<br>Jan 7 <sup>th</sup>   | Introduction to the Florida Museum of Natural History (FLMNH)   | Introduce students to FLMNH.   | Doug Jones, the director of the museum will present a summary of the museum, including how it established, current status and plans moving forward. | Read before class:<br>* FM Annual Report<br>* 2014-2019 Strategic Plan   |
| Thurs<br>Jan 9 <sup>th</sup>  | Introduction to Natural History Museums   | Introduce students to FLMNH Research Collections and discuss the nature of the class.                    | Discuss class outline, assignments and the use and functions of museums. Field trip through Dickinson Hall.   | Read before class:<br>* Syllabus and make a post on Canvas.<br>* Kemp, 2017, "Lost Species" - Intro  |
| Tues<br>Jan 14 <sup>th</sup>  | What is research, who does research, why do we do research? Science and the nature of science. Hypothesis testing.                                      | Students will understand the premise and processes involved in scientific research.                      | We will discuss the processes involved in completing scientific research.   | Read before class:<br>*Crowther, 2005.<br>*McPherson 1996<br>Watch this video<br>* <a href="https://tinyurl.com/y2h9np72">https://tinyurl.com/y2h9np72</a> |
| Thurs<br>Jan 16 <sup>th</sup> | Collection tours <ul style="list-style-type: none"> <li>● Molecular lab</li> <li>● Mammals</li> <li>● Invert Zoology</li> <li>● Invert Paleo</li> </ul> | Students will be introduced to four different collections.   | Students will explore one of the nation's largest and fastest-growing natural history museums with collection staff and their students.             | Read before class:<br>*Kemp, 2017, "Lost Species"<br>** Chp 23   |
| Tues<br>Jan 21 <sup>st</sup>  | Digitization in collections   | Students will gain an understanding of digitization practices utilized within the museum.                | Specify in collections iDigBio intro- why digitize collections<br>CT scanning   | Read before class:<br>*Lubar, 2017 "Lost Museum"<br>**Chp 6 Into the Storm   |
| Thurs<br>Jan 23 <sup>rd</sup> | Collection tours <ul style="list-style-type: none"> <li>● Herpetology</li> <li>● Ichthyology</li> <li>● Archaeology</li> </ul>                          | Students will get introduced to three different collections.   | Students will explore one of the nation's largest and fastest-growing natural history museums with collection staff and their students.             | <b>Reflection of the Molecular lab/ Mammals/Inv Zoology/ Inv Paleo due 11:59 Wed night before class</b>  |
| Tues<br>Jan 28 <sup>th</sup>  | Broader Impacts<br>Basic versus applied science. Applying for grants and scholarships.  | Students will gain an understanding of the importance and relevance of Broader Impacts as it pertains to | Students will understand the importance of broader impacts and grant application processes.   | Read before class:<br>Macfadden et al. 2000  |

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|                               |  | science and museums.  |  |  |
| Thurs<br>Jan 30 <sup>th</sup> | Collection tours <ul style="list-style-type: none"> <li>● Botany</li> <li>● Ornithology</li> <li>● Vert Paleo</li> <li>● Paleobotany/</li> <li>● Palynology</li> </ul> | Students will get introduced to four different collections.   | Students will explore one of the nation's largest and fastest-growing natural history museums with collection staff and their students.                      | <b>Reflection</b> of the Herpetology/Ichthyology/ Archaeology collection <b>due 11:59 Wed night before class</b>   |
| Tues<br>Feb 4 <sup>th</sup>   | Citations, citation management and literature review   | Students will get an understanding how to conduct a literature review and manage references                               | We will walk through the process of lit review and how to use citation managers.   | Download both endnote and Mendeley. <b>Submit a screenshot of your Mendeley account as the class homework.</b>   |
| Thurs<br>Feb 6 <sup>th</sup>  | Collection tours <ul style="list-style-type: none"> <li>● Lepidoptera</li> <li>● Education</li> </ul>  | Students will get introduced to two different branches of the museum at Powell Hall in the public museum.                 | We will have tours of the Lepidoptera collection as well as tours of the various branches of education at the museum.  | <b>Reflection</b> of the Vert Paleo/Paleobotany/Ornithology/ Botany <b>due 11:59 Wed night before class</b><br><b>Collection of choice due by midnight Friday 7<sup>th</sup> February.</b> |
| Tues<br>Feb 11 <sup>th</sup>  | Collection projects discussion   | Students will understand what their collections projects should entail, how the class paper will relate to their projects | We will review the expectations for collection projects. (Science is messy, how do we generate scientific knowledge? Discuss the paper).                     | *Tobin, Chp 8.<br>* Suarez, 2004   |
| Thurs<br>Feb 13 <sup>th</sup> | Collection of choice Week 1  | Students get experience in their collection of choice.  | Intensive sessions within area of specialization.  | <b>Reflection</b> of Lepidoptera/Education collection <b>due 11:59 Wed night before class</b>  |
| Tues<br>Feb 18 <sup>th</sup>  | Uses of collections, more on digitization  | Students will gain an understanding of the uses of collections and the relevance of museum specimens.                     | 10-15 minute discussion about collection experiences<br>2D images  | Read before class:<br>*Lubar2017 Lost Museum<br>**Chp 7 Paperwork  |
| Thurs<br>Feb 20 <sup>th</sup> | Collection of choice Week 2  | Students get experience in their collection of choice.  | Intensive sessions within area of specialization.  | <b>Potential Project topics due by 11:59pm.</b> Journal entry due by midnight.   |
| Tues<br>Feb 25 <sup>th</sup>  | Uses of collections, systematics introduction  | Students will gain an understanding of the uses of collections and the relevance of museum specimens.                     | 10-15 minute discussion about collection experiences<br>Seminar on systematics and collection use. What is it and what is its role in studying biodiversity? | Read before class:<br>*Kemp, 2017, "Lost Species"<br>** Chp 6  |

