Things not Words: Using Material Culture
Hist Sci 350: Special Topics
Fall 2018

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Office Hours: F 10:00-12:00

Class meets: TR 1:00-2:15pm
Humanities 2251

Science is what happens when ideas meet things. When what we'd like to be true collides with nature. This course shows you how that works.

Based around UW–Madison's remarkable history, collections and architecture, this practically oriented course will give you hands-on experience of how material culture changes our understanding of science, its history, its relationship to the arts and humanities, and its place in wider society. It will also introduce you to current research in this area – right here in Madison.

The class will involve regular field trips to collections in local/campus museums, including visits to the UW Zoology Museum, the University Archives, and to see the Chemistry Department's resident glassblower at work.

This interdisciplinary course is suitable for undergraduate students in history of science, history and the sciences, as well as for those in anthropology, art history, and architecture. The course is also open to graduate students. Any student with an interest in visual and material culture or museum studies should consider taking this course. Interested students should contact me directly to discuss their particular circumstances.

Objectives:

In addition to introducing you to important aspects of the history of science at UW – Madison, this course aims to help you learn how to:

- understand the strengths and weaknesses of visual and material culture as an approach to history;
- appreciate that the historian's choice of sources affects the kind of history s/he writes;
- explain and evaluate the various ways in which historians of science have used visual and material culture (in class and in the mid-semester test);
- present your assessment of historical sources, including images and objects as well as secondary and primary literature (in class discussion and more formal assessments);
- (graduate only, in final paper or by other agreed method) analyze what the study of visual and material culture has added to our understanding of the nature of modern science;

- (graduate only, in final paper or by other agreed method) understand how the study of visual, material, and print culture interacts with other approaches to the history of science, including studies of practice and pedagogy.

Credit Policy

The credit standard for this 3-credit course is met by 135 hours of expected student engagement with course learning activities (i.e. at least 45 hours per credit), to include regularly scheduled meetings with instructor outside normal class time, reading, research, and writing, and other student work as described in the syllabus.

Course Requirements:

All readings listed in the accompanying schedule are required unless otherwise indicated. That means you should expect your understanding of their main content, argument and significance to be assessed – as they occur in the schedule and in synoptic assessments such as the final paper, as well as in the mid-term test.

Please note that the required readings listed in this schedule are a minimum set. To get the most out of the course, and to receive the highest grades, you should plan to extend your reading beyond this required list of readings. Please ask me about appropriate additional readings suited to your interests and chosen assignment topics.

Completion of the course requires submission of all assignments, including all class preparation and participatory activities, to the satisfaction of the course lecturer. You will receive a standard letter grade for this course based on: attendance, participation and contribution to classroom discussion and other activities (20%), short assessments during class time (20%); project presentation (20%); final project essay (20%); mid-term test (20%). Additional detail on **Assessment** is provided below.

Assessment (UG requirement; additional grad requirement is detailed separately)**:**

Attendance, participation, and contribution to classroom discussion and other activities (20% of total): My expectation is that you come to class prepared for the activities listed in the syllabus; willing to discuss readings and field work; and prepared to engage with staff elsewhere who have generously given their time to host our visits. I understand you may miss a couple of classes during the semester due to minor illness or other unforeseen events. **Extended or repeated absence (without legitimate reason) and/or failure to participate in class activities will negatively impact your final grade.**

Short assessments during class time (20% of total): 12 short written exercises, each worth 2% of your final grade, will help me gauge your learning during the semester. I haven't got the math wrong: your 10 best scores will make up the 20%. These exercises will take a range of forms: e.g. short quiz tests, short answer questions, worksheets associated with some of our fieldwork, etc.

Mid-term test (20% of total): a one-hour written test will take place during week 13, **Tuesday November 21**. **Put this date in your calendar now!** You should expect both multiple choice and short answer questions.

Project Poster Presentation (20% of total): scheduled for weeks 13/14, **November 29, December 4/6**. **Put these dates in your calendar now!** Your presentation will be allocated to a specific date nearer the time but please be clear that **attendance at all three sessions counts towards your own poster grade**. A separate sheet will provide guidance on how to prepare to present, and on how your presentation will be evaluated.

Final project essay (20% of total): due to me by email (cjackson8@wisc.edu) on or before **7pm, Saturday, December 15 2018**. **Put this date in your calendar now!** The word limit for these essays is 2,500 words (+/- 10%). Submit your essays as word files (no PDFs please!). Separate sheets will provide guidance on essay writing and how these essays will be evaluated.

If you anticipate problems meeting any deadline, or should any such difficulty arise during the semester, it's your responsibility to let me know as early as possible. I'll always do my best to help.

