**Care & Use Content Suggestions**

**from Museum Scientists and other Museum Professionals**

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| --- | --- | --- | --- |
| **Topic** | **# times**  **suggested** | **By whom?** | **Our Class** |
| Attention to Detail, OCD, organization, handwriting | 4 | Curators, Instructor | Units I-III |
| Database Management, Digital Tools | 3 | Collections Managers | Unit I |
| Collections’ significance and  potentials in society | 2 | Instructor | Intro, Units III-VI |
| Philosophy and Theory of Collections Mgmt | 2 | Curator, Instructor | Unit III |
| Permitting | 1 | Collections Manager | Unit I-II |
| Accessioning | 1 | Collections Manager | Unit I |
| Cataloging | 1 | Collections Manager | Unit I |
| Collecting Protocols with data recording | 1 | Collections Manager | Unit I |
| Hands-on Lab | 1 | Curator, Instructor | Units I-III |

**Museums/Institutions Responding**

Perot Museum of Nature and Science

Zoologische Staatssammlung München

Protect Heritage Corp

Virginia Museum of Natural History

Earth and Mineral Science Museum & Art Gallery, Penn State University  
Ohio Historical Society

University of Kansas Biodiversity Institute

Museum of Archaeology & Ethnology, Simon Fraser University  
Texas Tech U

J.F. Bell Museum of Natural History  
University of Alaska Museum

**My Inquiry**

I have the wonderful opportunity to be the director at the Joseph Moore  
Museum at Earlham College. With that position, I get to teach one course  
per year in "Museum Studies." My goals with the course are to first train  
students in the most useful skills they will need to go on as collections  
managers or curators or researchers who use collections, and second, for  
students who may never work in/for a museum in the future, to convince them  
of the importance of biological collections so that they will be educated  
lifelong museum advocates.

Here is where I ask for \*your input:\*  
(1) what are the \*skills \*you want incoming collections manager, graduate

students or curators to have?  
  
(2) we will read an article each week in which someone has published their  
research using specimens/collections as a primary source of  
information/data. For example, ancient DNA, isotope, morphological studies.

What are some of the best \*examples of collections-based research\* you

thinkI should include?  
  
Thanks for your input,  
  
Heather

**Actual Responses**

I graduated from a Museum Science program, but once I got a job in Collections I discovered that I had zero experience and training in the world of permitting.  It took a long time for me to get a handle on the permits we possessed.  Reporting to other agencies is a real treat too!  So besides the obvious need for training in accessioning, cataloging, and database management, I highly recommend a section on permits.  This might also help to reinforce your message about how valuable collections are and that specimens don’t just already exist in collections or drop into your lap from donors.

Just my two cents!

**KAREN MORTON**

Collections Manager

**Perot Museum of Nature and Science**

**P** [214.756.5722](tel:214.756.5722" \t "_blank) | [karen.morton@perotmuseum.org](mailto:karen.morton@perotmuseum.org" \t "_blank)

Dear Heather,

on thing both, researcher and collection managers need to know & understand is reasonable collecting, especially in an increasingly bureaucratic legislative environment that rather tends to burden biodiversity research instead of promoting it.

This includes that collection materials need to be treated as respectful as possible especially in the light of destructive sampling methods. Today, it is possible to sequence or conduct stable isotope analysis on historic specimens. While "DNA" was not even discovered at the time of collection of historic specimens, collections allow us today to analyse e.g. extinct species that persisted time in drawers or specimen jars. This offers opportunities, but we need to be careful not to corrode our collections today, anticipating (damaging or making specimens worthless for) future (not yet discovered) analytical advances.

In my view, researchers need to understand that their samples have a value beyond their (own) research interest, and thus need to be documented thoroughly (e.g. detailed protocols of chemicals & buffers used for extraction & storage) and need to be transferred with comprehensive data into university or museum based collections after termination of the respective research project. It is a prerequisite of good research to allow verification of (own) research results. This can only be achieved if the materials / samples remain "available".