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|----------------------------------|---|---|--|---|
| Thurs<br>Feb<br>27 <sup>th</sup> | Collection of choice<br>Week 3          | Students get<br>experience in<br>their collection of<br>choice.   | Intensive sessions within<br>area of specialization.   | <b>Paper Annotated Bibliography due<br/>by 11:59pm.</b><br>Journal entry due by midnight.   |
| Tues<br>Mar 3 <sup>rd</sup>      | <b>NO CLASS- Spring Break</b>           |   |  |   |
| Thurs<br>Mar 5 <sup>th</sup>     |   |   |  |   |
| Tues<br>Mar<br>10 <sup>th</sup>  | Science communication                   | Students will get<br>an understanding<br>of fields in<br>science and how<br>translation<br>degrees can be.  | 10-15 minute discussion<br>about collection<br>experiences<br>Discussion of science<br>communication in natural<br>history museums.  |   |
| Thurs<br>Mar<br>12 <sup>th</sup> | Collection of choice<br>Week 4          | Students get<br>experience in<br>their collection of<br>choice.   | Intensive sessions within<br>area of specialization.   | <b>Proposal for paper due by 11:59pm.</b><br>Journal entry due by midnight.   |
| Tues<br>Mar<br>17 <sup>th</sup>  | Science communication                   | Students will<br>have a better<br>understanding of<br>science<br>communication<br>in museums.   | 10-15 minute discussion<br>about collection<br>experiences.<br>Students will chat with<br>guest about science<br>communication in<br>museums and their career<br>track.  |   |
| Thurs<br>Mar<br>19 <sup>th</sup> | <b>BioBlitz Field<br/>Trip</b>          | We will conduct a<br>bioblitz at NATL<br>with several<br>museum<br>scientists.  | Exploring biodiversity with<br>Scientist and Educators at<br>the LDC conference at<br>NATL.  | <b>Paper Outline and Introduction due<br/>by 11:59pm.</b><br>Journal entry due by midnight.<br><b>Peer reviewer assigned after<br/>submission</b> |
| Tues<br>Mar<br>24 <sup>th</sup>  | How to do a poster?<br>Abstract Writing | Students will<br>understand some<br>of the important<br>parts of creating<br>a poster, and<br>how to write an<br>abstract.                              | We will have example<br>posters to tear apart to<br>discuss the best practices<br>in creating a poster, as<br>well as a presentation on<br>abstract writing  | <b>Field experience reflection and one<br/>question for guest (after watching<br/><a href="#">YouTube video</a>) due by 11:59 pm</b>              |
| Thurs<br>Mar<br>26 <sup>th</sup> | Collection of choice<br>Week 5          | Students get<br>experience in<br>their collection of<br>choice.   | Intensive sessions within<br>area of specialization.   | <b>Paper Abstract due by 11:59pm.</b><br>Journal entry due by midnight.<br><b>Peer Review of Outline and<br/>Introduction due by 11:59pm.</b>     |
| Tues<br>Mar<br>31 <sup>st</sup>  | Graduate student<br>panel               | Students will<br>have an<br>opportunity to<br>ask current<br>graduate<br>students<br>questions about<br>their path to<br>graduate school<br>and beyond. | 10-15 minute discussion<br>about collection<br>experiences.<br>Panel discussion with<br>graduate students in<br>different fields from<br>varying backgrounds to<br>serve as role models and<br>provide feedback about<br>their unique experiences. |   |