Note on Plagiarism:

It's your responsibility to avoid plagiarism. In the first instance, consult UW-Madison's guidelines concerning plagiarism and scholarly integrity. If you're unclear in any specific instance **please ask for advice**. Learning how correctly to acknowledge the contribution of other scholars, and understanding what constitutes originality, are essential to sound historical practice and are therefore skills this course is designed to help you acquire.

Class Schedule with Readings:

1. Introduction – September 6

This session introduces material culture history and explains the scope and purpose of this course.

2. History and Material Culture – September 11/13

(a) Tuesday

Come prepared to discuss, in small groups and as a class:

Giorgio Riello, "Things that shape history: Material Culture and Historical Narratives," in Karen Harvey, *History and Material Culture: A Student's Guide to approaching Alternative Sources* (London, New York: Routledge, 2009)

(b) Thursday

Bring your chosen scientific object (or an image of your object) with you to class and be ready to explain (**in 2-3 minutes**) why you have chosen it **(Task 1)**. Your object might be an item of apparatus (modern or historical), an image, a product of science (and technology), anything material that you believe is particularly significant for its relationship with science.
You may get some ideas from Sherry Turkle, *Falling for Science: Objects in Mind* (Cambridge, MA: MIT Press, 2008):

http://site.ebrary.com/lib/wisconsin/reader.action?docID=10226999

3. A Day at the Museum – September 18/20

(a) Tuesday

This session examines the relationship between material culture history and museums. In what ways and to what extent is material culture history different from the study of artifacts in the museum context?

Class discussion (**Task 2**). Reading assignments allocated Thursday, September 21.
Either:
Jim Bennett, "Can Science Museums take History seriously?" *Science as Culture* **5** (1995): 124-137;
Or:
Simon Schaffer, "Object Lessons," in Svante Lindquist, ed. *Museums of Modern Science* (Canton, MA: Science History Publications, 1999), pp. 61-75.

(b) Thursday

Independent Museum Visit: *During this meeting time, you should visit a local museum with some* ***science/technology/medicine content*** *on display and complete museum worksheet* ***(Task 5)****. Please* ***do NOT*** *visit the UW Zoological Museum, or any other site we will visit as a class during the semester.* ***Suggestions*** *include: UW Space Place, MMOCA, Wisconsin Historical Museum, Veterans Museum, Madison Science Museum but there are many options. You may also choose to visit a museum via its digital presence, e.g. Corning Museum of Glass, Chemical Heritage Foundation Museum.* ***Ask if you're unsure.***

4. Glass and Science I – September 25/27

(a) Tuesday

This session will introduce you to glass in the history of science. Come prepared to discuss **(Task 3)**:

Catherine M. Jackson, "Glassware," forthcoming in *Tools in Materials Research*, eds. Cyrus C. M. Mody and Joseph D. Martin (Vancouver: Vancouver University Press, 2018).

(b) Thursday (with Tracy Drier, Master Scientific Glassblower, Department of Chemistry)
Visit to the Chemistry department glassblowing workshop. **Class meets at 1pm in the Daniell Building Lobby.**
Complete work sheet **(Task 4)**.

5. Glass and Science II – Oct 2/4

(a) Tuesday (with Dr Laura Monahan, Curator UW-Zoological Museum)

Class meets at the University of Wisconsin–Zoological Museum, 250 North Mills Street at 1pm.

Museum worksheet **(Task 6)** to be completed in session.

(b) Thursday

Today we will learn the amazing story of the Blashkas, Bohemian glassblowers whose work transformed the teaching of zoology in North America.

Come prepared to discuss **(Task 7):**
Lorraine Daston, "The Glass Flowers," in Lorraine Daston, ed. *Things that Talk* (Brooklyn, NY: Zone, 2004), pp. 223- 254.
Henri Reiling, "The Blaschkas' Glass Animal Models: Origins of Design," *Journal of Glass Studies* **40** (1998): 105-126.

6. Architectures of Science. The Material Culture of Pedagogy – October 9/11

(a) Tuesday: Campus Walk
Class meets on the steps of Science Hall at 1pm. Walk will proceed unless we have a storm! Bring a coat and an umbrella!

Optional Background Reading:

Graeme Gooday and Sophie Forgan, "'A Fungoid Assemblage of Buildings': Diversity and Adversity in the Development of College Architecture and Scientific Education in Nineteenth-Century South Kensington," *History of Universities* **13** (1994): 153-92.

(b) Thursday

This session introduces the idea that understanding how and where science is taught and learned is an important way of learning how science works.

