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|  | **Monday** | **Wednesday** | **Friday** | |
| **Part I: Care Of Collections (Units I-III)** | | | | |
| **Week 1**  **Intro to Natural History Collections** |  | **Aug 27**  **Course Intro**  **Do:** Syllabus,  Team formation (comes with an assigned collection),  Grade Weights  **Assign:**  SPNHC  Winker 2004  Winker 2014 | | **RAT on Intro to Nat Hist Collections**  **Do:** Collections Tour—1/2 WITH JOHN, ½ with Bill (types of preservation, organization of collections, strengths of our collection, major contributors, challenges for this collection)  **Assign:** Fill out worksheet about collections tour  **READ:** Collecting Controversy read science article (Minteer et al. ) and response, watch brain scoop, Kevin Winker re-affirming the specimen gold standard blog post |
| **Week 2**  **Sep 1**  **Unit I:**  **From Collecting to Accessioning**  **Week 3**  **Sep 8** | **DO:**  give a scenario about collecting and ask when it is OK, have them list considerations before collecting or rank considerations? Or use Winker’s crumbling paper to put up the five misunderstandings and have them explain why they are faulty reasoning and identify those reasonings in the Minteer paper  5 min any questions before Wed’s RAT  **Assign** Biological Voucher, Ch 7 Field Collecting Manual & Type specimen youtube, video of me describing the Flowchart of Typical Specimen Movement | **RAT Unit I: Collecting and Vouchering**  Questions from the controversy and intro are also fair game  **DO:**  Flowchart of Specimen Movement—recreate it from cut up pieces?  **Handwriting**  Labels  Design a field collection worksheet for an insect trip back campus? They can look at others online or the relevant Chapter in the Field Manual—Use Insects b/c of the entomology class here that collects!  **Assign:** JMM Handling Document (pay attention to collection specific arrangement on trays in birds), Collection Manager description chapter plus Collections Best Practices for AAM—Find a job announcement and mark off which duties match the chapter description | | **Accessioning Intro.—** MEET IN COLLECTIONS  **Do:**  Locate detention centers  Line a drawers (order the specimens) and learn about handling fluid preps **CAN WE GET JOHN**  they will need to answer a series of questions using Specify (# of specimens of particular species etc.)  accession specimens as teams—DO WE HAVE ANYTHING TO ACCESSION?  **Assign:**  **MAKE LABELS for field collected animals**  read our JMM Specify manual or watch Specify 6 Interface video OR **MAKE OWN VIDEO**, maybe complete a tutorial,  **NEED a Specify on Web Portal to do this**  Remind handwriting quiz (one in each of first three Units) |
| **Accessioning Hands-on**  Handwriting Quiz  MEET IN COLLECTIONS  **Do:**  Accession your field collected objects into fake birds  SOMETHING using our collections database, continue answering questions?  Compare what we found in collections manager job descriptions  **Assign**: articles on Georeferencing, tutorial video | **Georeferencing Collections Intro.**  **Hand back Handwriting Quiz**  MEET IN COLLECTIONS  **Do:**  Georeference your fake birds  use iDigBio or our database to answer some question… test hypothesis of sexual dimorphism in weight or length for some species—  **Assign**: | | **Inventorying Collections Hands-on**  MEET IN COLLECTIONS  **Do:** inventory of a drawer or shelf (click button that says object has been seen)  **Assign**: Read about loans, read a loan policy that I choose |
| **Week 4**  **Sep 15**  **Unit II:**  **Theory of Collections Management, Agents of**  **Deterioration**  **(Videography**  **Project)**  **Wek 5**  **Sep 22** | **Inventory again** (flip which person is actually typing)  MEET IN COLLECTIONS? OR **BRING LAPTOPS**  In class, teams write up a request for specimens as a google doc (I tell them which type of specimens, which museum based on the policy they read for homework, and give them a persona and project description; they have to figure out which specimens would be the best for their question) Then they pass their requests to the next team and get graded on it (Did they include all the requirements, were they convincing)  **Assign**: Theory of Collection Management (Simmons)  Deterioration reading/video  physical factors (fire, water, earthquakes, theft, best storage practices, climate and light control  chemical factors (acids, pollution); biological factors (pests) | **RAT Unit II: Theory of Collections Management**  MEET IN COLLECTIONS **AFTER RAT**  **Do:** an assessment of your collection for all deterioration factors..NEED AN ASSESSMENT CHECKLIST  **🡪is this a better time to do the theory of collections activity? When they’ve been in the collections more?