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| Thurs<br>Apr 2 <sup>nd</sup>         | Collection of choice<br>Week 6           | Students get experience in their collection of choice.  | Intensive sessions within area of specialization.   | <b>Paper draft due by 11:59pm.</b><br>Journal entry due by midnight.<br><b>Peer reviewer assigned after submission</b>   |
| Tues<br>Apr 7 <sup>th</sup>          | Poster preparation                       | Students will have an opportunity to ask museum professionals questions about their career path.                              | 10-15 minute discussion about collection experiences<br>Panel discussion with professionals in the museum.  | <b>Draft of poster due by 11:59pm.</b><br>Journal entry due by midnight. In class peer review, <b>laptop or notebook required for class.</b>   |
| Thurs<br>April 9 <sup>th</sup>       | Collection of choice<br>Week 7           | Students get experience in their collection of choice.  | Intensive sessions within area of specialization.   | Journal entry due by midnight  |
| Tues<br>Apr 14 <sup>th</sup>         | Professional panel<br>Poster preparation | Students will either meet with professors or work on their poster during this session.  | 10-15 minute discussion about collection experiences<br>Poster preparation. Peer Review posters.  |  |
| Thurs<br>Apr 16 <sup>th</sup>        | <b>Poster and Oral Presentation</b>      | Students get experience giving a poster presentation. There will be a handful of oral presentations during this time as well. | Students will give poster presentations in a mini poster session open to the museum and UF personnel. This will provide students with a better idea of the scope of work/ experience from each individual collection.<br><b>MANDATORY ATTENDANCE!</b> | <b>Final Poster due for poster session in class.</b><br><b>Peer review of paper draft due on canvas at 11:59pm wed 14<sup>th</sup> April</b><br><a href="#">Draft of paper will be returned to students with feedback.</a> |
| Tues<br>Apr 21 <sup>st</sup>         | Class evaluation discussion.             | Students will have an opportunity to provide feedback on the class.   | We will discuss the perceived impacts of the course. <b>MANDATORY ATTENDANCE!</b>   | Reading TBD.   |
| Thurs<br>April 23 <sup>rd</sup>      | <b>Reading Day: No class</b>             |   |   | <b>Final paper due by 11:59pm April 23<sup>rd</sup>.</b>   |
| <b>Thurs<br/>Apr 30<sup>th</sup></b> | <b>NO CLASS</b>                          | <b>Finals week</b>  |   | <b>Evaluation Assignment due!</b>  |

**ASSIGNMENTS-** Refer to canvas for more details!

1. Collection Reflections- **due weekly on the Wednesday night before the next collection tour at 11:59pm (Jan 22nd, 29<sup>th</sup>, Feb 5<sup>th</sup> and Feb 12<sup>th</sup> )**

Reflections can include the following:

- ❑ What captivated students.
- ❑ Lessons learned in the collection (what surprised you?).

- ☐ Relevance to Biomedical sciences or your field of study.
- ☐ 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 again?
- ☐ Any other relevant points about the collection visit.

**Students can choose to focus on one of the collections visited that particularly interested them (explain their interest), or discuss all 2 to 4 collections.**

## 2. Paper- (multiple due dates; see assignment table)

Students will use knowledge gained in class and additional individual research conducted on collections uses to write a paper explaining the **importance and/or relevance** of their proposed project. The paper should include an abstract, introduction, methods, results and discussion section.

The main aim of this paper is to provide writing experience for students. Therefore, due dates have been established to provide feedback for the students along the process of creating their paper (see the schedule for details). Instructions can be found on the canvas for each section of the paper.

## 3. Poster Presentation

Students will also be expected to give a presentation about their experiences and lessons learned from their collection of choice. Students will create a poster to be presented in a poster session open to all museum and UF personnel. The presentations should allow students to get an understanding of the presenter's collection project.

Posters can be printed in the Architecture lab at UF (<https://labs.at.ufl.edu/computer-labs/architecture/>).

## 4. Journal- Online check-in of progress in collection

Students will be expected to report on their weekly progress in their collection of choice. An online forum will be created for students to report on their experiences in the collection. This report is designed to address any issues that may occur as early as possible. Please note this is designed to ensure students have a productive and enriching experience in the collections. Details on submission will be provided in class. Students should note exactly what they did in the collection in their journal and reflective thoughts about their experiences.

**Due by 11:59pm on Friday after each Thursday in the collection.**

## 5. Participation

This class is very hands on and requires students' involvement and participation in panel discussions, literature discussions, collection tours discussions, reflection discussions as well as interaction with mentors and supervisors in the collection. Therefore participation points will be awarded for all of the above listed interactions, including presence for the class.

## 6. Reflection from lab meeting/field experience

Students will be required to attend a lab meeting of the collection they belong to. If this is not possible, students will be expected to interview members of their lab or participate in a field experience with their lab. Similar to collection tour reflections, students will be expected to give a one page reflection of the experience or summary of interviews.

## 7. Class Feedback

Students will be required to complete a one page 1.5 spaced reflection paper of the class. Feedback is essential as it will shape future offerings of this novel course. Please take time to give constructive criticism.



