

**Note: This is a draft and some of the readings will change in the final version. Likewise, some of the assignments may change.**

**SCHOOL OF INFORMATION  
UNIVERSITY OF TEXAS AT AUSTIN**

**MATERIALS IN LIBRARIES, ARCHIVES AND MUSEUMS**

Lecturer: Karen Pavelka, UTA 5.422  
Meeting time: Wednesday, 9-12, UTA 1.506B, Unique #28949  
Office hours: By appointment  
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Course Overview:

Underlying factors in the physical nature of records materials; concepts of permanence and durability and their assessment; basic concepts of materials science; materials found in library, archive and museum collections, especially manuscripts, books and photographic processes. Context of conservation and preservation practice.

Objectives:

1. To impart understanding of the materials frequently encountered in library, archives and museum collections through emphasis on common, underlying factors of stability and deterioration.
2. To allow the student to gain an understanding of the conservation and preservation literature.
3. To emphasize the importance of understanding classes of materials, similarities and differences.
4. To learn to identify and investigate components of objects and assess stability.
5. Secondary emphasis will be placed on methods of fabrication, especially as they relate to durability or physical toughness of materials.
6. Historical development of materials will be discussed especially where it is relevant to understanding the range of materials likely to be encountered and where it bears on lasting qualities.

**Recommended texts: One copy of each will be kept in the lab for limited loans**

Benson, R. (2008). *The printed picture*. New York: Museum of Modern Art.

Boersma, F. (2007). *Unravelling textiles: A Handbook for the preservation of textile collections*. London: Archetype

Jurgens, M. (2009). *The digital print: Identification and preservation*. Los Angeles: Getty Conservation Institute.

Lavedrine, B. (2003). *A guide to the preventive conservation of photograph collections*. Los Angeles: Getty Conservation Institute.

**Required readings**

Students are responsible to have read all the readings listed on the syllabus before class and are expected to come to class prepared to discuss them. Every week in class we will review the readings for the next week and I will let you know which are the most important, which are trivial and just for fun, and which will be over your heads. There are many more books, journals, samples etc. in UTA 1.506 and you are welcome to use any of the materials in that room. Please do not remove anything from 1.506 without my specific permission for each item.

**Assignments**

Research Paper

A research paper is required for this class. The objective of the paper is to provide you with experience in framing a question about the nature of materials, becoming familiar with the resources available for conservation and preservation technology, evaluating citations critically, and communicating with colleagues. It is an opportunity to read about something that interests you. **The topic must be approved by the instructor.** Selected papers from previous classes are stored in manuscript boxes in 1.506 and may provide inspiration if you are looking for a topic.

The paper will be submitted in four stages:

- **The topic will be chosen by September 8.** Students will post their thesis question or statement to Canvas where it will be shared with other class members. Post the file in the folder titled *Paper topics due September 10*. Title the file: Yourlastname\_topic using a one word summary for your paper and no spaces in the title. (For instance, if I were writing a paper on the subtleties of deterioration of gum bichromate prints I would title it: Pavelka\_gumprints) I will **only** accept assignments as a **Word doc**.
- **A complete paper including the bibliography is due SUNDAY October 31/Halloween.** You must identify which bibliographic style you are using at the top of your bibliography. This version of the paper is to be posted on Canvas in the folder titled *Draft research papers* where it will be accessible to the rest of the class. This version will not be graded but I will offer comments on the draft; it is intended to promote an exchange of ideas and observations. Title the file Yourlastname\_draft
- **November 3 & 10** Each student will be assigned a time to lead a discussion about his or her research. The discussion might include a brief summary of the work; impediments or successes encountered, especially if you found a useful research technique or source; suggested areas for further research; others areas as appropriate. You should prepare questions for discussion. The point is not merely to present your work, but to get feedback from your colleagues. The discussion format may vary according to class size.
- **The final paper is due Friday, December 3; please post directly to Canvas.** *The final version will be graded.* Post the file on Canvas in the folder titled *Final Research Paper*. Title the file Yourlastname\_finalpaper. Selected paper copies will be kept on file in UTA 1.506 (Lab Ante Room) for reference for future students. **Please let me know if you do not want your paper included in this group.**
- Again, please **submit all assignments as a Word doc** so I can use Comments and Track Changes to give feedback. **I will not accept PDF files or any format other than Word.**

