HON 202: The Renaissance and the Scientific Revolution

Spring 2018
Meeting Times and Location:
MWF 10:30 – 11:30, PH 107

Instructors:

Dr. Bryan Rennie, Professor of Religion and Philosophy
336 Patterson Hall
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tel. 7151

Dr. Rob Knop, Associate Professor of Physics
121 Hoyt Science Center
knopra@westminster.edu
tel. 7201

Office Hours:

Dr. Rennie
MWF 2:00-3:30 & TTr 12:30-1:30, or by appointment

Dr. Knop:
MWF 1:00-2:00, or by appointment

Prerequisite: Successful completion of HON 201.

Course Description: The Renaissance and the Scientific Revolution were cultural
and intellectual movements in Europe that spanned the 14th to 17th centuries. The period’s
strong emphasis on learning about the world, nature, and human beings, and the birth of a
new approach to science and culture, distinguish this period from the Middle Ages.
Understanding perspective and human anatomy transformed art and gave rise to
masterpieces such as Michelangelo’s David, Botticelli’s Venus and da Vinci’s Last
Supper. The printing press allowed for the dissemination of information to a wide
audience and encouraged discoveries in science and mathematics. New thinking about the
self and authority led to the reformation of the Western Church by Protestant leaders,
such as Luther and Calvin. Advances in navigation led to the investigation of “the new
world.” This course studies contributions to the ongoing quest for knowledge, and
includes the works of Shakespeare, Dante, Francis Bacon, Descartes, Galileo and
Copernicus. (4 credits; HC)
Reading Schedule:

Outcomes:
In order to successfully complete this course, you will

1. demonstrate proficiency in the analysis of primary sources.
2. demonstrate proficiency in researching historical topics.
3. demonstrate critical analysis and examination of information/data.
4. use facts, data, and information to support opinions and viewpoints.
5. demonstrate debating skills; the careful crafting of argument, and persuasion.
6. show familiarity with the roots of, the changes in ideas during, and the prominent contributors to science during the Renaissance and the Scientific Revolution.
7. produce writing about history based on focused reading and research.
8. demonstrate understanding of the interplay between history, religion, philosophy, mathematics, and science.
9. express understanding of the roots of technological advances and inventions.

These outcomes will build upon the skills initially developed in HON 201 and will contribute to the outcomes stated in the Honors Sequence Assessment plan to develop superior capabilities of critical reading and effective research and expression. Writing and oral presentation skills, as required by that plan, are required in this specific course, as is an exposure to the methodologies of both History—specifically History of Religions—
and Mathematics, and to the academic perspectives of each as a humanity and a science respectively. These will be demonstrated by the instructing faculty, exemplified by the readings, and applied by the students. The selection and analysis of primary sources will contribute to students’ abilities to ask meaningful questions and to carefully consider the functionally interactive nature of history, religion, philosophy, mathematics, and science, which will enhance students’ ability to reflect critically on, and to integrate knowledge of and issues within the broader societal, global, and human context.

Grading:

<table>
<thead>
<tr>
<th>Grading</th>
<th>Grading Scale</th>
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<tr>
<td>Attendance/Participation</td>
<td>20%</td>
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<tr>
<td>Primary Source Paper 1</td>
<td>15%</td>
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<td>Primary Source Paper 2</td>
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<tr>
<td>Discussions</td>
<td>10%</td>
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<tr>
<td>Final Paper</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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Grading Scale

93-100 A
90-92 A-
88-89 B+
83-87 B
80-82 B-
78-79 C+
73-77 C
70-72 C-
68-69 D+
63-67 D
60-62 D-
Below 60 F

Participation: Participation is 20% of your grade. Several factors will be considered when determining your participation grade:

- Your ability to engage in class discussions in a meaningful and productive way (by answering questions and asking meaningful questions that encourage discussion).
- Attending all classes
- Being prepared for each class – demonstrating that you have not only done the required reading prior to class, but that you have researched and thought about the topic further.
- Attending on-campus (or off-campus) talks and colloquiums related to the content of the course, including talks/poster presentations at URAC.

