

History of Science 211

Imagining the Medieval World

Fall 2023

Rm 5257 Mosse Humanities Building

Mon 1:20 PM – 3:15 PM

University of Wisconsin-Madison

Instructor: Nick Jacobson (he/him)

Off. Hrs.: Tues. 2:00-4:00*

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*Or by appointment

Course Summary

This course examines the history of pre-modern science as it developed from the time of the fall of Rome (ca. 476 CE) until an era of intense material and intellectual change in Western Europe known as the Scientific Revolution (ca. 1540 – 1640). Although elements of the course curriculum (including readings and lectures) serve to ground this history of science in linear narratives for the sake of contextualizing the material, the overall structure of the class is not chronological. Rather it engages in a series of subject-based case studies that interrogate the history of science through the lens of different visual technologies. We will see how the differentiation of scientific disciplines and their maturation was largely dependent upon various forms of visual representation of the natural world through maps, charts, diagrams, and models. In other words, this class presumes that knowledge of the natural world has always been mediated through specific ways of seeing and interpreting that world through images. This kind of abstraction did not come to its practitioners casually, instinctively, or easily. Thus specialized modes of instruction had to develop to pass this knowledge on from one generation to another. Specific kinds of institution had to be established to house this instruction, codify it, and standardize it. Finally, a particular kind of culture had to be fostered that would encourage individuals to pursue this way of seeing the world, and allow them to translate it into the broader social consciousness. This class does not take for granted these visual technologies that today are often uncritically associated with the scientific frame of mind. Instead it encourages students to ask where these technologies came from, why they were created, and how they have changed the way humans have seen, understood, and interpreted the environment around them.

Course Description

Credits: 3

Course Designations and Attributes:

Hist Sci 211

Breadth – Humanities

Level – Elementary

L&S Credit – Counts as LAS credit in L&S

Requisites: None

Instructional Modality: In-Person

Learning Outcomes

This course has two related sets of learning objectives: one that is specific to the subject of the course, which is the representation of the natural world through images, and one, which it shares with all History of Science 211 and History 201 “The Historian’s Craft” courses.

Students who take this class will be able to explain some of the major breakthroughs in pre- and early modern science through the development of practices and technologies that enabled scholars to imagine the natural world.

In tandem with these objectives, this course helps students to develop the skills of historical inquiry and writing. As defined by the History Department’s goals for History of Science 211 and History 201, these skills include the ability to ask historical questions, find and evaluate appropriate sources of information, develop and support an original argument, plan further research, and present findings orally and in writing.

The skills of the historian’s craft overlap with skills of general communication, such as the ability to assess the credibility of information, to critique an argument, and to persuade an audience of your own point of view. In other words, your learning in this class will serve you well not only as a historian, but also as a citizen and as a member of an “information society.” To this end it meets your Comm-B requirement.

Explanation of Credit Hours

The credit standard for this 3-credit course is met by an expectation of a total of 135 hours of student engagement with the course’s learning activities (at least 45 hours per credit or 9 hours per week), which include regularly scheduled meeting times (group seminar meetings of 115 minutes per week), dedicated online time, reading, writing, individual consultations with the instructor, and other student work as described in the syllabus.

Course Materials

All readings for this course will be made available electronically on Canvas for the course HSCI 211. The online exploration material found in the course schedule below include hyperlinks so that they can be accessed digitally.

Grading Rubric and Assessment

- 1.) Preparation of weekly readings and activities for every weekly capstone seminar
- 2.) Two reading abstracts
- 3.) Research proposal
- 4.) Annotated bibliography
- 5.) Oral Presentation of a Reading

- 6.) Book Review
- 7.) First Draft
- 8.) Peer Review
- 9.) Research Presentation
- 10.) Final Draft

Here is the breakdown of graded assignments:

Participation in seminar	20%
List of possible topics (at least 3 topics; Due Mon. 9/18)	5%
Reading abstract 1 (2 pages; Due Fri. 9/29)	5%
Oral presentation (5 minutes; Due Mon. 10/2)	3%
Reading abstract 2 (2 pages; Due Fri. 10/13)	5%
Book review (2 pages; Due Fri. 10/20)	7%
Annotated bibliography (2-3 pages; Due Fri. 11/3)	8%
Research proposal (2 pages; Due Fri. 11/17)	10%
First draft (8-10 pages; Due Fri. 12/1)	10%
Peer review (Due Mon. 12/4 – Fri. 12/8)	5%
Research presentation (10 minutes; Due Mon. 12/11)	7%
<u>Final paper revised (8-10 pages; Due Fri. 12/15)</u>	<u>15%</u>
Total	100%