#### Article presentation "Journal Club"

Each student is required to present one article to the rest of the class. Students will be assigned a date to present and the article should relate to either the class topic for the day, or the student's research paper. You should select a peer reviewed article rather than something from the popular press. Each student will select an article and distribute copies to the class **at least one week before** the assigned presentation date. You may use the folder provided on Canvas or use another method of distribution as you like as long as everyone has easy access to the article. The student will then lead a discussion of the article focusing on the significant points, successful arguments or flawed assumptions, how the article contributes to the existing body of literature, etc. The presenter should prepare a list of discussion questions. All class members are responsible for reading each article, but the presenter will read much more carefully and critically than other class members. The presentation will be graded on the quality of the article, how well the information is presented and the level of discussion that is generated.

#### Agents of deterioration observation

The 10 agents of deterioration have become a standard tool for assessing preservation risks to heritage collections. The definition for each risk is fairly straight forward, but they may vary in practice. For instance, a small intaglio in a frame bolted to the wall is not a high risk for theft, but if that same print is stored as one of several hundred in a box, in a high use collection, theft becomes a different issue. You need to assess the material, as well as the environment and policies. Another complication occurs as we are in a pandemic, and many institutions are closed to the public, and in some cases much of the staff is working from home. Routine maintenance and monitoring may be interrupted.

For this assignment, each student will contact someone who works with a specific collection and will agree to be interviewed. It can be someone you know, or it can be a cold call, but you may not be your own informant, or the informant for anyone else in the class. The objective of the interview is to get a sense of which of the 10 agents was considered the biggest threats before the pandemic, and whether those concerns have changed.

This assignment has three parts:

#### Part I **Due September 22**

Devise a list of interview questions. This will be done as a group and some class time will be allocated for this exercise. It is important that you give your informant an idea of how many questions there will be, and how long you expect the interview to take. Each student must use the same set of questions for their interview.

**Part II Complete interview by October 6**

Select and informant and perform the interview. Organize the information. This step will be done indivshortidually, no two students will interview the same person, so you will need to coordinate sources.

**Part III Summary due October 13**

Compare the information each student has collected. Was there any change in attitude or planning? Can you identify trends? Do the attitudes reflect the size or type of institution? Does staff size have an impact on decisions? Did it differ if people had been working in the building, or working from home? We will discuss the results in class, after which, each student will write a summary of the trends they noticed.

Quizzes

There will be at least one quiz for printing process and photo process identification. There may be others including "pop" quizzes. All quizzes combined only count for 5% your grade and they are graded very liberally. I give them to help me know what people are understanding or misunderstanding.

Useful dates to remember

September 8:	Research proposal due; post directly to Canvas. Students are strongly advised to speak with the instructor before submitting a proposal. <i>Please note there are only 8 ½ weeks until the draft is submitted.</i>
September 22:	Interview questions due.
October 6:	Interview complete.
October 13:	Summary of interviews due.
October 31: SUNDAY	Written paper, bibliography and discussion questions are due. Please post directly to Canvas. Students are expected to read all papers before the class discussion and be prepared to offer comments and suggestions. DUE AT MIDNIGHT SUNDAY
November 3 & 10:	Discussion of class papers. Collegial. Sadly, we can't have food this year.
December 1:	Photo and print process identification quiz.
December 3:	Final papers due; post directly to Canvas.
To be assigned:	Individual article presentations.

Grading

Grade points will be distributed as follows:

Research paper-Final paper	20 points
Research paper presentation	10 points
Participation in paper discussions	10 points (5 points each session)
Article presentation "Journal Club"	20 points
Agents of deterioration summary	10 points
Quizzes	5 points
Attendance and *participation	15 points
Lab protocol and safety	10 points

\*Participation is mandatory and defined by the amount of meaningful content each student contributes to the class. That said, participation is not dominance, rather open and welcoming discussion that includes everyone. If you never open your mouth in class, other than when you are presenting, you will not get a grade higher than a B for the class and more likely a C. On the other hand, if you tend to dominate every discussion, especially with personal anecdotes, expect a low grade.