Catherine M. Jackson, "Chemistry as the Defining Science: Practice, pedagogy and the laboratory in nineteenth-century chemistry," *Endeavour* **35** (2011): 55-62.

7. Scientific Instruments. Images (with Dr Katie Nash, Head of University Archives)– Oct 16/18

(a) Tuesday

Often treasured collectors' items, early scientific instruments are deemed worthy of preservation, study and display. But what can we learn about modern science from scientific instruments?

Deborah Jean Warner, "What is a scientific instrument, when did it become one, and why?" *The British Journal for the History of Science* **23** (1990): 83-93.

(b) Thursday

Class meets at 1pm in the University Archives on the 4th floor of Steenbock Memorial Library

Dr Nash will introduce you to a range of archival sources that illustrate the many important roles of glass in the history of science at UW-Madison **(Task 8)**.

8. Print Culture (with Dr Robin Rider, Curator of Special Collections). History of Science as History of Material Culture – Oct 23/25

(a) Tuesday

Class meets 1pm in Special Collections on the 9th floor of Memorial Library
Dr Rider will lead this session examining the book as material object. **(Task 11 available now; due in class Nov 6)**

Michael Twyman, The British Library guide to printing. History and techniques (Toronto and Buffalo: University of Toronto Press, 1999), excerpts as per PDF.

(b) Thursday

This session begins placing the course in theoretical perspective. Come prepared to discuss **(Task 9)**:

Pamela H. Smith, "The History of Science as a Cultural History of the Material World," in Peter N. Miller, ed. Cultural Histories of the Material World (Ann Arbor: University of Michigan Press, 2013), Chapter 18, pp. 210-225.

9. Special Collections (with Dr Robin Rider, Curator of Special Collections). Student Projects – Oct 30/Nov 1

(a) Tuesday
Class meets 1pm in Special Collections on the 9th floor of Memorial Library

Dr Rider will introduce you to a range of rare books relating to the history of science at UW-Madison, with a focus on glass and glassblowing. **(Task 11 continues, due Nov 6)**

(c) Thursday

Our goal today is to ensure that everyone is actively developing their own project in material culture history. Bring your **project outline (Task 10)** and come to class ready to discuss your ideas with others, in small groups and as a class.

N.B. Reading assignments for Week 11 arranged in this class.

10. The Material Dimensions of Glass – Nov 6/8

(a) Tuesday

TBC: Class meets with Dimensions of Material Culture at 1pm, Location TBC

Glass artist Helen Lee and historian Catherine Jackson will present their work with glass.

(b) Thursday (with Prof. Helen Lee)

Class meets with Dimensions of Material Culture at 1pm in the UW-Madison Glass Lab, Art Lofts, South Frances Street.

11. Material Culture, Reconstruction, and Replication – Nov 13/15

Reading assignments for this week **allocated Thursday, Nov 1**.

(a) Tuesday
This session examines two areas where material culture and history often overlap: reconstruction and replication.

Come prepared to discuss either:

Melvyn C. Usselman, Christina Reinhart, Kelly Foulser and Alan J. Rocke, "Restaging Liebig: A Study in the Replication of Experiments," *Annals of Science* **62** (2005): 1-55**.**

or

Harry Collins, *Changing Order: Replication and Induction in Scientific Practice* (Chicago: University of Chicago Press, 1992), pp. 51-78 (Chapter 3: Replicating the TEA-Laser: Maintaining Scientific Knowledge).

(b) Thursday
Come prepared to discuss (**Task 12**) either:

Catherine M. Jackson, "The 'Wonderful Properties of Glass': Liebig's *Kaliapparat* and the Practice of Chemistry in Glass," *Isis* **106** (2015): 43-69.

or

Myles Jackson, *Spectrum of Belief: Joseph von Fraunhofer and the Craft of Precision Optics* (Cambridge, MA: MIT Press, 2000). Chapter Three: Artisanal Knowledge and Achromatic Lenses.

12. Mid-Semester Test - Nov 20 (No class Nov 22 for Thanksgiving Holiday)

This 1 hour test will ask you to answer 15 multiple choice questions (in part A) plus 3 out of 5 short answer questions (in part B). You should spend about 15 minutes on part A and 45 minutes on part B.

13. Review Test. Prepare for Presentations – Nov 27

14. Student Presentations – Nov 29 and Dec 4/6

Your chance to present the material culture history you have been working on this semester!

15. Project Feedback. Course Conclusions and Essay Advice – Dec 11

This final session will wrap up the course and provide an opportunity for you to raise any questions concerning your final papers.