**  place the collections they saw on the axes from the paper and justify their placement’’—ask John, Bill and AE to also do this and give 3 bullet points for why they chose each part of the axes; we can do this again at the end of this half of the class when they have more knowledge and experience. Then they will compare with the assessment from today and see that they have learned something—do this activity IN the collections rooms and meet in the hallway where I set up a chalkboard to share answers (or use the giant notepads  **Assign**: Read about condition reports | | **MEET IN COLLECTIONS**  **Do**: a condition report for a specimen you encountered last time  **Assign:** IPM, read someone’s plan, |
| **IPM**  **Handwriting Quiz**  **Bring: Laptops**  **DO:** Here are some pests, now you figure out what they are and come up with a plan for what to do. Then you get graded by the other teams on what you proposed  **Assign:** Bunch of museum videos to watch for inspiration | **Hand back Handwriting Quiz**  **Do:** Videography Workshop  **Assign**: More museum videos for inspiration | | **MEET IN COLLECTIONS**  **Do:** Talk over or vote on the videos we watched, have some critera for what makes it good  Video Outline Due (end of class)  **Assign:** Video Script**,** including description of shots, specimens to use, and timing |
| **Week 6**  **Sep 29**  **Unit III**  **Policies, Permits and the Public**  **Week 7**  **Oct 6**  **Week 8**  **Oct 13** | **MEET IN COLLECTIONS**  Video Script Due (beginning of class)  **Do:** Video Worksession  **Assign:** reading/video on permits/policies | **RAT Unit III**  **Do:**  **Assign:** | | **Do:**  **Assign:** |
| **Do: Video Contest/Peer Review**? 3 min videos, 3 min confer/feedback x 4 groups = 24 min, + 5 min to get to final consensus  **20 min other activity:**  **Assign:** Finalize Videos (have a paper/video ready to assign if the videos are pretty good) | **Final Video DUE to me**  **Do:**  **Assign:** | | **Handwriting Quiz**  **Do:**  **Assign:** Nina Simon Tedx |
| **Hand back Handwriting Quiz**  **Final Videos DUE**  **Do:** Reflection?  Something about the public in museums  **Assign:** | **Hand Back Video Feedback**  **EXAM 1**  (Units 1-3)  **Assign**: primer on DNA sequencing/analysis/sampling | | No Class: Early Semester Break |
| **Part II: Use Of Collections (Units III-VI)** | | | | |
| **Week 9**  **Oct 20**  **Unit IV**  **DNA Analysis**  **Week 10**  **Oct 27** | **RAT Unit IV—**  All about DNA sequencing, rates of evolution, population genetics, etc.—look in an evolutionary biology textbook; DNA barcoding  **Do:**  **Assign:** | **Do:**  **Assign:** find curator job description and compare job announcements with the collections manager from first unit | **Do:**  **Set up for Collections Tours, Sat Oct 25th** —Homecoming Weekend  **Assign:** | |
| **Do:**  **Assign:** | **Do:**  **Assign:** | **Do:**  **Assign**: Intro to Isotopes | |
| **Week 11**  **Nov 3**  **Unit V**  **Chemical Analysis**  **Week 12**  **Nov 10** | **RAT Unit V--Isotopes**  **Paper selection due** | **Heather return comments on paper selection**  **Do:**  **Assign:** | Last day to drop a course  **Do:**  **Assign:** | |
| **Background DUE (for peer review)**  **Do:**  **Assign:** | **Do:**  **Assign:** Background due on Friday | **(Background DUE to Heather)**  **Do:**  **Assign:** primer on physical analysis | |
| **Week 13**  **Nov 17**  **Unit VI**  **Physical Analysis and Miscellaneous**  **Week 14**  **Dec 1**  **Week 15**  **Dec 8** | **RAT Unit VI**  **Do:**  **Assign:** | **Do:**  **Assign:** | **Do:**  **Assign:** | |
| **Fall Break** | | | |
| **Do:**  **Assign:** | **Do:**  **Assign:** | **Project Description DUE for peer review**  **Do:**  Peer Review of Project Description  **Assign:** | |
| **Budget Due for peer review**  **Do:**  Peer Review of Budget  **Assign:** | **Do:**  **Assign:** | **4-document proposal DUE to Heather (max 6 pages)**  Last day of class  **Do:**  **Assign:** | |
| **Week 16**  **Dec 15 (exam)** |  |  |  | |