Course Policies

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259, <http://www.utexas.edu/diversity/ddce/ssd/>

Students are expected to adhere to the University Honor Code. <http://registrar.utexas.edu/catalogs/gi09->

[10/ch01/index.html](http://10/ch01/index.html)

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

<<<<< Class 1 - 25 August >>>>>  
Context and introduction

- Anderson, S. (2016, August 21). David's Ankles: How imperfections could bring down the world's most perfect statue. Retrieved 6/28/18 from <http://www.nytimes.com/2016/08/21/magazine/davids-ankles-how-imperfections-could-bring-down-the-worlds-most-perfect-statue.html?rref=collection%2Fsectioncollection%2Fmagazine&action=click&contentCollection=magazine&region=rank&module=package&version=highlights&contentPlacement=3&pgtype=sectionfront>
- Brazil, R., & Chemistry World. (2014, June 28). Modern chemistry techniques save ancient art. Retrieved June 28, 2018, from <http://www.scientificamerican.com/article/modern-chemistry-techniques-save-ancient-art/?page=2>
- Cirino, E. (2018). The environments new clothes: Biodegradable textiles grown from live organisms. Retrieved May 3, 2019 from <https://www.scientificamerican.com/article/the-environments-new-clothes-biodegradable-textiles-grown-from-live-organisms/>
- Grann, David. (2010). The mark of a masterpiece. *The New Yorker*, July 12 – 19. Available on-line through UT Libraries.
- Hass, N. (2018). How one man is recreating lost colors. Retrieved May 3, 2019 from <https://www.nytimes.com/2018/09/05/t-magazine/pedro-da-costa-felgueiras-recreating-lost-colors.html>
- Indiana University Bloomington; School of Education. (2005, September 7). How to recognize plagiarism. Retrieved June 28, 2018, from <https://www.indiana.edu/~istd/definition.html>
- Lambert, Simon. (2014). The early history of preventive conservation in Great Britain and the United States (1850-1950). Retrieved June 28, 2018, from <http://ceroart.revues.org/3765>
- Mele, C. (August 2017). Museum visitors damage 800 year old coffin by putting child in it for photo. Retrieved June 28, 2018 from <https://www.nytimes.com/2017/08/24/arts/museum-coffin-kid-photo.html>
- Noel, W. (April 2012). Revealing the lost codex of Archimedes. Retrieved June 28, 2018, from [http://www.ted.com/talks/william\\_noel\\_revealing\\_the\\_lost\\_codex\\_of\\_archimedes?language=en](http://www.ted.com/talks/william_noel_revealing_the_lost_codex_of_archimedes?language=en)
- Owens, T.J. (2017). Getting beyond digital hyperbole and tools for looking ahead. Retrieved June 28, 2018 from <http://www.trevorowens.org/2017/06/getting-beyond-digital-hyperbole-tools-for-looking-forward/>
- Panagiaris, G., Mertzani, M.; Malea, E.; and Maniatis, N. (2008). Towards a binding code of ethics for the conservation and display of human remains. In *15th triennial conference, New Delhi, 22-26 September 2008: preprints/ICOM Committee for Conservation*. Bridgland, Janet (Editor). ICOM Committee for Conservation pp. 364-369. (On Canvas)
- Periodic table of the elements in pictures and words. (2016). Retrieved July 25, 2018 from <http://elements.wlonk.com/index.htm>
- Povoledo, E. (2018, January 13). *Authenticity of Modigliani works questioned*. New York Times. Retrieved July 11, 2018 from <https://www.nytimes.com/2018/01/12/arts/design/modigliani-paintings-authenticity-questioned-venice.html>
- Princeton University. (August 2016). When to cite sources. Retrieved June 28, 2018 from <https://www.princeton.edu/pr/pub/integrity/pages/cite/>
- Subramanian, S. (2018, June 15). How to spot a perfect fake: The world's top art forgery detective. Retrieved July 3, 2018, from <https://www.theguardian.com/news/2018/jun/15/how-to-spot-a-perfect-fake-the-worlds-top-art-forgery-detective>
- Valentine, J.; Li, J.; Zentgraf, T.; Bartal, G.; and Zhang, X. (2009). "An optical cloak made of dielectrics" *Nature Materials*, 8, 568. Available through Google Scholar. **Read this for the conceptual picture only; you are not expected to understand the physics here.**