Here in Munich, we offer students via university based excursions to learn "how to collect". For students this is sometimes challenging and exhausting, sometimes deeply embraced and appreciated. We aim to give students a deep understanding what "collecting" and "fieldwork" means (hoping not to get stranded with an awfully mess of ill documented samples once these students finished their thesis). A good guidance might be the Manual on Field Recording Techniques and Protocols for All Taxa Biodiversity Inventories; chapters are freely available at the bottom of this page:

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

All the best

Dirk

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Besuchen Sie unsere Sammlung:

<http://www.zsm.mwn.de/ich/>

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| |  | | --- | | **Robert Waller <rw@protectheritage.com>** | | Mar 7  https://mail.google.com/mail/u/0/images/cleardot.gif |  | **https://mail.google.com/mail/u/0/images/cleardot.gif**  **https://mail.google.com/mail/u/0/images/cleardot.gif** |
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Hi Heather,

In connection with (1) you might want to look at the publication by Cato et al:

Paisley S. Cato, Robert Waller, Llyn Sharp, John Simmons and Stephen L. Williams.  Developing Staff Resources for Managing Collections.  Virginia Museum of Natural History, Special Publication Number 4, Martinsville, 71pp., 1996.

It should still be available from the Virginia Museum of Natural History.

Rob

**Robert Waller**, PhD, CAPC, FIIC President and Senior Risk Analyst **Protect Heritage**

Heather

I would also suggest that you scavenge some course ideas from some of the better natural history track museum studies courses out there.  There is one here at KU and they have outlines of their course material online at:

[http://museumstudies.ku.edu/overview](http://museumstudies.ku.edu/overview" \t "_blank)

I have also developed a short handout for the collection tours that we give these students outlining some of the aspects they need to be aware of – see attached.  I would be happy to provide any of the materials mentioned therein if this is useful.

I would also have a look at the SPNHC organizations Collection Forum and newsletter for appropriate articles on collection based research - [http://www.spnhc.org/19/publications](http://www.spnhc.org/19/publications" \t "_blank)

Hope that helps

Andy

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    V                V                V  
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SPNHC President-Elect

[http://www.spnhc.org](http://www.spnhc.org/" \t "_blank)

Dear Heather et al.

I am currently the geological collections and database specialist at the Virginia Museum of Natural History. Our museum is closed today due to the weather but I would be happy to check on Monday and see if that publication is available that Robert mentioned.

Also, per Dirk's comment "In my view, researchers need to understand that their samples have a value beyond their (own) research interest, and thus need to be documented thoroughly (e.g. detailed protocols of chemicals & buffers used for extraction & storage) and need to be transferred with comprehensive data into university or museum based collections after termination of the respective research project. It is a prerequisite of good research to allow verification of (own) research results. This can only be achieved if the materials / samples remain "available"."

I agree wholeheartedly and I think it is growing more and more important to focus on preservation not only of the specimens themselves but their associated data. In my opinion the easiest way to preserve specimen data, and share it with the community of both present and future scientists, is to make it digital. I attached an article which I wrote that is currently in press or I would provide you a link to the published version. This article discusses the importance of preservation, but more importantly the tools for implementing preservation strategies. I hope you find it insightful. Below is an excerpt from this article which pertains directly to this conversation thread. I should mention that EGEMS is a digital record-keeping system for geological materials. More information on EGEMS can be found at [www.egemsinfo.com](http://www.egemsinfo.com/" \t "_blank)

"In addition to the more commonly known materials (Rocks, Minerals, Fossils) EGEMS also has the capability to store information for other materials such as Research Products. Research Products are geological materials that can be used for future research purposes or were derived from pre-existing research projects. Examples include: thin sections (polished or covered), billets, experimental powers, synthesized materials, etc. When information for these are fully filled in they act as a recipe that can be re-created in the future (Figure 10). Most of the fields for Research Products in EGEMS are new to digital record keeping systems everywhere."

In response to your original question I believe in today's digital age, a major part of a collections management curriculum should be acquainting the students with the various databases and digital tools they are likely to encounter in their career.

