

“Historical Encounters of Science and Religion”

CAT 1

Fall Quarter, 2016

Professor Robert S. Westman

Tu/Th, 3:30–4:50 p.m.

Center Hall 101

PLEASE DO NOT USE CELL PHONES DURING LECTURES.

Office Hours: Wed. 2–3 (H&SS 4072); Th 5–6 p.m. (Perk's Café) and also by appointment. Office: H&SS 4072.

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This CAT1 is a *historical* inquiry. The course title poses the theme as an encounter between religion and science but the lectures soon dispute the course's own title. The class looks first at how the categories "science" and "religion" were understood by nineteenth-century historians and many twentieth-century journalists, categories inherently at odds or even “at war” with one another. Taking the history of this formulation as a starting point, the larger question then becomes: Is there, in fact, 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 the high school biology teacher John Scopes in Dayton, Tennessee? Focusing on these dramatic examples, although not exclusively, this class shows that these questions—as well as the answers given to them—have their own complicated histories in which standards of biblical interpretation and new technologies play an important role. The class views these episodes in the context of the institutional structures of the Catholic and Protestant Church(es), the State and the University. The course concludes with a look at the breakdown of these institutional relationships in the twentieth century—especially after World War II—with the emergence of the de-Christianized university and the rise of the cultural authority of Science within a new nexus of institutional structures: the militarized Cold War State and large, profit-driven corporations.

Schedule of Lecture Topics and Associated Readings

(** Denotes Readings Posted to TritonEd)

Note: Most links can be activated directly from the syllabus; a few may require cutting and pasting into your browser.

Sept. 22. Science and Religion: Conflict, Harmony, Complexity.

--John W. Draper, *History of the Conflict between Religion and Science* (1874),

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

--Thomas Dixon, *Science and Religion*, PREFACE ONLY.

Sept. 27. **The Church and the Earliest Universities.**

European universities, 1088–1796.

--*Understanding Rhetoric*. Introduction: "Space for Writing"

--**Helene Wieruszowski, "Student Life in the Later Middle Ages," in *The Medieval University* (Princeton: Van Nostrand, 1966), pp. 103–116; 189–199 (hereafter cited as **TMU**).

--**Hugh of St. Victor, *Didascalicon* on "Philosophy and the Classification of the Sciences" in **TMU**, pp. 127–128.

--**The University of Paris and the Teaching of Theology in **TMU**, pp.129–134.

--**Some university regulations from the University of Paris in the 13C, **TMU**, pp. 137–141;146.

--**Roger Bacon on the "Sentences" vs. Holy Scripture (ca. 1267), **TMU**, pp. 146–147.

--**David Lindberg. "The Rise of Universities," in Lindberg, *The Beginnings of Western Science* (2007), pp. 218–224.

--List of Medieval and Early Modern Universities:

http://en.wikipedia.org/wiki/List_of_early_modern_universities_in_Europe#16th_century

Sept. 29. **Aristotle and the Liberal Arts Curriculum**

**Thomas Kuhn, *The Copernican Revolution*. Cambridge, Mass.: Harvard University Press, 1957, pp. 78–99.

Oct. 4. **Natural Philosophy and Theology in the Medieval University**

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

--**"Some 'Errors' taught in the Faculty of Arts at Paris and condemned by the Bishop of Paris, Etienne Tempier (1270)," **TMU**, pp. 151–152.

Oct. 6. **Copernicus's Innovation.**

--*Understanding Rhetoric*. Chapter 2: "Strategic Reading"

--**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>

Examine: (1) "Ptolemy's Cosmology"; (2) "Kepler's Cosmology"; (3) "Kepler Motion"; (4) "Transformation between a geocentric model and a heliocentric model for an outer planet (Jupiter/Mars) and an inner planet (Venus)"

Oct. 11. 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.

--Primary text in Blackwell:

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

Oct. 13. Galileo's Telescope: Observing and Representing.

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

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

--A late-20C student's experiences with Galileo's telescope:

http://galileo.rice.edu/lib/student_work/astronomy95/moon.html

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

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

Oct. 18. 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.

Oct. 20. 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.

Oct. 25. 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.

Oct. 27. 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.

Nov. 1. The Historical and Philosophical Meaning of the Galileo Affair.

--*Understanding Rhetoric*. Chapter 6: "Rethinking Revision."

--Richard Blackwell, pp. 165–186.

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

Nov. 3. To be Announced.

Nov. 8. Natural Theology and Design.

--William Paley. "The Watchmaker Argument"

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

--Dixon, *Science and Religion*, pp. 37–48;

http://en.wikipedia.org/wiki/File:Boyles_Law_animated.gif

--Marilyn Mellowes. "Thomas Jefferson and His Bible."

<http://www.pbs.org/wgbh/pages/frontline/shows/religion/jesus/jefferson.html>

--"Jefferson Bible" (Wikipedia)

http://en.wikipedia.org/wiki/Jefferson_Bible

Nov. 10. Geology, Cosmology and Biblical Chronology.