Discussions: Leading Class Discussions is 10% of your grade. Teams of three or four students will lead two class discussions each over the course of the semester. Teams and discussion dates will be determined in the first week of classes. While the discussions should be centered on the readings, you may also draw on material from lectures and from other related sources. You should carefully create a list of interesting questions that are chosen to elicit a conversation. Start with a broad question and, in case no one answers, be prepared to give examples and to ask more specific questions. It will be your job to keep the conversation going. Also, please guide the discussion so that it helps the class to synthesize the readings and the lectures (i.e. helps to bring everything together). Do not hesitate to discuss previous topics if they are relevant; connections should be made between various aspects of the course. The discussion function on D2L is available
to post questions and responses a few days in advance (and continuing after) the class discussion. This will help to give the students time to think about their responses and may help to generate discussion.

**Primary Source Papers:** There will be two primary source papers due; one that focuses on humanities and one that focuses on science or mathematics. The body of each paper should be 1000 words in length. Please be sure to use proper citations. Primary sources can be found in several locations including the library and online at The Hathi Trust Digital Library [https://www.hathitrust.org/](https://www.hathitrust.org/) and at Gallica [http://gallica.bnf.fr/](http://gallica.bnf.fr/). (The instruction librarians, whom students have already encountered in HONS 201, are available for one-on-one research consultations and assistance with information literacy.)

For this assignment, you will be asked to select a primary source, read and analyze it, and write a paper that focuses on a particular aspect. The paper should include a short summary of the contents of the source, a thesis, and evidence to support its thesis (e.g. passages from the source, relevant commentaries). As you read, you should consider questions such as: How do the culture and time period affect the author’s point of view? How does this primary source exemplify the ideals of the Renaissance? How do the various aspects of culture interact to produce this specific text?

**Due Dates:**
1. Primary Source Paper #1: Friday, February 16th
2. Primary Source Paper #2: Friday, March 30th

**Final Paper:** The final paper for this course is due Friday, April 27th. The body of your paper should be at least 3000 words in length. Although you may choose your own topic, a list of examples could include (but is not limited to):
   - Perspective in Art
   - Architecture of the Renaissance
   - Navigation, Exploration, and Colonization; motivations, impact, technology used (e.g. compass, Napier’s logarithm tables).
   - Advances in astronomy; controversy with Galileo, the role of the church, Tycho Brahe, Kepler, etc.
   - The Influence or Effects of Religion(s)
   - Science and the Church
   - Art and the Church

**Paper Requirements:**
- at least 3000 words
- must integrate humanities and science
- at least five sources (at least one must be a primary source)
- must contain a bibliography
- proper citations should be used
- the paper should be self-contained (in other words, your paper should be readable to someone who has not taken this class)
Paper Deadlines:

• paper topic deadline: Wednesday, February 28th
• bibliography deadline: Wednesday, March 7th
• final copy deadline: Friday, April 27th

Final Exam: Your final exam is cumulative and will consist of two parts, short answer and essay.

Academic Integrity:
Central to the purpose and pursuit of any academic community is academic integrity. All members of the Westminster community, including students, faculty, staff, and administrators, are expected to maintain the highest standards of honesty and integrity, in keeping with the philosophy and mission of the College.

See the Westminster College 2017-18 Undergraduate Catalog.

Some forms of academic dishonesty include (but are not limited to): copying a classmate’s work (homework, quizzes, or exams), divulging answers or information to another student during a quiz or exam, using unauthorized aids (e.g., calculator/cell phone programmed with formulas or notes) during an exam or quiz. Academic dishonesty will not be tolerated in this class. The penalty for academic dishonesty is minimally the grade of 0 on the assignment and, except for unusual circumstances, a grade of F for the course. Any event of academic dishonesty is reported to the Dean of the College. Other details of violations and consequences are given in the Catalog.

Accessibility Statement: Westminster College actively strives for the full inclusion of all our students. Students with disabilities who require access solutions for environmental or curricular barriers should contact Faith Craig, Director of Disability Resources. phone: 724-946-7192.
## Tentative schedule: Connections

(This schedule remains tentative and may be changed to accommodate discussion. The Readings should be completed on or before the date on which they are shown.)