Thank you Heather for developing this course, I wish I could have taken it before I began my career in collections management! If yourself or anyone else wishes to contact me regarding this topic or any of these tools I would be happy to discuss further and I can be reached at [stimm10@gmail.com](mailto:stimm10@gmail.com" \t "_blank).

~Sarah

Dear Heather,

I am very pleased to learn that you are going to offer a class on collections management that will emphasize natural history collections. It is an important thing to do and well worth your time.

I have been a collections manager since the mid-1970s, and have taught natural history collections management workshops since 1998 in Latin America and Asia, and have taught collections management classes (not specifically natural history collections, but generalized for all collections) almost as long. I served as the Director of the Museum Studies Program at the University of Kansas for 6 years, and currently teach museum studies courses in the graduate programs at Kent State University and the Universidad Nacional de Colombia, an undergraduate course on museum education at Juniata College, and I teach several courses for the Northern States Conservation Center.

The workshops I do are designed as the equivalent of a semester long course in one week  (40 hours of instruction, 400+ pages of readings). My colleague, Yaneth Munoz, and I have published a description of the workshops which pretty much sums up the skills I think collections managers need (see below). We developed two features for our workshop that in our experience, have made a big difference in the quality of learning on the part of the participants: (1) we developed a theory of collections management to tie the themes together, and (2) we developed a simple, easy-to-run lab component because people learn better when they are doing things. The lab exercises are designed to demonstrate and reinforce what the lectures and readings cover. I have attached a copy of the English version of the lab manual in case you are interested.  
  
You can access the papers mentioned here:

Simmons, J.E. and Y. Muñoz-Saba.  2006.  The future of collections management:  an approach to collections management training for developing countries.  *Collection Forum*, 20(1-2):83-94.

[http://www.spnhc.org/media/assets/cofo\_2006\_V20N172.pdf](http://www.spnhc.org/media/assets/cofo_2006_V20N172.pdf" \t "_blank)

Simmons, J.E., and Y. Muñoz-Saba. 2003. The theoretical bases of collections management. *Collection Forum* 18(1-2):38-49.   
[http://www.magsq.com.au/\_dbase\_upl/john%20simmonds%20paper.pdf](http://www.magsq.com.au/_dbase_upl/john%20simmonds%20paper.pdf" \t "_blank)

Unfortunately, there is still not a good textbook on natural history collections management available in English, although Yaneth and I have published one in Spanish (we are currently working on a new edition, and may do an English version as well), which you can download for free here:  
[http://www.ibiologia.unam.mx/pdf/directorio/c/cervantes/clases/sistem/Cuidado\_Manejo\_y\_Conservacion\_de\_las\_Colecciones\_Biologicas.pdf](http://www.ibiologia.unam.mx/pdf/directorio/c/cervantes/clases/sistem/Cuidado_Manejo_y_Conservacion_de_las_Colecciones_Biologicas.pdf" \t "_blank)  
  
When I teach collections management classes, I use two books that although not specifically for natural history collections are still extraordinarily useful, "Museum Registration Methods," 5th edition, and the 3rd edition of "A Legal Primer on Managing Museum Collection." I have attached a copy of the syllabus of the museum collections class I am currently for Kent State University to give you an idea what what themes I think are important.

Good luck with your class, and if you have any questions about how I have approached the subject, please ask. Once you have your own syllabus worked out, I would appreciate seeing a copy if you don't mind sharing. Teaching collections management to the next generation of museum professionals is something I think is very important.