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

http://en.wikipedia.org/wiki/Ussher_chronology

--Biography of James Ussher:

http://en.wikipedia.org/wiki/James_Ussher

Nov. 15. 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.

Nov. 17. 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.

Nov. 22. The Scopes Trial.

--Edward Larson. *Summer for the Gods*, pp. 60-169.

++FILM: *Inherit the Wind* (1960). Evening show. Time: TBA

Nov. 24. THANKSGIVING. NO LECTURE.

Nov. 29. The Scopes Trial Dramatized

--Edward Larson, *Summer for the Gods*, pp. 170-278.

--Thomas Dixon, *Science and Religion*, pp. 93-103; 104-126.

Dec. 1. The De-Christianization of the Universities.

--American Association for the Advancement of Science (AAAS) "Statement on the Teaching of Evolution" (February 16, 2006):

<http://www.interacademies.net/10878/13901.aspx>

--Aaron Bady and Mike Konczal, "From Master Plan to No Plan: The Slow Death of Public Higher Education," *Dissent*, Fall 2012.

<http://www.dissentmagazine.org/article/from-master-plan-to-no-plan-the-slow-death-of-public-higher-education>

Required (Print) Readings.

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.

Elizabeth Losh. Jonathan Alexander. Kevin Cannon. Zander Cannon. *Understanding Rhetoric: A Graphic Guide to Writing*. Bedford/St. Martin's, 2013.

Andrea A. Lunsford. *Easy Writer: A Pocket Reference*. 5th ed. Boston/New York: Bedford/St. Martin's, 2014.

Assignments

1. Using the excerpts from primary sources about medieval student life contained in the readings assembled by Helene Wieruszowski, imagine you are a medieval student living in England, France or Germany in the 13C–15C. Compose a letter to your parents guided by the following questions: What are your general living circumstances like? What university regulations are you required to follow? What language are you required to read and speak? Is this the same language you would have spoken at home? What subjects are you required to study? And, most importantly, what are those subjects about?

+Rough draft due in lecture on October 13 (week 3). TAs will return these drafts with comments in week 4.

+Final draft due in lecture on October 27 (week 5) and to Turnitin via TED by 11:59 p.m. on the same day, October 27.

+3–4 double-spaced pages, MLA formatting and citation style.

2. The early 17C was a time when a conflict developed about who had the authority to make claims about the natural world. 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. However, 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.

Using primary sources from the appendices to Richard Blackwell's book, write an essay describing Foscarini's and Galileo's arguments. How did each defend his view that the Bible is compatible with the statement that the Earth is a planet and revolves around the stationary Sun? Then, summarize the counterarguments that Cardinal Bellarmine and Pope Urban VIII used to prevent Foscarini and Galileo from teaching or defending Copernicus's theory.

+Rough draft due in sections on November 10 (week 7).

+Final draft due in lecture on Tuesday, November 22 (week 9) and by 11:59 p.m., on the same day, to Turnitin via TED.

+4–6 double-spaced pages, MLA formatting and citation style.

3. FINAL EXAMINATION. Monday, **December 5, 3–6 p.m.** The final examination will cover the entire course, asking you to compare and contrast earlier and later historical themes. Students should bring a large bluebook (8.5" x 11").

Breakdown of Grading:

[Class Evaluation]

Participation: 10%

Pop Quiz (unannounced, in lecture): 5%

Assignment 1: 25%

Assignment 2: 25%

Assignment 3 (Final Exam): 35%

POLICIES:

- 1. ATTENDANCE**
- 2. CLASS PARTICIPATION**
- 3. ASSIGNMENT SUBMISSION**
- 4. CAT GRADING CRITERIA**
- 5. ACADEMIC INTEGRITY**
- 6. UCSD'S PRINCIPLES OF COMMUNITY**

1. ATTENDANCE

On-time attendance in lecture and section is required. Please notify your TA if you must be absent for illness or family emergency. Excessive absence (more than three class sessions, either lectures or sections) may be grounds for failing the course. Excessive tardiness will also impact your grade and may be grounds for failure.

2. CLASS PARTICIPATION

Contributions to class discussions and active participation in small group work are essential to both the momentum of the course and the development of your ideas. This requires that you come to class prepared (having completed assigned reading and writing) and ready to

participate in class activities. See the participation evaluation rubric below for more information.

3. ASSIGNMENT SUBMISSION

A. Due Dates

An assignment may receive an F if a student does not participate in **every** phase of the development of the project and **meet all deadlines** for preliminary materials (proposals, drafts, etc).

Failure to submit **any** of the graded course assignments is grounds for failure in the course.

If a final draft, plus required addenda, is not submitted **in class on the date due**, it will be considered late and will lose one letter grade for each day or part of a day past due (A to B, etc.). Assignments are due in hard copy as well as via turnitin. You must submit your assignments directly to your TA; you will not be able to leave papers for your TA at the Sixth College Offices. Any late submissions must be approved by your TA and/or faculty instructor well in advance of the due date.

