

STSC 323 / HSOC 323

Scientific Instruments and the Making of Knowledge

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Course Prospectus - Spring 2022

This seminar surveys the history of scientific proof and authority through the instruments used to collect and interpret data.

In stories of discovery, scientists' tools often take a back seat to their ideas, but instruments play a crucial role as physical intermediaries. Each one was built and used by human beings with their own ideas of what data were important to collect and how the data should be interpreted. How have the design and function of instruments affected scientists' perspectives, and vice versa? What intellectual, political, and symbolic roles have instruments played beyond simply collecting data, and how do they continue to do so?

This course combines hands-on interaction with objects and in-depth discussion of recent scholarship in the histories of physical, biological, and human sciences from the Renaissance to today.

Class Structure for Spring 2022

- **In-Person Sessions and Activities**
 - Weekly in-person seminar meetings
 - Site visits (on and off campus) for hands-on interaction with scientific instruments
 - In-class presentations (open format/media)
- **Out-of-class Activities**
 - Reading and analysis
 - Brief discussion posts
 - Research and writing

Assignments & Grading

- **Participation (20%)**
 - Based on in-class conversation and Canvas discussion posts
- **Object Presentation (15%)**
 - 15-minute in-class presentation on one of the scientific instruments on the syllabus
 - Presentation can take any effective format and be delivered via any appropriate media
- **Midterm Instrument Analysis Essay (25%)**
 - Analysis of the design and function of a scientific instrument
 - Open choice of instrument from any field; must be able to examine it in person
 - ca. 2000 words
- **Final Research Paper (40%)**
 - Research paper on the history, design, use, and impact of a scientific instrument
 - Open choice of instrument from field and any time in history
 - ca. 5000 words excl. bibliography and citations; formal research paper format
 - One-page topic proposal must be submitted for approval and advice at least 4 weeks in advance

Course Notes

- **No book purchases are necessary for this course.** All readings are made available as PDF files on the Canvas course website. Additionally, nearly all are available online as campus accessible journal articles or ebook chapters, and those links are provided on the syllabus. If you are considering purchasing any of the books cited, you are welcome to consult the instructor as to which may be more or less useful.
- All classes will be held on campus in the assigned classroom. Additional **optional but highly recommended excursions** will be held to visit instrument collections and may require transit around the city. The instructor will make every effort to ensure that these excursions are fully accessible to all students.
- Students may also opt to choose instruments to research for the midterm and final papers (see above) that can be accessed in person anywhere they deem accessible; travel for this is permitted but is not necessary and is made at the student's discretion.
- Any student may consult with [Student Financial Services](#) to find out what support they are eligible to receive to cover course costs or other items that ensure their health, safety, and secure learning environment.