History 480B
Renaissance Science and the Secrets of Nature

Spring, 2015
Thursday: 1:00 – 3:45
FH 219
Prof. Bruce T. Moran

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Office hour: Wed. 4:00-5:00 and by appt.

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History 480B/680B is a cultural and social history of European science from c. 1450 to c. 1650, focusing upon the historical impact of scientific and technological knowledge within frameworks of artistic, social, political, religious, and commercial life.

CO9. Students will be able to connect science and technology to real world problems by explaining how science relates to problems of societal concern; be able to distinguish between sound and unsound interpretations of scientific information; employ cogent reasoning methods in their own examinations of problems and issues; and understand the applications of science and technology in societal context

On this course, our aim will be to examine the emergence of ideas that helped shaped modern science. In doing so we will examine the ways in which knowledge was produced and acquired during one of the most intellectually explosive periods in the history of science. Our attention will be especially directed toward the production and consumption of knowledge as a social process within various communities, especially as theory meets practice, and as intellectuals interact with the practices of craftspeople and practitioners to create new ways of knowing. Just as important, we will be paying attention a variety of influences – social, economic, religious, and cultural -- that shaped the context of discovery, encouraged changes in theory and practice, and sometimes offered resistance to new interpretations of the natural world. We will also see how discoveries related to nature and the body, as well as innovations related to mining, printing, navigation, map making,
collecting, human and animal dissection, and techniques of picturing nature impacted social roles, institutions, and evaluations of the place of the human being in nature during the period of the so-called “Scientific Revolution.”

This Capstone course satisfies Core Objectives 9 and 13 of the Silver Core Curriculum.

CO13. Integration and Synthesis: Students will be able to integrate and synthesize Core knowledge, enabling them to analyze open-ended problems or complex issues. Students examine and discuss the main issues of the course, research and write essays in which they synthesize information and pose and prove arguments.

In addition, History 480B helps students refine skills described in Core Objectives 1 and 3. These objectives are reinforced throughout the curriculum in other courses students take to fulfill core and major requirements. It also develops as well as satisfies CO9.

CO1. Effective Composition and Communication: Students will be able to effectively compose written, oral, and multimedia texts for a variety of scholarly, professional, and creative purposes.

CO3. Critical Analysis and Use of Information: Students will be critical consumers of information, able to engage in systematic research processes, frame questions, read critically, and apply observational and experimental approaches to obtain information.

Skills-Based Curriculum

The history program at UNR helps students to develop proficiency in broadly applicable skills while mastering specific subject areas. In addition to learning about the cultural and social history of European science and technology in the Renaissance, students will have opportunities to practice and improve the following skills in this course:

• critical thinking (through reading and analyzing written documents and cultural sources, formulating arguments supported by historical evidence, and organizing information in a clear and logical manner)
• historical research (through finding information about historical topics in short assignments and an integrative essay)
• written communication (through writing short assignments, a film analysis, and an integrative essay)
• primary source analysis (through reading and identifying the key points, meaning, and significance of arguments and ideas presented in historical documents and cultural artifacts created during the time periods we are studying)
• secondary source analysis (through reading and identifying the key points, meaning, and significance of arguments and ideas presented in books and articles written by scholars about the time period we are studying)
• cultural text analysis (through thinking about the significance of cultural texts such as news reports, magazine articles, music, and films and placing them in historical context)
• oral expression (through small group and whole class discussions and student presentations)
• using the internet (through research assignments and guidance on how to evaluate internet sources)

**Student Learning Outcomes (SLOs) and Correlation to Core Objectives (COs)**

Students successfully completing this course will be able to:
1. connect science and technology during the Renaissance to social, commercial, religious, and economic problems and be able to distinguish sound scientific argumentation and the use of observational evidence as opposed to unsound scientific reasoning by means of engaging with the scientific debates of the period. They will be able to explain how scientific and technological discoveries and innovations affected social institutions, professional roles, and education, and how scientific and technological knowledge was produced and consumed as part of social processes within various communities. They will engage the subject by means of written compositions and oral communication within call discussions and assignments (CO1, CO3, CO9, CO13)
2. analyze and synthesize primary, secondary, and cultural sources (CO3, CO13)
3. find and use historical scholarship and sources to answer a research question (CO3, CO13)
4. present ideas pertaining to scientific discovery and technological innovation during the Renaissance as they relate to the societal concerns of the period in a clear and persuasive manner both orally and in writing, (CO1, CO3, CO9, CO13)
5. use relevant scholarship and historical evidence to analyze and synthesize the relationship between science, technology, art, religion, society, and commerce in the Renaissance period (CO3, CO9, CO13)

**Grading Criteria**

Grading criteria for written work are set out below.