<<<<< Class 2 - 1 September >>>>>  
**Preventive conservation and environmental control**  
**Article presentation:**

- American Museum of Natural History. (nd.). (Risk Assessment. Retrieved May 13, 2019 from <https://www.amnh.org/research/natural-science-collections-conservation/general-conservation/documentation/risk-assessment>
- Boersma, F. (2016). Preventive conservation--more than "dusting objects"? An overview of the development of the preventive conservation profession. *Journal of the Institute of Conservation* 39, no. 1 (2016), pp. 3-17  
Paper copy in lab.
- Canadian Conservation Institute. (n.d.). Ten agents of deterioration. Retrieved August 30, 2019, from <https://www.canada.ca/en/conservation-institute/services/agents-deterioration.html>
- Canadian Conservation Institute. (n.d.). Preventive conservation guidelines for collections. Retrieved May 3, 2019 from <https://www.canada.ca/en/conservation-institute/services/preventive-conservation/guidelines-collections.html>
- Conservation Center for Art and Historic Artifacts. (2015.) Preservation resource materials. Retrieved June 28, 2018, from <http://ccaaha.org/publications> Become familiar with the resources found here. Some pages are more populated than others.
- Image Permanence Institute. (n.d.). Photographic activity test. Retrieved June 28, 2018, from <https://www.imagepermanenceinstitute.org/testing/pat> (Look over rest of website as well.)
- International Council on Archives. (2016). *Archives damage atlas: A tool for assessing damage*. Retrieved August 30, 2019, from [http://www.heritageforpeace.org/wp-content/uploads/2013/03/archives\\_damage\\_atlas.pdf](http://www.heritageforpeace.org/wp-content/uploads/2013/03/archives_damage_atlas.pdf)
- Kiefer, K. IMA conservation: The Oddy test. (2013) Retrieved June 28, 2018, from <https://www.youtube.com/watch?v=HKDM6kLgdys>
- Lavedrine, B. (2009). From mass-produced artefacts to mass treatments: the impact of industrial development on the museum field. *Incredible Industry: Preserving the Evidence of Industrial Society*, pp. 15-24. The digital version of this volume is available at: <http://www.nkf-dk.dk> Retrieved June 28, 2018. You will have to navigate the site in Dutch, but the icons are fairly straight forward. There is a link at the bottom of the first screen labeled *Publikationer* that takes you to the publication.
- Manyanga, M., Chirikure, S. (Eds). (2017). *Archives, Objects, Places and Landscapes*. Mankon, Bamenda:Langaa Research & Publishing.  
Read:  
Chapter 1, "Archives, objects, places and landscapes: the multidisciplinary and decolonizing imperative. pp. 1-14.  
Chapter 17, "The monument we deserve: authenticity and the conservation of dry-stone walls at Naletale National Monument, Zimbabwe, pp. 379-397.  
Chapter 18, "Myths as metaphors: understanding narratives in sustaining sacred landscapes in Zimbabwe and Australia, pp. 399-419.
- McLeod, D. I. (2014). Determining treatment priorities for ecclesiastical textiles using significance and conservation assessments. Retrieved May 3, 2019 from <https://www.sciencedirect.com/science/article/pii/S1296207413002355>
- Measday, D. (2017). A summary of ultra-violet fluorescent materials relevant to Conservation. Retrieved May 13, 2019, from <https://aiccm.org.au/national-news/summary-ultra-violet-fluorescent-materials-relevant-conservation>
- Microscopy resource center. (2012). Retrieved June 28, 2018, from <http://www.olympusmicro.com/> Read (at least) the following sections:  
Home page > Physics of Light and Color > Sources of Physical Light > Introduction to Visible Light Sources  
Home page > Physics of Light and Color > Primary Colors > Introduction to Primary Colors  
Home page > Microscopy Basic Concepts > Introduction > Anatomy of the Microscope  
Home page > Special Techniques > Polarized Light Microscopy > Polarization of Light