--John

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and  
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Juniata College  
Huntingdon, Pennsylvania

Hi Heather,

The number one skill that I would like to see in incoming curators, collections managers, students, and others is a skill that is basic and fundamental to the museum profession but is not often discussed, and that is the basic sensitivity and care in handling museum specimens. For lack of a better term, I’ve called it “museum sensibility”. It’s not quantifiable and not easy to discern in job interviews, but is critical to the preservation of museum specimens and to do one’s job as a museum professional. It seems to be an innate skill, that you either naturally have it or you don’t - but it can be learned. We’ve all seen examples of gross mishandling of specimens  and probably can share many horror stories. In my career, I’ve seen museum directors, curators, respected scientists, etc. who have authority over and direct access to natural history collections who demonstrate abominable and destructive care of collections. Usually this is not intentional but rather is from a lack of sensitivity or training. On the other hand, I’ve seen high school interns and beginning undergraduate students who have a remarkable sense of how to handle and care for specimens. In my last position, I hired and trained probably about 75 university students over the years to work directly in collections care. I would always try to discern in interviews and from references if they have the requisite skills and personality traits that translate to being thoughtful and careful in handling specimens and maintaining a collection.  Such phrases as “I’m a little bit OCD” or “I’m very organized” were music to my ears! Anyway, I think it’s imperative that the museum community teach these skills to the next generation of museum professionals, and find a way to make it demonstrable in selecting candidates for collections-related positions.

Dave Dyer

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**David L. Dyer / Curator of Natural History**

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Hello Heather and Dave,  
  
Interesting comments, Dave.  I teach 'Archaeological Collections Management' and 'Archaeological Conservation' to undergraduates, and have had a host of volunteers, short term staff and interns over the past 25 years.  When interviewing,  always ask students and applicants about their hobbies.  This gives me a good sense of their manual dexterity and familiarity with different types of materials.  If they say tying fishing flies, video gaming or hat making, like you say, music to my ears.  The snowboarders and rock climbers I start with durable collections and allow them the chance to learn and prove their abilities.  
  
As for readings, I would look in the literature on collection applications of pXRF, DNA and isotope analysis.  We are experimenting with 3D printing, but I have not written anything about it yet.  
  
Barbara

Dr. Barbara J. Winter  
Museum of Archaeology & Ethnology  
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Heather,  
  
This may be my subjective opinion but before teaching anything specific to on-the-job techniques, I have attempted to communicate the philosophical and theoretical aspects of natural history museum collections, their significance and potentials in society regardless of the collection types or related scientific disciplines, so as to engender appreciation and respect for the collections among students.  
  
Pardon my self-advertising here, but one of my papers reflects this idea.  
  
[https://www.academia.edu/245195/The\_changing\_significance\_and\_definition\_of\_the\_biological\_voucher](https://www.academia.edu/245195/The_changing_significance_and_definition_of_the_biological_voucher" \t "_blank)  
  
  
Sincerely,  
  
Mariko

When I hire students to work in our collections - two skills come to mind.  Are they familiar enough with databases (of any kind) to be able to parse out information into correct fields -- this can be taught.  The second parallels David's "museum sensibility" and is an attention to details.  So many times students say "oh yes, I can handle details" but oh no they can't, and forget to do this or that or watch for this or that.  Asking about hobbies is a great idea (I think I'll incorporate that in my interviews) as certain hobbies will definitely require manual dexterity and attention to details.

As for references for collection management:

1. Storage of Natural History Collections: Ideas and Practical Solutions, edited by C.L. Rose and A.R. de Torres; available from the Society for the Preservation of Natural History Collections

2. Manual of Curatorship: A Guide to Museum Practice, edited by J.M.A. Thompson, published by Butterworth Heinemann but I believe it's available from the American Association of Museums

3. Managing the Moder Herbarium: An Interdisciplinary Approach, edited by D.A. Metsger and S.C. Byers; also available for the Society for the Preservation of Natural History Collections

Cheers,  
Anita

Anita F. Cholewa, Ph.D.  
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Hi, Heather. Sounds like an interesting course. Personally, I'd flip the reading around to emphasize collections development and collections care rather than collections from the perspective of researchers. The latter can artificially narrow perceptions of collections' myriad values (i.e., more than what is on the table needs to be incorporated into the collection). I'd echo many of the other responses, especially those related to manual (dis)abilities, but also emphasize the importance of instilling a vision and passionate appreciation for the building of these critical research infrastructure resources. Everyone can and should be involved.  
  
Best, K

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