**F (less than 60%)**
F is for work that is not acceptable. It demonstrates that the student has no idea what the course material is about, suggesting a lack of interest or effort and possibly some absences from class. Students who do the reading and come to class regularly rarely receive an F. If you think you have been trying hard and you get an F on an assignment, I encourage you to come to me for help.

**D– (60–62%), D (63–66%), D+ (67–69%)**
D is given for work that is inadequate. It omits important points, contains more than a few inaccuracies, and is badly organized. It suggests that the student has not been paying much attention to the course or is having problems understanding the material. As in the case of
an F grade, if you think you have been trying hard and receive a D grade for a writing assignment, come and see me for help. I will do everything I can to assist students who want to work to improve their grades.

**C– (70–72%), C (73–76%), C+ (77–79%)**

C is given for work that is average. The student shows familiarity with the material and is mostly accurate, but the paper lacks detail or effective organization. The C essay might make general points but fail to support them with specific evidence, or it might be merely a collection of facts, with no coherent theme or thesis. You can pass the course with this kind of work, but you should aim higher.

**B– (80–82%), B (83–86%), B+ (87–89%)**

B denotes work that is above average in quality. It demonstrates that the student knows and understands the material covered in class, and that s/he is capable of synthesizing it into a competent essay. It is accurate, detailed, and well organized, with an introduction, a thesis, and a conclusion.

**A– (90–94%), A (95–100%)**

A is for work of exceptional quality. This grade is for essays that present a clear thesis supported by persuasive evidence and analysis, logically organized, and free from typing or grammatical errors. The A essay does more than just competently summarize material from the readings or lectures. It shows the student has thought things through on a deeper level and offers his or her own perspective on the topics under consideration.

expect all students to do their own work in this course unless I have specifically assigned a group activity or project. Copying someone else's work, or allowing your own work to be copied, is dishonest and unfair to other students who are striving to complete assignments and essays on their own.

**Students will receive grades according to how well they complete the following:**

Participation in discussion – 25%

First Written Assignment: Integrative essay (10 pages) based in Reading and Discussion – 25%

Second Written Assignment: Integrative essay (10 pages) based in Reading and Discussion – 25%

Third Written Assignment based in Reading and Analytical Critique of Primary Source -- 25%
Class Participation (SLOs 1-5)

This course will be taught in a lecture/discussion format. Lectures will provide historical context and explain key concepts, but much of our work will be done through discussion of the assigned readings. Passive reading and listening, in other words, is not enough. You will need to take an active role in the learning process. This means working through the assigned texts carefully and critically, thinking about and analyzing the information presented.

Integrative Essays (SLOs 1-5)

Students will write two 10 page essays synthesizing material from readings, discussions, and lectures. The essays will include analysis of primary and secondary sources and present arguments in response to a historical questions regarding the relationship between Renaissance science and technology to social, religious, commercial or political contexts.

Integrative Essays and Promary Source Analysis (SLOs 1-5)

Students will write a 10 page paper that synthesizes materials from readings, lecture, and discussion and which critically analyzes a primary source, drawn from Agricola, Paracelsus, Kepler, or Galileo, as they relate to their impact upon intellectual and social/religious, commercial/political issues.

The university’s Academic Standards policy states:

Academic dishonesty is against university as well as the system community standards. Academic dishonesty includes, but is not limited to, the following:

Plagiarism: defined as submitting the language, ideas, thoughts or work of another as one’s own; or assisting in the act of plagiarism by allowing one’s work to be used in this fashion.