Letter Grade	Grade Percent
A	93-100
AB	88-92
B	83-87
BC	78-82
C	70-77
D	60-69

Course Website

We will be using Canvas, an interactive course website, for distributing writing assignments and handouts and for important website links and other information. To access the Canvas site for HSCI 211, follow these two steps:

- 1.) Go to <http://learnuw.wisc.edu>, or access it from the UW home page. Click on “Canvas” and then click on “Login to Canvas.” Type in your username and password to get to the next screen,

which is your Canvas “portal page.” Notice that on this page there is a red “Help” button in the upper right-hand corner to click on if you have any trouble navigating to the site or getting any of the information. The Help Desk is available to assist you around the clock for navigation issue, so please contact this number: 608-264-HELP.

2.) Once on your Canvas portal page, you will see a column called “My Courses,” which will list all your UW courses that have a Canvas website. Look for “2023 Fall;” you may need to expand that semester by clicking on the “>” button. Click on the link under this heading for “HIST SCI 211” and you’ll arrive next at the course website.

Learning Needs

1.) Any student who thinks they may be eligible for special accommodations, please contact the **McBurney Disability Resource Center** at 608-263-2741 or <http://mcburney.wisc.edu/students/howto.php>.

The McBurney Center will determine what services you may be eligible for, and then we will be able to work with you to meet your needs for the course. Please contact your TA and instructor at the beginning of the semester, so that we can decide upon the best accommodations for you as soon as possible. Any such requests will remain confidential.

2.) If you cannot attend class for a justifiable reason (e.g. illness, religious observance, family necessity etc.), please contact your TA as soon as possible so that you can duly prepare any make-up assignments and keep up with the schedule of the course. For the sake of the student and the TA, due dates of assignments are strictly enforced. Plan well ahead to ensure that you can meet course deadlines.

3.) Academic honesty is essential to student success and is central to the mission of the university (<https://conduct.students.wisc.edu/academic-integrity/>). In keeping with the university’s commitment to academic integrity, all work submitted must be one’s own. Plagiarism is not tolerated, and will result in academic disciplinary action.

Course Schedule

Week 2

Monday, 9/11: ***The Myth of Flat Earth – Sciences at the Dawn of the Middle Ages***

Objectives: *Identifying interests; knowing where to look; building a bibliography*

Readings: Jeffrey Burton Russell, *Inventing the Flat Earth*, pp. 1-49, 69-77

Ptolemy, *Almagest*, trans. G. J. Toomer, pp. 35-45.

Week 3

Monday, 9/18: ***The Many Ways of Seeing a World***

Objectives: *Narrowing your focus; learning to ask the right questions; discerning an argument*

Readings: Jorge Luis Borges, “On the Exactitude of Science” (In Class)

Gregory McIntosh, *The Piri Reis Map of 1513*, pp. 5-18, 48-68.
Exploration: The Peri Reis Map (<https://www.1001inventions.com/piri-reis-map/>)

Monday, 9/18 “Topics List” due in class.

Week 4

Monday, 9/25: *Sacred Spaces*

Objectives: *Developing a multi-disciplinary toolbox; oral presentations*

Readings: Vitruvius, *De architectura* (In Class)

Christopher Bartlett, “The Design of the Great Pyramid of Khufu,” pp. 299-311.

Frank Barmore, “Mosque Orientation,” pp. 81-98.

Tessa Morrison, “The Body, the Temple, and the Newtonian Man,” pp. 343-352.

Exploration: The Fibonacci Sequence (credit: Doug Patt, “How to Architect”)
(<https://www.youtube.com/watch?v=GmZlAVRKx8I&t>)

Friday, 9/29 “Reading Abstract 1” due in Canvas Dropbox at 11:59 PM.

Week 5

Monday, 10/2: *The Body as Microcosm*

Objectives: *Experimenting with multiple media*

Readings: Katharine Park, *Secrets of Women*, pp. 207-259

Andrew Gregory, “William Harvey, Aristotle, and Astrology,” pp. 199-215.

Exploration: Vesalius’ *Fabrica*: Library of Congress
(<https://www.loc.gov/item/2021667096/>)

Monday, 10/2 “Oral Presentation” due in class.

Week 6

Monday 10/9: *Instruments and Craftsmanship*

Objectives: *Empathetic readings of texts and reconstructing past practices*

Readings: Christine Craig, “How to Construct an Astrolabe” (In Class)

Plato, *Timaeus*.

Geoffrey Chaucer, *Treatise on the Astrolabe*.