**Introduction goals**:

* Motivate to be in the class
  + Get them into the collections rooms! This is hard because we don’t have a full three hours to see all the collections at once. **I want to check in the evals** if the students like this shorter tour as much as when we do it in a lab setting.
  + Importance of museums—I’m turning this into using the controversy over collecting to get them interested in motivated. Some really good articles, blog posts and the brainscoop video **where did we get all the dead animals🡪except, I need to get them on board first with more than just a tour of the collections. We need to read about the amazing uses of collections. Just not as in-depth as we will later in the semester.**
    - Video of what its like to be a curator? Probably better to select a few Brain Scoops
      * Corrie Moreau on ants: <https://www.youtube.com/watch?v=hWWw3SHCIAw>
      * Squirrel McNastyface

<https://www.youtube.com/watch?v=4iko2eExc08>

* + What is a curator and a collection manager? (both the titles used in different museums and a sample list of duties Buck reading in The New Museum Registration Methods)
    - **ASSIGNMENT:** Read article, find a job ad for a collections manager in a natural history collection and AS A TEAM?? highlight the duties in that job ad that are also on the reading’s generic list of duties, note any duties in the ad that are *not* in the generic list…but is this significant? Not really…so maybe do it as individuals and report as a team on new duties and consistent duties🡪use class time to get into the collections rooms
    - Could also use the table in Developing Staff Resources for Managing Collections
* Practice a RAT (half done)

Topics to cover:

**Care of Collections**

**Unit I**: **Theory and Organization of Collections**

**✔** Controversy around collecting—use recent science article🡪and the brain scoop response:

https://www.youtube.com/watch?v=nS8suhK-c5I

**✔** Theory of Collections Paper

Labels (Field to Drawer), software, phylogeny, georeferencing, handwriting

**✔**Biological Voucher

Field Collection—could go in the second half of the semester too, but it has a lot to do with labeling, so could go here

Accession, Loan, Permitting

**Unit II:** **Agents of Deterioration**

IPM

Physical, chemical, biological

**Unit III:** Policies and Permits? Maybe collecting? Also serving the Public: Use Nina Simon TedEx talk: https://www.youtube.com/watch?v=aIcwIH1vZ9w

**Use of Collections:** (probably put DNA or Chemical last because it’s probably harder to understand than physical/morphological work)

DNA analysis—phylogenetics, population genetics, genomics

Chemical analysis: include isotopes, pesticides, heavy metals)

Physical analysis: Morphology—CT scans, baby mammoth?? (Climate Change)

pXRF, DNA and isotope analysis.  We are experimenting with 3D printing,

* + - Talk by Helgen—

Video about using biodiversity collections to understand evolution: Palaeobiologist Dr Anjali Goswami (UCL Genetics, Evolution and Environment and UCL Earth Sciences) explains what we can learn about biodiversity from the unique collection housed at UCL's Grant Museum of Zoology.

https://www.youtube.com/watch?v=SNXMPUYvdfw&list=PLXXq6t7B9L\_7itwvL8hG9fGKxdcIyRi0Z&index=15

**Week one goals**:

* Motivate to be in the class?
  + Importance of museums
    - Talk by Helgen?
  + Get them into the collections rooms!
* What is a curator (both the titles used in different museums and a sample list of duties Buck reading in The New Museum Registration Methods)
  + **ASSIGNMENT:** Read article, find a job ad for a collections manager in a natural history collection and AS A TEAM?? highlight the duties in that job ad that are also on the reading’s generic list of duties, note any duties in the ad that are *not* in the generic list…but is this significant? Not really…so maybe do it as individuals and report as a team on new duties and consistent duties🡪use class time to get into the collections rooms
* Practice a RAT

Topics to cover:

**Care of Collections**

**Unit I**: **Theory and Organization of Collections**

Accession, Loan, Permitting

Theory of Collections Paper

Biological Voucher

Field Collection—could go in the second half of the semester too, but it has a lot to do with labeling, so could go here

Labels (Field to Drawer), software, phylogeny, georeferencing

Controversy around collecting—use recent science article

**Unit II:** **Agents of Deterioration**

IPM

Physical, chemical, biological

**Unit III:** Policies and Permits? Maybe collecting?

Want to know more about Emily Graslie? Check out the Cosmopolitan article about her career trajectory: <http://www.cosmopolitan.com/career/news/a29534/get-that-life-emily-graslie-science/?src=spr_FBPAGE&spr_id=1440_76628738>

Readings, Videos, etc. Outside of class:

**August 27, 2014 Importance of Natural History Collections**

Winker, K. (2004). Natural history museums in a postbiodiversity era.*BioScience*, *54*(5), 455-459.

<http://www.mnhnc.ul.pt/pls/portal/docs/1/335873.PDF>

Pettitt, C. (1997). The cultural impact of natural science collections. *The Value and Valuation of Natural Science Collections. The Geological Society. London*, 94-103.

<http://fenscore.man.ac.uk/Uses/cwpvalnpaper.htm>

Winker, K., & Withrow, J. J. (2013). Natural history: Small collections make a big impact. *Nature*, *493*(7433), 480-480.