- National Archives of Australia. (2013). About the photographic activity test. Retrieved August 30, 2019, from <http://www.naa.gov.au/records-management/agency/preserve/physical-preservation/pat.aspx>
- Taylor, J. (2018). In the quest for certainty: tensions from cause and effect deductions in preventive conservation. *Journal of the Institute of Conservation* 41, no. 1 pp. 16-31 Retrieved May 13, 2019 from <https://www.tandfonline.com/doi/full/10.1080/19455224.2017.1416649?scroll=top&needAccess=true>
- Tetreault, Jean. (2018). Products used in preventive conservation. Retrieved July 3, 2018, from <https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/technical-bulletins/products-used-preventive-conservation.html - a2b>

<<<<< Class 3 - 8 September >>>>>  
**Preventive conservation and environmental control**  
**Using the psychrometric chart**  
**Article presentation:**

- Carrier. (n.d.). Retrieved June 28, 2018, from <http://www.greenbuildingadvisor.com/sites/default/files/psychrometric-chart-quantities-carrier.jpg> This is an image of the psychrometric chart. I will hand out paper copies to use in class.
- Getty Conservation Institute. (2014). Conservation perspectives. Retrieved May 13, 2019 from [http://www.getty.edu/conservation/publications\\_resources/newsletters/29\\_2/index.html](http://www.getty.edu/conservation/publications_resources/newsletters/29_2/index.html) Read everything that comes before GCI news.
- Henderson, J. (2018). Reflections on the psychological basis for suboptimal environmental practices in conservation. *Journal of the Institute of Conservation* 41, no. 1 pp. 32-45 DOI: 10.1080/19455224.2017.1422777 Retrieved July 19, 2019 from <https://www.tandfonline.com/doi/full/10.1080/19455224.2017.1422777>
- Klein, J. (2019). *What termites can teach us about cooling our buildings*. Retrieved May 10, 2019 from <https://www.nytimes.com/2019/03/26/science/termite-nest-ventilation.html?action=click&module=RelatedLinks&pgtype=Article>
- The National Archives. *PAS 198:2012 Specification for managing environmental conditions for cultural collections*. London: British Standards Institution. (On Canvas.)
- Padfield, T. (2014) *Air exchange between an enclosure and its surroundings*. Retrieved from <http://www.conservationphysics.org/airex/airexchange.php>

<<<<< Class 4 - 15 September >>>>>  
**Appreciation and aesthetics**

- Ash, N., Homolka, S., Lussier, S. (2014). Descriptive terminology for works of art on paper. Retrieved June 28, 2018, from [https://www.philamuseum.org/doc\\_downloads/conservation/DescriptiveTerminologyforArtonPaper.pdf](https://www.philamuseum.org/doc_downloads/conservation/DescriptiveTerminologyforArtonPaper.pdf)
- Color IQ test. (n.d.) Retrieved June 28, 2018, from <http://xritephoto.com/cool-tools>
- Hoffman, C., Hartl, A., Ahn, K. et. al. (2015). Studies on the conservation of verdigris on paper. *Restaurator*, 36(2), 147-182. Available on-line through UT Libraries.
- Pigments through the ages. (2013). Retrieved June 28, 2018, from <http://www.webexhibits.org/pigments/intro/uv.html>
- Rowlett, S. (2013, June 18). How to destroy a James Turrell. Retrieved June 28, 2018, from <http://hyperallergic.com/73609/how-to-destroy-a-james-turrell/>
- 10 Colors that faded away. (nd.) Retrieved June 28, 2018, from <http://media.boingboing.net/wp-content/uploads/2011/10/listomania-1-1.jpg>
- X-Rite Inc. (2013). Color test. Retrieved [http://www.xrite.com/custom\\_page.aspx?pageid=77&lang=en](http://www.xrite.com/custom_page.aspx?pageid=77&lang=en)

271 years before Pantone, an artist mixed and described every color imaginable in an 800-page book. (n.d.). Retrieved June 28, 2018, from <http://www.thisiscoossal.com/2014/05/color-book/>

