

“Historical Encounters of Science and Religion”

HISC 110

Spring Quarter, 2015

Professor Robert S. Westman

Tu/Th, 2-3:20 p.m.

Peterson Hall 103

Office: H&SS 4072; Office Hours: Tuesdays, 3:30-5:30 p.m.--often at Perk's Café (TBA); & by appointment.

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This course is a historical examination of the encounter between religion and science. The class asks whether science and religion are inherently at odds or “at war” with one another, as some nineteenth-century historians and twentieth- and twenty-first century journalists liked to say. Is there a single defining relationship between science and religion, such as Galileo’s dramatic engagement with the Catholic Church in the early seventeenth century or the 1925 “Monkey Trial” of John Scopes in Dayton, Tennessee? Focusing on these examples, among others, this class shows that these questions—as well as the answers given to them--have their own history.

**Schedule of Lecture Topics and Associated Readings**

March 31. **Science and Religion: Conflict, Harmony, Complexity.**

John W. Draper, *History of the Conflict between Religion and Science* (1874), Preface; chap. xii.

<http://www.gutenberg.org/files/1185/1185-h/1185-h.htm>

Thomas Dixon, *Science and Religion*, pp. 1-17.

April 2. **The Church and the Earliest Universities.**

European universities, 1088-1783.

Helen Wieruszowski. *The Medieval University*. Excerpts on TED.

[http://en.wikipedia.org/wiki/List\\_of\\_early\\_modern\\_universities\\_in\\_Europe#16th\\_century](http://en.wikipedia.org/wiki/List_of_early_modern_universities_in_Europe#16th_century)

April 7. **Aristotle's Physics and the Liberal Arts Curriculum**

[http://en.wikipedia.org/wiki/Aristotelian\\_physics](http://en.wikipedia.org/wiki/Aristotelian_physics)

April 9. **Natural Philosophy and Theology in the Medieval University**

Edward Grant, “Science and Theology in the Middle Ages,” in *God and Nature*, pp. 49-75.

**April 14. Copernicus's Innovation.**

Robert Westman, "The Copernicans and the Churches," in *God and Nature*, pp. 76-81 (only).

Dennis Duke: Planetary Animations:

<http://people.sc.fsu.edu/~dduke/models.htm>

"Ptolemy's Cosmology"; "Kepler's Cosmology"; "Kepler Motion"; "Transformation between a geocentric model and a heliocentric model for an outer planet (Jupiter/Mars) and an inner planet (Venus)"

**April 16. Protestant and Catholic Reactions to Copernicus's Heliocentric Hypothesis.**

Robert Westman, "The Copernicans and the Churches," in *God and Nature*, pp. 81-98.

Richard Blackwell, *Galileo, Bellarmine and the Church*, pp. 5-27.

Read primary source text in Blackwell:

"Decrees of the Council of Trent, Session IV (8 April 1546)," pp. 181-184.

**April 21. Galileo's Telescope: Observing and Representing.**

Albert Van Helden. "A Brief History of Galileo's Telescope":

<http://cnx.org/content/m11932/latest/>

Galileo Galilei. *Sidereus Nuncius*. 1610. Original copy: Linda Hall Library, Kansas City, Missouri:

<http://www.chlt.org/sandbox/ihl/GalileoSkel1610/page.0.a.php?size=240x320>

**April 23. Church Standards for Interpreting the Meaning of the Bible.**

Richard Blackwell, pp. 29-51. Primary texts in Blackwell:

Diego de Zuñiga, *Commentary on Job 9:6* (1584), pp. 185-186.

Robert Bellarmine, *On Controversies about God's Word* (1586), pp. 187-194.

**April 28. Galileo's Approach to the Interpretation of the Bible.**

Richard Blackwell, pp. 53-85.

Galileo's *Letter to Castelli* (21 December 1613) in Blackwell, pp. 195-201.

The Galileo-Dini Correspondence (February-March, 1615) in Blackwell, pp. 203-216.

**April 30. Paolo Antonio Foscarini: An Unexpected Ally of Galileo's in the Church.**

Richard Blackwell, pp. 87-110.

Foscarini's *Letter Concerning the Opinion of the Pythagoreans and Copernicus About the Mobility of the Earth and the Stability of the Sun and the New Pythagorean System of the World* (1615), pp. 217-251.

**May 5. Galileo, the Theologians and the Trial.**

Richard Blackwell, pp. 111-134.

"An Unidentified Theologian's Censure of Foscarini's *Letter*," pp. 253-254.

"Foscarini's *Defense* of His Letter," pp. 255-263.

"Bellarmine's *Letter to Foscarini*," pp. 265-267.

"Galileo's Unpublished Notes (1615)," pp. 269-276.

**May 7. The Historical and Philosophical Meaning of the Galileo Affair.**

Richard Blackwell, pp. 165-186.

Thomas Dixon, *Science and Religion*, pp. 18-36.

