ARCHITECTURE, NATURE, AND TECHNOLOGY BEFORE THE INDUSTRIAL REVOLUTION

AHIS 429: Studies in Art, Science, and Technology
Units: 4.0
Spring 2018
Tuesday and Thursday, 11:00am – 12:30pm, SOS B37

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Office Hours: Tuesdays 2:00pm – 3:00pm or by appointment

Course Description

At no other point were the exchanges between architecture, nature, and technology more fruitful (and at times more fraught) than during the early modern period (1450-1800). This seminar examines the many ways that architects and craftsmen engaged the living world around them by the use of machines, materials, and technical instruments. How did different methods of handling materials inform the way that architects conceived building in theory and practice? In what ways did advancements in hydraulics, mechanics, and even drawing/printing technology signal broader changes in society, religion, and philosophy? What were the ramifications of the natural world’s “demystifying,” and how did architecture work both with and against this effort?

We begin by questioning the philosophical importance of technology for art and architecture before the Industrial Revolution. From here, we study the ways that period hands and minds worked with materials like stone, metal, wood, and glass. The remaining sessions are organized around different approaches to engaging nature by means of engineering and technology. Figures to be studied include Filippo Brunelleschi, Leonardo da Vinci, Domenico Fontana, Galileo Galilei, Guarino Guarini, René Descartes, Claude Perrault, Christopher Wren, Robert Hooke, among others. The seminar ends by speculating on architecture and technology during the modern period, including the importance of industrialization and the role of the digital.

Course Learning Objectives

- Students will become familiar with key architects, philosophers/scientists, buildings, theories, and practices during the early modern period, as well as their relationship to period theories of nature and technology.

- Students will learn the various techniques that architects and craftsmen employed when engaging the raw materials of the natural world.
• Students will understand how the technical act of building initiated an intimate and deeply philosophical relationship between man and nature.

• Students will learn to conduct original research and marshal different types of evidence—both theoretical and practical (“thinking” and “doing”)—and, in the process, come to a better understanding of the various and profound meanings of architectural making during the early modern period.

Course Policies

Attendance. Seminars require active engagement and discussion. Your presence in class is essential, and you are expected to complete the assigned readings and be prepared to discuss them in class. Two unexcused absences are allowed; after that point, your final grade will drop by one increment (for example, an A will become an A-). Three late arrivals are considered as one absence. If you will not be in class, please email the instructor beforehand.

Computers and mobile phones. The use of computers and mobile phones is prohibited during class. Please print out a copy of the readings or bring detailed notes with you to the seminar. The class may not be recorded or taped.

Readings. All readings will be available online as PDFs on Blackboard.

Papers. Papers must be submitted by the deadline. It is your responsibility to make sure that you have sent the correct file and that the file opens correctly. Late papers will be marked down one grade increment for each day they are overdue. Plagiarism, in any form, is not allowed and will be reported to USC Student Judicial Affairs and Community Standards.

Assignments

1. Class participation. Students are expected to have completed the weekly reading by the first class of the week and come to class ready to participate in a discussion. Students should identify and assess the author’s argument, comment on how it contributes to our understanding of the relationship between architecture, nature, and technology, and be prepared to offer a critique.

2. Discussion Forum Posts. Students are expected to post short responses (250-500 words) to the week’s readings on the online Discussion Forum (to ensure that these comments are read by everyone, the deadline for posting them is 10:00pm on Monday before class). A response is neither a summary nor an expression of one’s personal opinion. Rather, it should make an argument concerning the broader theme of the week by, for example, analyzing how the texts frame their subject or by highlighting the dialogue between individual readings: What common issues do they address? How do they differ in their approaches? Students must complete a total of nine responses during the semester.
3. **A critical presentation of assigned readings.** This should be a brief review of the readings: concise, analytical rather than descriptive, and lively enough to stimulate discussion. It may consist of a few carefully formulated questions (no longer than 10 minutes). Students do not write a Discussion Forum post the week they present.

4. **Paper 1.** Students will have one short paper (5-7 pages) due based on an object housed at an area museum. Details to follow. **Due February 23, 2018.**

5. **Final paper project.** The bulk of this course is a research paper of a building, instrument, machine, or technological practice (from 1450 and 1800) that explores the relationship between architecture, nature, and technology. This is to be a substantial piece of research, 15-20 pages, that you will work on throughout the semester. The instructor will distribute detailed instructions in class, including potential project ideas.

The final paper project will have four components.

1. **A 2-3 page topic proposal.** This proposal will briefly describe your chosen project and the issue you wish to explore. Students must meet with the instructor before submitting the proposal for project approval. **Due March 9, 2018.**

2. **Bibliography and outline.** Bibliography must include 2–3 primary sources and a minimum of 8 secondary sources. At least 3 of your secondary sources should come from printed material (i.e., a book). Wikipedia and blogs do not count as sources. **Due April 6, 2018.**

3. **An oral presentation.** These presentations should be a focused examination of the project and the historical issues that it raises. They are expected to be polished but are also meant to be exploratory. Use them to raise questions, explore problems, and point to ways you might address them as you continue your research. To ensure class feedback, presentations will be no longer than 20 minutes. **Dates to be assigned in class.**

4. **Final paper.** Due May 8, 2018.

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**Grading**

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<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Participation</td>
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<td>Discussion Forum posts</td>
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<tr>
<td>Critical presentation of readings</td>
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<tr>
<td>Paper 1</td>
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<tr>
<td>Topic Proposal</td>
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<td>Bibliography and Outline</td>
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<td>Paper Presentation</td>
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<td>Paper 2</td>
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Course Schedule (subject to change)

Week 1. January 9 and 11. Introduction


Week 2. January 16 and 18. Mathematics and Geometry


Field Trip: The Museum of Jurassic Technology (tentative)


1: Renaissance and Baroque Architecture (Chichester, West Sussex: John Wiley & Sons, Inc., 2017), 136-159.


Field trip: J. Paul Getty Museum (tentative)

**Week 5. February 6 and 8. Drawing and Technical Instruments**


Field Trip: The Huntington Library (tentative)

**Week 6. February 13 and 15. Construction and Building Science**


**Week 7. February 20 and 22. Vaults and Domes**


**Paper 1 due Friday February 23, 2018**
Week 8. No class

Week 9. March 6 and 8. Fortifications and War


Proposals due Friday March 9, 2018

Week 10. Spring Recess

Week 11. March 20 and 22. Infrastructure


Week 12. March 27 and 29. Machines

- Nicoletta Marconi, “Tradition and Technological Innovation on Roman Building Sites from the 16th to the 18th Century: Construction, Machines, Building Practice and the Diffusion of Technical Knowledge” in ed. Hermann Schlimme, Practice and Science in Early
• Modern Italian Building: Towards an Epistemic History of Architecture (Milan: Electa, 2006), 137-152.

Week 13. April 3 and 5. Claude Perrault and the France of Louis XIV


Bibliography and Outline due Friday April 6, 2018


Week 15. April 17 and 19. Industry and Enlightenment


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**Week 16. April 24 and 27. Conclusion. Industrialization and the Digital**


**Paper 2 due Tuesday May 8, 2018**
Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Support Systems:

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. engemannshc.usc.edu/counseling

National Suicide Prevention Lifeline – 1 (800) 273-8255
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086
Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs
Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC
Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime. Provides overall safety to USC community. dps.usc.edu