<<<<< **Class 5 - 22 September** >>>>>

**Basic concepts: Polymers**

**Article presentation:**

- How to identify plastic materials using the burn test. (2014). Retrieved June 28, 2018, from <http://www.boedeker.com/burntest.htm>
- Boersma, F. (2007). *Unravelling textiles: A Handbook for the preservation of textile collections*. London: Archetype. pp. 1-12
- Chapman, C. and O'Connor, H. (1964). Magic molecule. Retrieved June 28, 2018, from [http://www.nfb.ca/film/magic\\_molecule](http://www.nfb.ca/film/magic_molecule)
- Plastics news Europe. Retrieved May 13, 2019, from <http://www.plasticsnewseurope.com/> Take a look around the site. It's a trade publication with some interesting articles that change frequently.
- Haude, M. E., O'Hern, R., and Nunberg, S. "Plastics are forever: Wraps, tools, films, and containers used in conservation." AIC News, September 2011. Retrieved June 28, 2018, from <http://www.conservation-us.org/docs/default-source/aic-news/2011-05-Sept-AICNews.pdf>
- Kean, S. (2009, July 1). Does plastic last forever? Slate. Retrieved June 28, 2018, from <http://www.slate.com/id/2221963/>
- Knowledge network. Science 360. Retrieved June 28, 2018, from <http://science360.gov/topic/Chemistry/> This site often has interesting research on polymers but the segments change frequently.
- Lim, K. These cultural relics are made of plastic. Now they're falling apart. NY Times, 2018 August 28. Retrieved August 28, 2018 from <https://www.nytimes.com/2018/08/28/science/plastics-preservation-getty.html?action=click&module=Editors+Picks&pgtype=Homepage>
- Microgalleria main directory. (2005). Retrieved June 28, 2018, from <http://pslc.ws/macrog/maindir.htm>
- Smithsonian Institution Scholarly Press. (2017). *The Age of Plastic: Ingenuity and Responsibility. Proceedings of the 2012 MCI Symposium*. Retrieved June 28, 2018, from <http://opensi.si.edu/index.php/smithsonian/catalog/book/155> Read: Preserving plastic: Challenges in the conservation of modern art objects by Thea van Oosten and anything else of interest.
- POPART: Preservation of plastic artefacts in museum collections. (n.d.). Retrieved July 3, 2018, from <http://popart-highlights.mnhn.fr/index.html> Look over site.
- Snow, C.P. (1961). *The two cultures and the scientific revolution*. New York: Cambridge University Press. Retrieved June 28, 2018, from [http://sciencepolicy.colorado.edu/students/envs\\_5110/snow\\_1959.pdf](http://sciencepolicy.colorado.edu/students/envs_5110/snow_1959.pdf) (This is one of those articles that everyone in the field of information says they've read, but...)
- Syracuse University Libraries. (2013). Plastics collection. Retrieved June 28, 2018, from <http://plastics.syr.edu/>

<<<<< **Class 6 - 29 September** >>>>>

**Basic concepts: Dyes and colorants; examination and analysis**

**Article presentation:**

- Ball, P. (2001). In *Bright earth: Art and the invention of color* (pp. 24-71). New York: Farrar, Straus and Giroux. Personal copy located in Paper Lab.
- Boersma, F. (2007). *Unravelling textiles: A Handbook for the preservation of textile collections*. London: Archetype. pp. 47-60.
- Brazil, R. (2017). Coloring in the past. Retrieved June 28, 2018, from <https://www.chemistryworld.com/feature/raiders-of-the-lost-pigments/3007237.article>
- Conservation science for the cultural heritage: Applications of instrumental analysis*. (2013). Berlin, Heidelberg: Springer Berlin Heidelberg. This is available electronically from UT libraries. **Read the table of contents only.**
- Cosentino, A. (2013, April 15). Multispectral image analysis for art. Retrieved May 13, 2019, from <http://chsopensource.org/2013/04/15/multispectral-image-analysis-for-art-examination-multispec/>