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<thead>
<tr>
<th>WEEK 1.</th>
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<tr>
<td>W Jan 17</td>
<td>Introduction to the course. Zero and positional numbering and the interconnectedness of everything&lt;sup&gt;k&lt;/sup&gt;</td>
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<tr>
<td>F Jan 19</td>
<td>Hindu-Arabic Numerals (&amp; how to use an abacus)&lt;sup&gt;k&lt;/sup&gt;</td>
<td>“Count your Blessings,” Rennie and Bonomo.</td>
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<th>WEEK 2.</th>
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<tr>
<td>M Jan 22</td>
<td>The Abacists and the Algorists&lt;sup&gt;k&lt;/sup&gt;</td>
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<td>W Jan 24</td>
<td>The Roots of the Renaissance&lt;sup&gt;e&lt;/sup&gt;</td>
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<td>F Jan 26</td>
<td>Student Discussion. Group #1</td>
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<th>WEEK 3.</th>
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<tr>
<td>M Jan 29</td>
<td>Ptolemy’s Universe&lt;sup&gt;k&lt;/sup&gt;</td>
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<tr>
<td>W Jan 31</td>
<td>Highlights from The Renaissance: A Very Short Introduction&lt;sup&gt;e&lt;/sup&gt;</td>
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<td>F Feb 2</td>
<td>“De Rerum Natura,” Lucretius.</td>
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<tr>
<td>M Feb 5</td>
<td>Mathematics in Renaissance Art&lt;sup&gt;k&lt;/sup&gt;</td>
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<td>W Feb 7</td>
<td>Dante Alighieri (1265–1321)&lt;sup&gt;f&lt;/sup&gt;</td>
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<td>F Feb 9</td>
<td>Student Discussion. Group #3</td>
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<th>WEEK 5.</th>
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<tr>
<td>M Feb 12</td>
<td>The Rediscovery of Geometry&lt;sup&gt;k&lt;/sup&gt;</td>
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<tr>
<td>W Feb 14</td>
<td>Petrarch (1304-1374)&lt;sup&gt;f&lt;/sup&gt;</td>
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<tr>
<td>F Feb 16</td>
<td>Student Discussion. Group #4</td>
<td>Primary Source Paper #1 due</td>
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<th>WEEK 6.</th>
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<tr>
<td>M Feb 19</td>
<td>Leonardo da Vinci, Mad Scientist&lt;sup&gt;k&lt;/sup&gt;</td>
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<tr>
<td>W Feb 21</td>
<td>Poggio (1380-1459), and Marsilio (1433–1499)&lt;sup&gt;f&lt;/sup&gt;</td>
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<td>F Feb 23</td>
<td>Student Discussion. Group #5</td>
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<th>WEEK 7.</th>
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<tr>
<td>M Feb 26</td>
<td>Copernicus and Heliocentrism&lt;sup&gt;k&lt;/sup&gt;</td>
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<tr>
<td>W Feb 28</td>
<td>The Protestant Reformation (1517-1648)&lt;sup&gt;f&lt;/sup&gt;</td>
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<sup>1</sup> indicates that the class will be led by Dr. Knop, <sup>f</sup> indicates Dr. Rennie.
Saturday March 3rd until Sunday March 11th. Class resumes Monday 12th.

WEEK 8.
M Mar 12      Galileo, controversy, and the cusp of modern “natural philosophy”
W Mar 14      The Nature of the Nova Scientia
F Mar 16      Student Discussion. Group #7
               Final paper bibliography due

WEEK 9.
M Mar 19      Kepler: practical Heliocentrism
W Mar 21      Hannam’s Thesis from The Genesis of Science
F Mar 23      Student Discussion. Group #1

WEEK 10.
M Mar 26      Modern “natural philosophy”: Francis Bacon (1561-1626)
W Mar 28      Student Discussion. Group #2
               Primary Source Paper #2 due

Reading:
               The Genesis of Science, Hannam.

EASTER BREAK.
Thursday March 29th until Monday April 2nd. Class Resumes Tuesday April 3rd. Monday
Classes meet Tuesday April 3rd,

WEEK 11.
T Apr 3       Sir Isaac Newton (1642-1726)
W Apr 4       Modern “natural philosophy”: and René Descartes (1596-1650)
F Apr 6       Student Discussion. Group #3

WEEK 12.
M Apr 9       Sir Isaac Newton (1642-1726)
W Apr 11      The History of the History of Religion
F Apr 13      Student Discussion. Group #4

WEEK 13.
M Apr 16      Infinity (and Beyond)
W Apr 18      No class (URAC)
F Apr 20      Student Discussion. Group #5

WEEK 14.
M Apr 23      The Clockwork Universe
W Apr 25      The Clockwork Universe
F Apr 27      Student Discussion. Group #6
               Final Paper due

Reading:
               The Clockwork Universe, Dolnick.

WEEK 15.
M Apr 30  Final Comments and Wrap-up
W May 2  Final Comments and Wrap-up
F May 4  Student Discussion. Group #7

WEEK 16.
Finals Period May 7th until May 10th  Final Exam