

Curatorial Methods- Intro to Natural History Museums

BOT 4935 / BSC 2930 / ZOO 4926/ ANT 4930

Spring 2022 (4 credits)

Meetings:

T 1:55–2:45 Newlins Zeigler 0112

R 1:55–4:55 Newlins Zeigler 0112

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Course Description

This course is an exploration of careers in and adjacent to 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, one of which they will be assigned to carry out their specimen-based research project in for the remaining seven weeks of class. Students are expected to choose their collection based on their experiences during the collection tours and/or additional research or interest in the collections. Students will rank and justify a list of their preferred collections for collection assignment.

On Tuesdays, students will discuss their experiences in the collections and the various components that contribute to natural history collections in class and 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. Thursday class periods will consist of collection tours and continued work in students' chosen collections after they have been assigned. Students are expected to complete a research project accompanied by a scientific poster and paper covering describing their work that will be shared with museum faculty and researchers, and will complete biweekly readings to be discussed in class. Weekly

reflections will be used to monitor student progress and understanding throughout the course. Students are expected to check the class schedule found below for a list of due dates and the class reading schedule.

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%)	93.0% - 100%	A
Peer Review of Poster (5%)	90.0% - 92.9%	A-
Final Poster and presentation (10%)	87.0% - 89.9%	B+
5. Reflection from lab meetings/field experience, etc. (5%)	83.0% - 86.9%	B
6. Paper on your collection project (total = 40%)	80.0% - 82.9%	B-
Annotated Bibliography (5%)	77.0% - 79.9%	C+
Paper topic (2%)	73.0% - 76.9%	C
Proposal for paper (4%)	70.0% - 72.9%	C-
Project introduction and outline (8%)	67.0% - 69.9%	D+
Peer review of introduction and outline (2%)	63.0% - 66.9%	D
Project abstract (4%)	60.0% - 62.9%	D-
Draft of paper (8%)	59.9% or less	E
Peer review of paper draft (2%)		
Final paper (4%)		
7. Participation (13%)		
Class Assessment (2%)		

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 **Mandatory attendance** **No class**

Date	Topic	Objective	Discussion/activity-Instructions	Assignment Due
Tues Jan 4th	No class			
Thurs Jan 6th	Introduction to Florida Museum of Natural History (FLMNH) and Natural History Museums	Introduce students to FLMNH and the Research Collections & the nature of the class.	Museum director Doug Jones will summarize how the museum was established, its current status & future plans. Discuss class outline, assignments & the use and functions of museums. Field trip through Dickinson Hall.	Read before class: <ul style="list-style-type: none"> ● FM Annual Report ● FM Strategic Plan ● Syllabus and make a post on Canvas. ● Kemp, 2017, “Lost Species” - Intro
Tues Jan 11th	What is research, who does research & why do we do research? Discuss science, 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: <ul style="list-style-type: none"> ● Crowther, 2005. ● McPherson 1996 ● Watch: https://tinyurl.com/y2h9np72
Thurs Jan 13th	Collection tours <ul style="list-style-type: none"> ● Herbarium ● Mammals ● Invert Zoology ● Digitization 	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: <ul style="list-style-type: none"> ● Kemp, 2017, “Lost Species” Ch. 23
Tues Jan 18th	Digitization in collections	Students will gain an understanding of digitization practices utilized within the museum.	Using <i>Specify</i> in collections & iDigBio intro – why digitize collections CT scanning?	Read before class: <ul style="list-style-type: none"> ● Lubar, 2017 “Lost Museum” Ch. 6 – Into the Storm
Thurs Jan 20th	Collection tours <ul style="list-style-type: none"> ● Herpetology ● Ichthyology ● Archaeology 	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.	Reflection due 11:59 Wed. night before class on the following: <ul style="list-style-type: none"> ● Molecular lab ● Mammals ● Inv. Zoology ● Inv. Paleo
Tues Jan 25th	Citations, citation management & 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. <ul style="list-style-type: none"> ● Submit a screenshot of your Mendeley account as the class homework, on Canvas on Jan 24th.