- Giesbrecht, J. (2015, August 28). How the ballpoint pen killed cursive. *Atlantic*. Available through UT Libraries.
- Johnston, I. (2014, July 13). Blackest is the new black: Scientists develop a material so dark that you can't see it... Retrieved June 28, 2018, from <http://www.independent.co.uk/news/science/blackest-is-the-new-black-scientists-have-developed-a-material-so-dark-that-you-cant-see-it-9602504.html>
- Small world image gallery. (2017). Retrieved June 28, 2018, from <https://www.nikonsmallworld.com/galleries/photomicrography-competition>
- Spring, M., Liang, H., Peric, B., Saunders, D., & Podoleanu, A. (2008). Optical coherence tomography – a tool for high resolution non-invasive 3D-imaging of the subsurface structure of paintings. *ICOM Committee for Conservation Graphic Documents*, pp. 633-640. On Canvas.
- Smithsonian X3D. (2014). Retrieved June 28, 2018, from, <http://3d.si.edu/> Fun site. Look around.
- Warren, S. (2009). Hazards in industrial collections of the Canada Science and Technology Museum Corporation Ottawa, Canada. *Incredible Industry: Preserving the Evidence of Industrial Society*, pp. 225-232. The digital version of this volume is available at: <http://www.nkf-dk.dk> (Retrieved June 28, 2018). You will have to navigate the site in Dutch, but the icons are fairly straight forward. There is a link at the bottom of each screen labeled *Publikationer* that takes you to the publication.

<<<<< Class 7 - 6 October >>>>>  
**Applying concepts: Paper and ink**  
**Article presentation:**

- Art of the photogravure. (n.d.) Retrieved June 28, 2018, from <http://www.photogravure.com/>
- Baty, J.W., Maitland, C., Minter, W., Hubbe, M. and Jordan-Mowery, S. (2010). “Deacidification for conservation,” *BioResources* 5(3), 1955-2023. Search the title and journal and the PDF is available. Part of this article is dense, but just take the chemistry on faith.
- Grossman, E. (2014). Why receipts and greasy fingers shouldn't mix. Retrieved June 28, 2018, from <http://time.com/3531776/bpa-receipts-fast-food/>
- Hubbe, M. A. , and Bowden, C. (2009). Handmade paper, review, *BioResources* 4(4), 1736-1792. Search the title and journal and the PDF is available.
- Image Permanence Institute. (2014). Graphics atlas. Retrieved June 28, 2018, <http://www.graphicsatlas.org/>
- Iron gall ink website. Retrieved June 28, 2018, from [http://irongallink.org/igi\\_index.html](http://irongallink.org/igi_index.html)
- Krill, J. (2002). Introduction. In *English artists' paper: Renaissance to regency* (pp. 1-41). Winterthur, Delaware: Oak Knoll. (In lab.)
- Schweidler, M. (2007). Paper manufacture. In R. Perkinson (Ed. & Trans.), *The restoration of engravings, drawings, books and other works of paper* (pp. 41-45). Los Angeles: Getty. (Hard copy in lab.)
- Stephens, C. H., Barrett, T., Whitmore, P.M., Wade, J., Mazurek, J., & Schilling, M. (2009). Composition and condition of naturally aged papers. *Journal of the American Institute for Conservation*, 47, 201-216. Available through JSTOR
- Stephens, C. H.; Whitmore, P. M.; Morris, H. R.; and Bier, M. E. Hydrolysis of the amorphous cellulose in cotton-based paper. *Biomacromolecules* 9, no. 4 (2008), pp. 1093-1099 (**Read the abstract only unless you have a strong chemistry background.**) PDF available by searching title at <http://scholar.google.com/>
- What is a print? (n.d.). Retrieved June 28, 2018, from <http://www.moma.org/interactives/projects/2001/whatisaprint/flash.html>

<<<<< Class 8 - 13 October >>>>>  
**Applying concepts: Printing processes and photographic materials**  
**Article presentation:**

- Aardenberg Imaging and Archives. (2016). Light fade test results. Retrieved June 28, 2018, from <http://www.aardenburg-imaging.com/>
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**<<<< Class 9 - 20 October >>>>**  
**Applying concepts: Photographic materials**  
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This site is for reference. Take a look at what is found here.

**<<<< Class 10 - 27 October >>>>**  
**Applying concepts: Photographic materials (Photo display)**  
**Article presentation:**

**<<<< Class 11 - 3 November >>>>**  
**Discuss papers**

**<<<< Class 12 - 10 November >>>>**  
**Discuss papers**

**<<<< Class 13 - 17 November >>>>**  
**Time based media; Future directions for conservation**  
**Print and photo id quiz**

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**<<<< Class 14 - 24 November >>>>**  
**Thanksgiving**

**<<<< Class 15 1 December >>>>**  
**Review; Discussion of final papers**