## Due Dates

| Assignment due                              | Date   | Time                           |
|---|--|--------------------------------|
| Canvas syllabus post                        | Tuesday Jan 7 <sup>th</sup>                    | 11:59pm                        |
| Collection Reflection                       | Wed Jan 22 <sup>nd</sup>                       | 11:59pm                        |
| Collection Reflection                       | Wed Jan 29 <sup>th</sup>                       | 11:59pm                        |
| Collection Reflection                       | Wed Feb 5 <sup>th</sup>                        | 11:59pm                        |
| <b>Collection of choice due by midnight</b> | <b>Fri Feb 7<sup>th</sup></b>                  | 11:59pm                        |
| Class Readings                              | Multiple see table                             | Before class                   |
| Journal entry                               | Multiple see table                             | Fridays at 11:59pm             |
| Citation Manager Download                   | Wed Feb 3 <sup>rd</sup>                        | 11:59pm                        |
| Collection Reflection                       | Wed Feb 12 <sup>th</sup>                       | 11:59pm                        |
| Potential Paper topic                       | Thurs Feb 20 <sup>th</sup>                     | 11:59pm                        |
| Paper Annotated Bibliography                | Thurs Feb 27 <sup>th</sup>                     | 11:59pm                        |
| Paper Proposal due                          | Thurs Mar 13 <sup>th</sup>                     | 11:59pm                        |
| Paper Introduction and Outline              | Thurs Mar 20 <sup>th</sup>                     | 11:59pm                        |
| Field experience reflection                 | Tues Mar 25 <sup>th</sup>                      | 11:59pm                        |
| One question from Video                     | Thurs Mar 25 <sup>th</sup>                     | 11:59pm                        |
| Paper Abstract due                          | Thurs Mar 27 <sup>th</sup>                     | 11:59pm                        |
| Peer Review of Outline and Intro            | Thurs Mar 27 <sup>th</sup>                     | 11:59pm/Online canvas          |
| Paper Draft due                             | Thurs April 3 <sup>rd</sup>                    | 11:59pm                        |
| Poster Draft due (in class)                 | Thurs April 8 <sup>th</sup>                    | 11:59pm                        |
| Peer review of draft due                    | Thurs April 16 <sup>th</sup>                   | 11:59pm/Online canvas          |
| Final Posters due                           | Thurs April 17 <sup>th</sup> /23 <sup>rd</sup> | Dickinson lobby area/ In class |
| Final paper due                             | <b>Wed April 23<sup>rd</sup></b>               | 11:59pm                        |
| Evaluation Assignment                       | Thursday 30 <sup>th</sup> April                | 11:59pm                        |

## Readings-

| ASSIGNEMENT                                      | DATE                           |
|--|--------------------------------|
| FM Annual Report, 2014-2019 Strategic Plan       | Tues January 7 <sup>th</sup>   |
| Syllabus, Kemp, 2017, "Lost Species" - Intro     | Thurs January 9 <sup>th</sup>  |
| Crowther, 2005 and McPherson 1996                | Tues January 14 <sup>th</sup>  |
| Kemp, 2017, "Lost Species" - Chp 23              | Thurs January 16 <sup>th</sup> |
| Lubar, 2017 "Lost Museum" - Chp 6 Into the Storm | Tues January 21 <sup>st</sup>  |
| Macfadden et al. 2000                            | Tues January 28 <sup>th</sup>  |
| Download both endnote and Mendeley               | Tues February 4 <sup>th</sup>  |
| Suarez, 2004 and Tobin, Chp 8                    | Tues February 11 <sup>th</sup> |
| Lubar 2017 Lost Museum - Chp 7 Paperwork         | Tues February 18 <sup>th</sup> |
| Kemp, 2017, "Lost Species" - Chp 6               | Tues February 25 <sup>th</sup> |
| Reading TBD- Science Communication               | Tues March 10 <sup>th</sup>    |
| Reading TBD- Science Communication               | Tues March 17 <sup>th</sup>    |
| Watch video- create one question                 | Tues March 24 <sup>th</sup>    |
| No Readings                                      | Tues March 31 <sup>st</sup>    |
| No Readings                                      | Tues April 7 <sup>th</sup>     |
| Reading TBD                                      | Tues April 14 <sup>th</sup>    |
| Reading TBD                                      | Tues April 21 <sup>st</sup>    |

## OTHER NOTES

The last tour and our BioBlitz field trip experience will take place at the Florida Museum of Natural History public museum (Powell Hall). **Students will be expected to meet at Powell hall (the Butterfly museum) on Thursday February 6<sup>th</sup> and Thursday March 19<sup>th</sup>.** Please let us know if this will conflict with your academic class schedule.

There will be additional field trips and excursions students can participate in based on their availability and interest.