Cheating: defined as (1) obtaining or providing unauthorized information during an examination through verbal, visual or unauthorized use of books, notes, text and other materials; (2) obtaining or providing information concerning all or part of an examination prior to that examination; (3) taking an examination for another student, or arranging for another person to take an exam in one’s place; (4) altering or changing test answers after submittal for grading, grades after grades have been awarded, or other academic records once these are official. . . .
Sanctions for violations of university academic standards may include the following:

(1) filing a final grade of “F”; (2) reducing the student’s final course grade one or two full grade points; (3) awarding a failing mark on the test or paper in question; (4) requiring the student to retake the test or resubmit the paper.

Copying someone else’s entire paper or article is a clear example of academic dishonesty, but note that plagiarism can take other, less obvious forms as well. “Language, ideas, thoughts or work of another” includes any material used in your assignments and essays that was written or produced by others. Using brief phrases or sentences from books, articles, internet sites, documents, or other sources without letting your reader know where they came from is a form of plagiarism. You must properly acknowledge your use of other people’s words by placing them in quotation marks and citing all sources used in your paper. Even if you paraphrase someone else’s ideas and do not quote them directly, you must still indicate where those ideas came from. Citations should also be given for little-known facts and statistics.

Any student found violating academic standards in this course will receive a zero for the assignment in question. A second offense will result in an F in the course. In addition, all cases of academic dishonesty are reported to the Office of Student Conduct and become part of the student’s academic record. Potential employers as well as the directors of graduate and professional programs to which students may apply can request copies of these records, in which case the academic dishonesty charge will be disclosed.

**Academic Success Services**

Your student fees cover use of the Tutoring Center, the University Writing Center, and the Math Center. Students are encouraged to take advantage of these services as needed.

Tutoring Center: ph. 784-6801 or visit www.unr.edu/tutoring

University Writing Center: ph. 784-6030 or visit www.unr.edu/writing_center

Math Center: ph. 784-4433 or visit www.unr.edu/mathcenter

The History Department is committed to equal opportunity in education for all students, including those with documented physical disabilities or documented learning disabilities. If you have a documented disability and will be requiring assistance, please contact me or the Disability Resource Center (Thompson Building Suite 101) as soon as possible to arrange for appropriate accommodations.
Audio and Video Recording

Surreptitious or covert videotaping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may be given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.

Required Texts and readings on Reserve:


Also:

https://web.stanford.edu/class/history13/earlysciencelab/body/bodymaincopy.html
Schedule and Assignments

**Jan. 22:** Introduction: Art and nature in 1450. Tradition and Reform -- Perspective, Humanist Certainty, and Education on the Eve of the Renaissance

**Jan. 29:** The way the body looked in 1500: Function, Rationality, and Dissection

[https://web.stanford.edu/class/history13/earlysciencelab/body/bodymaincopy.html](https://web.stanford.edu/class/history13/earlysciencelab/body/bodymaincopy.html)

**Feb. 5:** Leonardo and new ways of seeing and describing the world


**Feb. 12:** Vesalius and the anatomists: tradition and autopsia


**Feb 19** Mining, Navigation, Cartography, and the New World


**Feb. 26:** Measuring the Heavens: Ancient Cosmology, Astrology, and New Models of the Universe

March 5: Curiosity, Collecting, and the Middle Natures of Things


March 12: Visualizing Nature


March 19: Networks of Knowledge: Commerce, Technology, and Science


March 26: The Spirits of Nature and the Body


April 2: Distilling Knowledge: Alchemy, Chemistry and Commerce


April 9: Art, Courtly Etiquette and a Changing the World Order

**April 16:** Galileo – The Truth of Nature and the Nature of Truth

Galileo, The *Assayer*, from *Discoveries and Opinions*; Renn, *Galileo in Context* [e reserve, pp. 277-322, “The Economies of Invention and Discovery in Galileo's Observations of 1610”]

**April 23:** Galileo – Science, Religion, and the “Galileo Affair”


**April 30:** The Trial of Galileo

Shea and Artigas, *Galileo in Rome*, chapters 4-7

[Students will be expected to present oral arguments for and against Galileo, based upon a knowledge of theology, Galileo’s observations, and philosophical claims to truth and sound scientific reasoning as Galileo is accused of heresy]