B. Turnitin

Final drafts must be submitted to Turnitin via **TED BY MIDNIGHT** on the day it is submitted in class. A grade will not be assigned to an assignment until it is submitted to Turnitin via TED. Failure to submit an assignment to Turnitin via TED is grounds for failure of the assignment.

4. CAT GRADING CRITERIA – PARTICIPATION

Here is a description of the kind of participation in the course that would earn you an A, B, C, etc. Your TA may use pluses and minuses to reflect your participation more fairly, but this is a general description for each letter grade.

A – Excellent

Excellent participation is marked by near-perfect attendance and rigorous preparation for discussion in lecture and section. You respond to questions and activities with enthusiasm and insight and you listen and respond thoughtfully to your peers. You submit rough drafts on time, and these drafts demonstrate a thorough engagement with the assignment. You respond creatively to the feedback you receive (from both your peers and TA) on drafts, making significant changes to your writing between the first and final drafts that demonstrate ownership of your own writing process. Finally, you are an active contributor to the peer-review and collaborative writing processes.

B – Good

Good participation is marked by near-perfect attendance and thorough preparation for discussion in lecture and section. You respond to questions with specificity and make active

contributions to creating a safe space for the exchange of ideas. You submit rough drafts on time, and these drafts demonstrate thorough engagement with the assignment. You respond effectively to the feedback you receive (from both your peers and TA) on drafts, making changes to your writing between the first and final drafts. You are a regular and reliable contributor to the peer-review and collaborative writing processes.

C – Satisfactory

Satisfactory participation is marked by regular attendance and preparation for discussion in lecture and section. You respond to questions when prompted and participate in classroom activities, though you may sometimes be distracted. You are present in lecture and section, with few absences, and have done some of the reading some of the time. You submit rough drafts on time and make some efforts toward revision between the first and final drafts of an assignment. You are involved in peer-review activities, but you offer minimal feedback and you may not always contribute fully to the collaborative writing process.

D – Unsatisfactory

Unsatisfactory participation is marked by multiple absences from section and a consistent lack of preparation. You may regularly be distracted by materials/technology not directly related to class. You submit late or incomplete drafts and revise minimally or only at a surface level between drafts. You are absent for peer-review activities, offer unproductive feedback, or do not work cooperatively in collaborative environments.

F—Failing

Failing participation is marked by excessive absences, a habitual lack of preparation, and failure to engage in the drafting, revision, and collaborative writing processes.

5. 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.

6. UCSD's PRINCIPLES OF COMMUNITY

The CAT program affirms UCSD's Principles of Community, and expects all students to understand and uphold these principles, both in their daily interactions and in their spoken, written and creative work produced for CAT classes:

The University of California, San Diego is dedicated to learning, teaching, and serving society through education, research, and public service. Our international reputation for excellence is due in large part to the cooperative and entrepreneurial nature of the UCSD community. UCSD faculty, staff, and students are encouraged to be creative and are rewarded for individual as well as collaborative achievements.

To foster the best possible working and learning environment, UCSD strives to maintain a climate of fairness, cooperation, and professionalism. These principles of community are vital to the success of the University and the well being of its constituents. UCSD faculty, staff, and students are expected to practice these basic principles as individuals and in groups.

- We value each member of the UCSD community for his or her individual and unique talents, and applaud all efforts to enhance the quality of campus life. We recognize that each individual's effort is vital to achieving the goals of the University.
- We affirm each individual's right to dignity and strive to maintain a climate of justice marked by mutual respect for each other.
- We value the cultural diversity of UCSD because it enriches our lives and the University. We celebrate this diversity and support respect for all cultures, by both individuals and the University as a whole.
- We are a university that adapts responsibly to cultural differences among the faculty, staff, students, and community.
- We acknowledge that our society carries historical and divisive biases based on race, ethnicity, sex, gender identity, age, disability, sexual orientation, religion, and political beliefs. Therefore, we seek to foster understanding and tolerance among individuals and groups, and we promote awareness through education and constructive strategies for resolving conflict.
- We reject acts of discrimination based on race, ethnicity, sex, gender identity, age, disability, sexual orientation, religion, and political beliefs, and, we will confront and appropriately respond to such acts.
- We affirm the right to freedom of expression at UCSD. We promote open expression of our individuality and our diversity within the bounds of courtesy, sensitivity, confidentiality, and respect.
- We are committed to the highest standards of civility and decency toward all. We are committed to promoting and supporting a community where all people can work and learn together in an atmosphere free of abusive or demeaning treatment.
- We are committed to the enforcement of policies that promote the fulfillment of these principles.
- We represent diverse races, creeds, cultures, and social affiliations coming together for the good of the University and those communities we serve. By working together as members of the UCSD community, we can enhance the excellence of our institution.

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