Thurs Jan 27th	Collection tours <ul style="list-style-type: none"> • Molecular lab • Ornithology • Vert Paleo • Paleobotany/ Palynology 	Students will get introduced to four different collections.	Students will explore one of the nation's largest & fastest-growing natural history museums with collection staff and their students.	Reflection due 11:59 Wed. night before class on the following: <ul style="list-style-type: none"> • Herpetology • Ichthyology • Archaeology
Tues Feb 1st	History of Natural History museums and hidden figures. Looking into basic versus applied science.	Students will gain an understanding of some of the history of natural history museums, including hidden figures.	Students will understand the importance history of natural history museums	Read before class: <ul style="list-style-type: none"> • Das_et_al.2018
Thurs Feb 3rd	Collection tours <ul style="list-style-type: none"> • Lepidoptera • Education 	Students will be introduced to 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.	Reflection due 11:59 Wed. night before class on the following: <ul style="list-style-type: none"> • Vert. paleontology • Paleobotany • Ornithology • Botany Collection of choice due by midnight Friday 4th February.
Tues Feb 8th	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).	Read before class: <ul style="list-style-type: none"> • Tobin, Chp 8. • Suarez, 2004
Thurs Feb 10th	Collection of choice Week 1	Students get experience in their collection of choice.	Intensive sessions within area of specialization.	Reflection due 11:59 Wed. night before class on the following: <ul style="list-style-type: none"> • Lepidoptera • Education
Tues Feb 15th	Thinking about applying for graduate school.	Students will gain an understanding different components one ought to consider when thinking about applying to grad school	10-15 minute discussion about collection experiences	Read before class: <ul style="list-style-type: none"> • Lubar2017 Lost Museum Ch. 7 – Paperwork Meeting with students
Thurs Feb 17th	Collection of choice Week 2	Students get experience in their collection of choice.	Intensive sessions within area of specialization.	Potential Project topic due by 11:59 pm & journal entry due by midnight.
Tues Feb 22th	Uses of collections, systematics introduction	Students will gain an understanding of the uses of collections and the relevance of museum	10-15 minute discussion about collection experiences Seminar on systematics and collection use. What is it and what is its role in	Read before class: <ul style="list-style-type: none"> • Kemp, 2017, "Lost Species" Ch. 6 Students must sign up for ½ hour meetings with instructors to discuss their paper.

		specimens.	studying biodiversity?	
Thurs Feb 24th	Collection of choice Week 3	Students get experience in their collection of choice.	Intensive sessions within area of specialization.	Paper Annotated Bibliography due by 11:59pm & journal entry due by midnight.
Tues Mar 1st	Uses of collections, continued	Students will gain an understanding of the uses of collections and the relevance of museum specimens.	10-15 minute discussion about collection experiences. Discussion of uses of museum collections.	Students must sign up for ½ hour meetings with instructors to discuss their paper.
Thurs Mar 3rd	Collection of choice Week 4	Students get experience in their collection of choice.	Intensive sessions within area of specialization.	Proposal for paper due by 11:59 pm & journal entry due by midnight.
Mar 8 & 10th	NO CLASS – Spring Break			
Tues Mar 15th	Science communication Or Uses of NHC	Students will have a better understanding of science communication in museums.	10-15 minute discussion about collection experiences. Students will chat with guest about science communication in museums and their career track.	
Thurs Mar 17th	BioBlitz Field Trip	We will conduct a bioblitz at NATL with several museum scientists.	Exploring biodiversity with Scientist and Educators at the LDC conference at NATL.	<ul style="list-style-type: none"> Paper Outline and Introduction due by 11:59pm & journal entry due by midnight. Peer reviewer assigned after submission
Tues Mar 22nd	How to do a poster & Abstract Writing	Students will understand some of the important parts of creating a poster, and how to write an abstract.	We will use example posters to discuss the best practices in creating a poster & hear a presentation on abstract writing	Field experience reflection and one question for guest (after watching YouTube video) due by 11:59 pm
Thurs Mar 24th	Collection of choice Week 5	Students get experience in their collection of choice.	Intensive sessions within area of specialization.	<ul style="list-style-type: none"> Paper Abstract due by 11:59 pm & journal entry due by midnight. Peer Review of Outline and Introduction due by 11:59pm.
Tues Mar 29th	Graduate student panel	Students will have an opportunity to ask current graduate students questions about	10-15 minute discussion about collection experiences & panel discussion with graduate students from varying backgrounds to serve as role models and share	