**May 12. The 17C Mechanical Philosophy.**

Gary Deason, "Reformation Theology and the Mechanistic Conception of Nature," in *God and Nature*, pp. 167-191; Dixon, pp. 37-48;

[http://en.wikipedia.org/wiki/File:Boyles\\_Law\\_animated.gif](http://en.wikipedia.org/wiki/File:Boyles_Law_animated.gif)

**May 14. Natural Theology and Design.**

William Paley. The Watchmaker Argument

<http://homepages.wmich.edu/~mcgrew/PaleyWatch.pdf>

"Jefferson Bible" (Wikipedia)

[http://en.wikipedia.org/wiki/Jefferson\\_Bible](http://en.wikipedia.org/wiki/Jefferson_Bible)

**May 19. Geology, Cosmology and Biblical Chronology.**

Archbishop James Ussher's chronology of the history of the world:

[http://en.wikipedia.org/wiki/Ussher\\_chronology](http://en.wikipedia.org/wiki/Ussher_chronology)

Biography of James Ussher:

[http://en.wikipedia.org/wiki/James\\_Ussher](http://en.wikipedia.org/wiki/James_Ussher)

**May 21. Darwin and Responses to Evolution.**

Frederick Gregory, "The Impact of Darwinian Evolution on Protestant Theology in the Nineteenth Century," in *God and Nature*, pp. 369-390.

Thomas Dixon, *Science and Religion*, pp. 58-80.

**May 26. Fundamentalism and Creationism.**

Ronald L. Numbers, "The Creationists," in *God and Nature*, pp. 391-423.

Thomas Dixon, *Science and Religion*, pp. 81-93.  
Edward Larson, *Summer for the Gods*, pp. 11-59.

**May 28. The Scopes Trial.**

Edward Larson. *Summer for the Gods*, pp. 60-169.  
Film: *Inherit the Wind* (1960). TBA

**June 2. The Scopes Trial Dramatized.**

Film and Discussion.  
Edward Larson, *Summer for the Gods*, pp. 170-266.

**June 4. Final Reflections.**

Thomas Dixon, *Science and Religion*, pp. 93-103; 104-126.  
Edward Larson, *Summer for the Gods*, pp. 267-278.  
American Association for the Advancement of Science (AAAS) "Statement on the Teaching of Evolution" (February 16, 2006):  
<http://www.project2061.org/publications/2061Connections/2006/2006-01c.htm>

**Required Readings** (For purchase)

Richard J. Blackwell. *Galileo, Bellarmine, and the Bible*. University of Notre Dame Press, 1991.

Thomas Dixon. *Science and Religion. A Very Short Introduction*. Oxford University Press, 2008.

Edward J. Larson. *Summer of the Gods: The Scopes Trial and America's Continuing Debate Over Science and Religion*. New York: Perseus, 2006. First edition, 1997.

David C. Lindberg and Ronald L. Numbers, eds. *God and Nature: Historical Essays on the Encounter between Christianity and Science*. University of California Press, 1986.

**Assignments**

**Grader: Yolanda Hartley**

1. In this paper, compare and analyze the accounts of two different historians concerning the relationship between science and religion: John Draper (1811-1882) and Edward Grant (1926-). Draper defended the thesis that science and religion—

especially Christianity—are in conflict whereas Grant, analyzing natural philosophy and theology in the Middle Ages, reaches quite different conclusions. Develop and support a claim about *how* each author constructs his argument and, as a result, which one you find most persuasive. In supporting your claim, consider Draper's and Grant's choice of language and style of writing, the level of generality and specificity at which they make their arguments and cast their respective narratives, and the kind of evidence each uses. Give two or three specific examples from each author to illustrate how each presents his story.

4-6 double-spaced pages. Font: Lucida Sans Unicode.

**Paper due in class, Week 5, Thursday, April 30.**

2. Who got to speak for the natural world in the 16C and 17C? The natural philosopher Galileo claimed that evidence contrary to the unaided sense of sight and gathered by a new instrument (which almost no one else had) should be trusted. He also claimed that that kind of evidence should be trusted in interpreting the Bible where the Bible speaks about the Earth, Sun and stars. Most theologians in the Church disagreed with this position and claimed that they alone had the expertise to make sense of the Bible and also to determine which criteria should be allowed in guiding their interpretations. At least one theologian disagreed with his colleagues: Paolo Antonio Foscarini. In turn, Foscarini was criticized both by the high-ranking cardinal, Robert Bellarmine, and by an anonymous critic inside the Church who censured Foscarini in a secret testimony.

In your essay, take Foscarini's and Galileo's side and lay out clearly how they defended their position that the Bible is compatible with the statement that the Earth is a planet and revolves around the stationary Sun. Then, from this same perspective, summarize and respond to the counterarguments Cardinal Bellarmine and Pope Urban VIII used to prevent Foscarini and Galileo from teaching or defending Copernicus's theory. Use primary sources from Richard Blackwell's appendices in composing your response.