Exploration: An Instrument Text, BnF, Lat. 7295A (National Library of Paris)
(<https://archivesetmanuscrits.bnf.fr/ark:/12148/cc664943>)

Friday 10/13 “Reading Abstract 2” due in Canvas Dropbox at 11:59 PM.

Week 7

Monday, 10/16: *Training the Senses*

Objectives: *Locating and interpreting primary sources; working with a digital archive*

Reading: Kathleen Crowther and Peter Barker, “Training the Intelligent Eye,” pp. 429–47.

Elaheh Kheirandesh, “Science and *Mithāl*,” pp. 465-489.

Johannes de Sacrobsco, *The Sphere*.

Exploration: The Sphere Project, A University Textbook
(<https://sphaera.mpiwg-berlin.mpg.de/>)

Friday, 10/20 “Book Review” due in Canvas Dropbox at 11:59 PM.

Week 8

Monday, 10/23: ***Visiting the Memorial Library***

Objectives: *Visiting special collections and working with physical witnesses*

Readings: *Theorica planetarum Gerardi*, trans. Olaf Pedersen.

Emmanuel Poulle, *Les Tables Alphonsines*.

Girolamo Cardano, *De astrorum iudiciis*, p. 221.

Exploration: Planetary Models, Schoenberg Institute (University of Pennsylvania)

(<https://schoenberginstitute.org/2020/11/09/manuscript-monday-ljs-64-georg-von-peurbachs-novae-theoricae-planetarum/>)

Week 9

Monday, 10/30: ***The Art of Memory***

Objectives: *Writing as a process and clarifying your ideas through writing*

Readings: Plato, *Phaedrus*, 274b-178d.

Francis Yates, *The Art of Memory*, pp. ix-xv, 287-307.

Claudia Wedepohl, “Aby Warburg’s Theory of Memory,” pp. 385-402.

Exploration: Giordano’s Memory Wheel

(<https://warburg.sas.ac.uk/research-projects/archived-research-projects/giordano-bruno/yates-and-brunos-mnemonics>)

Friday, 11/3 “Annotated Bibliography” due in Canvas Dropbox at 11:59 PM.

Week 10

Monday, 11/6: ***Hidden in Plain Sight***

Objectives: *Crafting a thesis statement and drafting a research proposal*

Readings: John Matthews Manly, “Roger Bacon and the Voynich MS,” pp. 345-373, 390-391.

Benjamin Woolley, *The Queen’s Conjurer: The Science and Magic of Dr. Dee*, pp. 61-72.

Gordon Rugg, “The Mystery of the Voynich Manuscript,” pp. 104-109.

Exploration: The Voynich Manuscript, Beinecke MS 408

(<https://beinecke.library.yale.edu/collections/highlights/voynich-manuscript>)

Friday, 11/10 “Thesis Statement” due in Canvas Dropbox at 11:59 PM.

Week 11

Monday, 11/13: ***Knowledge and Power***

Objectives: *Sharing drafts and knowing who to ask for help*

Readings: Roger Bacon, *On the Nullity of Magic*.

A. Mark Smith, “Getting the Big Picture,” pp. 568-589.

Mary Quinlan McGrath, *Influences*, pp. ix-xi, 119-159.

Exploration: Vaults of the Villa Farnesina (<http://www.villafarnesina.it/?lang=en>)

Friday, 11/17 “Research Proposal” due in Canvas Dropbox at 11:59 PM.

Week 12

Monday, 11/20: ***New Horizons***

Objectives: *Introductions and conclusions; finishing the draft*

Readings: Nicolaus Copernicus, Introduction to *On the Revolution of the Heavenly Spheres*.

George Saliba, “Islamic Science and Renaissance Europe,” pp. 193-232.

Viktor Blåsjö, “A Critique of the Arguments for Maragha Influence on Copernicus,” pp. 133-154.

Exploration: Copernicus’ *On the Revolution*, Library of Congress (<https://www.loc.gov/item/46031925/?locir=blogadm>)

Week 13

Monday, 11/27: ***Revising the Draft***

Objectives: *Re-reading your work with a critical eye*

Friday, 12/1 “First Draft” due in Canvas Dropbox at 11:59 PM.

Week 14

Monday, 12/4: ***Workshopping Papers***

Objectives: *Learning to constructively review a peer’s work and to receive constructive feedback from your peers*

Monday, 12/4 “Peer Reviews” to begin in class and due by Friday, 12/8.

Week 15

Monday, 12/11: ***Research Presentations and Final Thoughts***

Monday, 12/11 “Research Presentation” due in class.

Friday 12/15 “Final Draft” due in Canvas Dropbox at 11:59 PM.