		their path to graduate school & beyond.	their unique experiences.	
Thurs Mar 31st	Collection of choice Week 6	Students get experience in their collection of choice.	Intensive sessions within area of specialization.	<ul style="list-style-type: none"> ● Paper draft due by 11:59 pm & journal entry due by midnight. ● Peer reviewer assigned after submission
Tues Apr 5th	Poster preparation	Students will have an opportunity to ask museum professionals questions about their career path.	10-15 minute discussion about collection experiences Panel discussion with professionals in the museum.	<ul style="list-style-type: none"> ● Draft of poster due by 11:59 pm & journal entry due by midnight. ● Laptop or notebook required for in-class peer review
Thurs April 7th	Collection of choice Week 7	Students get experience in their collection of choice.	Intensive sessions within area of specialization.	Journal entry due by midnight
Tues Apr 12th	Professional panel Poster preparation	Students will either meet with professors or work on their poster during this session.	10-15 minute discussion about collection experiences Poster preparation. Peer Review posters.	
Thurs Apr 14th	Poster and Oral Presentation	Students get experience giving a poster presentation. Some oral presentations will be given during this time as well.	Students will present posters to the museum and UF personnel in a “mini poster session.” Students will have a better idea of the scope of work/experience from each individual collection. MANDATORY ATTENDANCE!	<ul style="list-style-type: none"> ● Final Poster due for poster session in class. ● Peer review of paper draft due on canvas at 11:59pm wed 14th April ● Draft of paper will be returned to students with feedback.
Tues Apr 19st	Class evaluation discussion and class assessment!	Students will have an opportunity to provide feedback on the class.	Discuss the perceived impacts of the course – MANDATORY ATTENDANCE!	Reading TBD.
Thurs April 21st	Reading Day: No class			Final paper due by 11:59pm April 21st.
Thurs Apr 28th	NO CLASS	Finals week		Evaluation Assignment due

ASSIGNMENTS – Refer to canvas for more details & rubrics

1. Collection Reflections – **due weekly on the Wednesday night before the next collection tour at 11:59pm (Jan 20th, 27th, Feb 3rd and Feb 10th)**

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 projects
- 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	Thursday Jan 6 th	11:59pm
Collection Reflection	Wed Jan 20 th	11:59pm
Citation Manager Download	Wed Jan 24 th	11:59pm
Collection Reflection	Wed Jan 27 th	11:59pm
Collection Reflection	Wed Feb 3 rd	11:59pm
Collection of choice due by midnight	Fri Feb 4th	11:59pm
Class Readings	Multiple (see table)	Before class
Journal entry	Multiple (see table)	Fridays at 11:59pm
Collection Reflection	Wed Feb 10 th	11:59pm
Potential Paper topic	Thurs Feb 17 th	11:59pm
Paper Annotated Bibliography	Thurs Feb 24 th	11:59pm
Paper Proposal due	Thurs Mar 3 th	11:59pm
Paper Introduction and Outline	Thurs Mar 17 th	11:59pm
Field experience reflection	Tues Mar 22 nd	11:59pm
One question from Video	Tues Mar 22 nd	11:59pm
Paper Abstract due	Thurs Mar 24 th	11:59pm
Peer Review of Outline and Intro	Thurs Mar 24 th	11:59pm/Online canvas
Paper Draft due	Thurs March 31 st	11:59pm
Poster Draft due (in class)	Thurs April 5 th	11:59pm
Peer review of paper draft due	Thurs April 14 th	11:59pm/Online canvas
Final Posters due	Thurs April 14 th	Dickinson lobby area/ In class
Lab Meeting or Interview Reflection	Thurs April 14 th	11:59pm
Final paper due	Thurs April 21st	11:59pm
Evaluation Assignment	Thursday 28 th April	11:59pm

Readings:

ASSIGNMENT	DATE
FM Annual Report, FM Strategic Plan	Tues January 6 th / discuss in class
Syllabus, Kemp, 2017, "Lost Species" - Intro	Thurs January 6 th / discuss in class
Crowther, 2005 and McPherson 1996	Tues January 11/ discuss in class
Kemp, 2017, "Lost Species" - Chp 23	Thurs January 13 th /discuss in class
Lubar, 2017 "Lost Museum"- Chp 6 Into the Storm	Tues January 18 th /discuss in class
Download both endnote and Mendeley	Tues January 24 th / before class
Das_et_al_2018	Tues February 1 st
Suarez, 2004 and Tobin, Chp 8	Tues February 8 th
Lubar2017 Lost Museum - Chp 7 Paperwork	Tues February 15 th
Kemp, 2017, "Lost Species" - Chp 6	Tues February 22 nd
Reading TBD- Science Communication	Tues March 15 th
Watch video- create one question	Tues March 24 th
No Readings	Tues March 31 st
No Readings	Tues April 7 th
Reading TBD	Tues April 14 th
Reading TBD	Tues Aril 21 st

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 3rd and Thursday March 17th. 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.