4-6 double-spaced pages. Font: Lucida Sans Unicode.

**Final draft due in class, week 8, Tuesday, May 19.**

**Final Examination: Take-home. Due: Tuesday, June 9, 3-3:15 p.m.  
Questions will be available one week before the exam.**

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**Breakdown of Grading:**

Short Paper 1: 25%

Short Paper 2: 25%

Final Exam: 50%

Final grade will be the average of the two short papers + final exam, adjusted +/- by assessment of class participation.

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## Grading Criteria for Participation

**Attendance is required in all lectures.**

Here is a description of the kind of participation in the course that would affect whether your grade is increased by a '++', a '+' or lowered by a '-'.

### **++ EXCELLENT.**

- You are well-prepared, with almost no absences. You can explain each reading in your own words. In addition, you have already asked yourself questions about what it means, focusing on specific passages that are interesting to you and making connections between various readings and ideas.
- You express your thoughts clearly, making and supporting specific claims. You listen and respond thoughtfully to your peers, helping to create a safe, inviting space for discussion.
- You find ways to connect the course material with issues that matter to you personally.
- You do all activities with high energy and attention to detail, and actively lead or enthusiastically contribute to group activities, taking personal responsibility for achieving the assigned goal.
- You submit rough drafts on time, and these drafts demonstrate a thorough engagement with the assignment.
- You respond creatively to the feedback you receive on drafts, making significant changes to your writing between the first and final drafts that demonstrate ownership of your own writing process.
- You are an active contributor to the peer-review process, offering insightful, substantive, and constructive feedback to your classmates.

### **+ GOOD.**

- You attend lectures with few absences. You have done most of the readings.
- You talk on a regular basis. Sometimes you offer well-thought-out ideas and connections, supported with evidence; sometimes your contributions are merely a statement of opinions or initial reactions.
- You do assigned activities willingly; but if you run into obstacles, you let someone else figure out how to overcome those obstacles.

- You submit rough drafts on time, and these drafts demonstrate thorough engagement with the assignment.
- You respond effectively to the feedback you receive from the grader on drafts, making significant changes to your writing between the first and final drafts.
- You are a regular contributor to class discussion.

#### **Neither + nor - SATISFACTORY.**

- You are present in lecture and section, with few absences, and have done some of the reading some of the time.
- You occasionally contribute to the discussion, but usually not; your contributions are opinions more often than they are thoughtful efforts to make connections. You're not a real self-starter, and you have to be nudged to participate.
- You do activities when asked, because it's required.
- You submit rough drafts on time.
- You make some efforts toward revision between the first and final drafts of an assignment

#### **- UNSATISFACTORY.**

- You have multiple absences from class.
- When you come, you're often not very prepared, and you don't say anything.
- You may have a habit of using your cell phone or computer in class to chat or do things not directly related to the course. Playing online poker or shopping for surfboards in either lecture or section, for instance, would be ways to earn a '-' in participation.
- You submit late or incomplete drafts.
- You revise minimally or only at a surface level between drafts.
- You are absent frequently or offer unproductive feedback.

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## **ACADEMIC INTEGRITY**

- UCSD has a university-wide Policy on Integrity of Scholarship, published annually in the General Catalog, and online at <http://students.ucsd.edu/academics/academic-integrity/policy.html>. All students must read and be familiar with this Policy. All suspected violations of academic integrity will be reported to UCSD's Academic Integrity Coordinator. Students found to have violated UCSD's
- standards for academic integrity may receive both administrative and academic sanctions. Administrative sanctions may extend up to and include suspension or dismissal, and
- academic sanctions may include failure of the assignment or failure of the course. Specific examples of prohibited violations of academic integrity include, but are not limited to, the following:
- *Academic stealing* refers to the theft of exams or exam answers, of papers or take-home exams composed by others, and of research notes, computer files, or data collected by others.

- Academic cheating, collusion, and fraud refer to having others do your schoolwork or allowing them to present your work as their own; using unauthorized materials during exams; inventing data or bibliography to support a paper, project, or exam; purchasing tests, answers, or papers from any source whatsoever; submitting (nearly) identical papers to two classes.
- Misrepresenting personal or family emergencies or health problems in order to extend deadlines and alter due dates or requirements is another form of academic fraud. Claiming you have been ill when you were not, claiming that a family member has been ill or has died when that is untrue are some examples of unacceptable ways of trying to gain more time than your fellow students have been allowed in which to complete assigned work.
- Plagiarism refers to the use of another's work without full acknowledgment, whether by suppressing the reference, neglecting to identify direct quotations, paraphrasing closely or at length without citing sources, spuriously identifying quotations or data, or cutting and pasting the work of several (usually unidentified) authors into a single undifferentiated whole.
- **Receipt of this syllabus constitutes an acknowledgment that you are responsible for understanding and acting in accordance with UCSD guidelines on academic integrity.**