<http://www.nature.com/nature/journal/v493/n7433/full/493480b.html>

Natural Sciences Collections Association. (2005). *A Matter of Life and Death: Natural science collections: why keep them and why fund them?*. Natural Sciences Collections Association.

<http://books.google.com/books?id=RJ51AgAAQBAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false>

**August 29, 2014 Recent Collecting Controversy**

**Three short articles**

Minteer, B. A., et al. "Avoiding (Re) extinction." *Science* 344.6181 (2014): 260-261.

Rocha, L. A. et al. “Specimen collection: An essential tool.” Science 23 May 2014: 344 (6186), 814-815.

Krell FT and Wheeler QD. “Specimen collection: plan for the future.“ Science. 2014 May 23;344(6186):815-6

Minteer, B.A., et al. “Specimen collection: An essential tool—Response.” Science 23 May 2014: 344 (6186), 816.

**Kevin Winker Reaffirming the Specimen Gold Standard**

<http://www.universityofalaskamuseumbirds.org/reaffirming-the-specimen-gold-standard/>

**Where’d you get all the dead animals Brain Scoop Podcast**

<https://www.youtube.com/watch?v=nS8suhK-c5I>

**I’m also considering**

Winker, K. (1996). The crumbling infrastructure of biodiversity: the avian example. *Conservation Biology*, *10*(3), 703-707.

http://www.kevinwinker.org/infrastructure.pdf

**September 1, 2014 Collecting Considerations**

Chapter 7 - **Organizing specimen and tissue preservation techniques in the field for subsequent molecular analyses** in Volume 8 *Manual on field recording techniques and protocols for All Taxa Biodiversity Inventories and Monitoring*. Belgian Development Cooperation, 2010.

<http://www.abctaxa.be/volumes/volume-8-manual-atbi/>

**The** **changing** **significance** **and** **definition** **of** **the** **biological** **voucher**. In: (Williams, S., & Hawks, C. (2006). Museum studies: Perspectives and innovations. *Washington, DC: Society for the Preservation of Natural History Collections*.

**Flowchart of Typical Specimen Movement Through the MVZ**

**Recording Localities in Field Notes:** <http://mvz.berkeley.edu/Locality_Field_Recording_Notebooks.html>

**The type specimen** song <https://www.youtube.com/watch?v=gfQL7bXwzvM>

**September 3, 2014**

Specify 6: An Evolutionary Progression by Andy Bentley (12:55) tells you what Specify is—this is probably too nitty gritty for the students. I emailed specify to see if they have any worksheets

<https://www.youtube.com/watch?v=KoR8_P47Dx8&list=PLSm4rjXsJ4aMf2IPNqrzSD5w8bPcW9ZK8>

Slides and transcript here: <http://www.slideshare.net/nielsklazenga/specify-6byandybentley-1>

If we make our own video, here is a set of slides to start from: <http://ecnweb.org/sites/default/files/9-ECNdatabasetalkNov2011.pptx>

UT Texas’s Specify Quick Guide: <https://wikis.utexas.edu/display/specify6/Specify+Quick+Guide>

Specify 6: Introduction to the Specify 6 Interface (3:37) <http://specifyx.specifysoftware.org/wp-content/static/specify_interface_overview.wmv>

Specify 6: Entering Data in a form in the Workbench (5:52)

<https://www.youtube.com/watch?v=nh5fLrItETw&list=PLnaFvZadK2V7BzRYOJPXEoLCi2kqlJSlY&index=6>

Specify 6: Entering Data in a Grid in the WorkBench (9:34)

<https://www.youtube.com/watch?v=KQ6VkWJQlwI&list=PLnaFvZadK2V7BzRYOJPXEoLCi2kqlJSlY&index=8>

**September 5, 2014**

iDigBio Portal Tutorial

https://www.idigbio.org/portal/tutorial

Fish and fish tissue collecting protocol

http://cypriniformes.org/tissue\_fish\_%20sample\_col\_protocols.html

**September 17, 2014**

Simmons, J.E. and Y. Munoz-Saba. The theoretical bases of collections management" (2003), "Museum studies programs in North America" (2006), "Presence of elemental mercury in fluid preserved. Collection Forum 2003; 18(102):38-49

**Collections Manager Day**

American Association of Museums. (2008). *National Standards & Best Practices for US Museums*. American Association of Museums.

Collections Manager job description

**September 15, 2014**

Collections Care Basics - Webinar 1 by Heritage Preservation. Start at 46:50, at 52:00 there is a video of the Red Rot cocktail…skip to 56:57

<https://www.youtube.com/watch?v=YsKtv89NjFo>