

THEO 170 — Theology and the Natural Sciences

Spring 1998, Tues/Thurs, 12:35-1:50 p.m., 43 Cudahy Hall

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Office Hours Tues/Thurs 11-12 & by appointment

Overview

This course has been designed to enable you to become informed about major ways in which theistic religion and the natural sciences have been perceived in relation to one another so that you may delineate a working model of the role these two disciplines should play in the world today. Toward this end, you will critically assess: (1) works by St. Albert, Kepler and other early scientists with the aim of recognizing their theological perceptions of their scientific endeavors; (2) texts by and about Galileo and Darwin to discern why theologians and scientists clashed; (3) various models for understanding the relationship between theology and the natural sciences today; (4) current theories of astronomy, evolutionary biology, chaos theory, complexity science and ecology as bases for discerning their theological implications for anthropology, the doctrines of creation and divine providence and notions of eschatology; and (5) essays by Pope John Paul II on the role of the Church in our scientific era and on Christianity and evolution.

Goals

Upon completing the course, you should be able to: (1) approach issues regarding science and religion with some understanding of past interactions, (2) demonstrate comprehension of key theological and scientific concepts, (3) identify, think critically about and summarize perspectives expressed in assigned readings by theologians, philosophers and scientists, (4) evaluate some basic models for relating theology and natural sciences, and (5) specify a preferred working model of the science-religion relationship and apply your model to a scientific topic.

Required Texts

John Haught, *Science and Religion* (1995)

James E. Huchingson, ed., *Religion and the Natural Sciences* (1993)

Handouts and Readings on Library Reserve

Recommended Texts

Henry Margenau and Roy Abraham Varghese, eds., *Cosmos, Bios, Theos* (1992)

Ian Barbour, *Religion in an Age of Science* (1991)

Bases for Evaluation

Your final grade will be based on participation in small group and full class discussions, written synopses of assigned readings, and occasional unannounced quizzes (15%), a five-page research paper specifying a preferred working model for relating science and theology, explaining why the model was chosen, and applying that model to a scientific topic of your choice (25%), the first cumulative exam (25%), and a comprehensive final exam (35%).

Academic Honesty Policy

Each student is expected to represent his or her own efforts in all assignments and examinations. Penalties for academic dishonesty will be rigorously administered as explained in the *Undergraduate Bulletin*.

Class Attendance Policy

Because presence in class is crucial to student understanding of assigned and presented materials and

essential for small-group activities centering around ways of relating theology and the natural sciences, attendance is mandatory. After four absences, your final letter grade will be lowered by one-half per absence. Up to 10 minutes tardiness will count for one-third absence from class, and over 10 minutes tardiness will count as one class absence.

Schedule of Class Sessions

Introduction and Historical Overview of the Science-Religion Relationship

1.14 -- Overview of course/syllabus; beginning of lecture series on the complex history of the relationship between science and theistic religion focusing on the biblical to medieval periods; review graphics depicting the biblical, Ptolemaic and medieval-Aristotelian world views; examine a selection from St. Albert's *De Animalibus*.

1.16 -- Continuation of historical overview concentrating on the Copernican revolution to Galileo's confrontation with the Church; review Kepler's preface to *Mysterium Cosmographicum* and graphics depicting the Copernican and Keplerian world views.

1.21 -- Discuss Galileo's "Letter to the Grand Duchess Christina" and one of Newton's letters to Dr. Bentley.

1.23 -- Completion of historical overview of the religion-science relationship; discuss Darwin's conclusions in *On the Origin of Species* and Huxley's defense; review Draper's preface to *History of the Conflict between Religion and Science* (1898) and White's introduction to *A History of the Warfare of Science with Theology* (1929); lecture on a critique of their thesis by Lindberg and Numbers; slide program depicting our contemporary world view.

Is Religion Opposed to Science?

1.28 -- Introductory lecture on various typologies proffered for describing ways of relating the natural sciences and theology; discuss Gilkey's "Theories in Science and Religion" (61-65), Küng's "On the Relationship of Theology to Science" (57-59), and Popper's "Falsification" (142-46) in Huchingson's anthology.

1.30 -- Discuss Schmidt's "The Function of Language in Science and Religion" (79-86) and MacCormack's "Metaphor in Science and Religion" (88-96) in Huchingson's anthology.

2.4 -- Discuss Pope John Paul II's 1988 message to the Director of the Vatican Observatory in *Physics, Philosophy and Theology*; students' voluntary sharing of their denomination's stance on the relationship between religion and science.

2.6 -- Discuss Barbour's "Surveying the Possibilities" (6-30) in Huchingson's *Religion and the Natural Sciences* and compare Barbour's typology with Haught's in "Is Religion Opposed to Science?" in *Science and Religion* (9-26).

2.11 -- Groupwork on above readings and Haught's "Is Religion Opposed to Science" in *Science and Religion* (9-26); directions on studying for exam.

2.13 -- Cumulative Exam

Does Evolution Rule out God's Existence?

2.18 -- Instructions on working models; lecture introducing topic; discuss Barbour's "Theological Issues in Evolution" (256-63) in Huchingson's anthology.

2.20 -- Discuss Gish's "Evolution: A Philosophy, Not a Science" (265-72), review preface to Morris' *The Remarkable Birth of Planet Earth*, discuss Asimov's "The Threat of Creationism" (275-83) in Huchingson's

anthology; view a segment of the video "God, Darwin and the Dinosaurs."

2.25 -- Discuss Teilhard's "Some Reflections on Progress" (285-96) and Burhoe's "Attributes of God in an Evolutionary Universe" (298-306) in Huchingson's anthology; review Pope John Paul II's 1996 statement on Christianity and evolution.

2.27 -- Development by groups of the ways of relating science and theology on the subject question using above readings, lectures and Haught's "Does Evolution Rule Out God's Existence?" in *Science and Religion* (47-71); reflection on the doctrine of God's providence.

SPRING BREAK

Is Human Life Reducible to Chemistry?

3.11 -- Intro lecture drawing on Haught's "Is Human Life Only Chemistry?" (337-41) in Huchingson's anthology; presentation by MU microbiologist **Dr. James Courtright** on the DNA/chemical makeup of animate beings; follow-up discussion re: possible implications for theology.

3.13 -- Discuss Ruse and Wilson's "The Evolution of Ethics" (308-11){, Singer's "Ethics and Sociobiology" (313-28),} and Peacock's "God and the Selfish Genes" (329-34) in Huchingson's anthology.

3.18 -- Groupwork on the subject question from above readings, lectures and Haught's "Is Life Reducible to Chemistry?" in *Science and Religion* (72-99); reflection on the doctrine of free will.

Was the Universe "Created"?

3.20 -- Intro lecture on various notions pertaining to the creation of the universe; comparison of Genesis 1 and 2; lecture by MU physics professor **Dr. Kenneth Mendelson** on scientific observations and theories pertaining to the expanding universe, "Big Bang," "Black Hole" and "Big Crunch"; identification of possible theological implications for the doctrine of creation.

3.25 -- Discuss Lackey's "The Big Bang and the Cosmological Argument" (190-95), Jastrow's "God and the Astronomers" (196-97), Geisler and Anderson's "Origin Science" (199-203), and Russell's "Cosmology and Theology" (205-7) in Huchingson's anthology.

4.1-- Groups develop cases for answering the subject question from above readings, lectures and Haught's "Was the Universe Created?" in *Science and Religion* (100-19); reflection on the doctrine of creation when informed by contemporary science.

Is Earth Our "Home"?

4.3 -- Intro lecture on theological anthropology emphasizing the relationship of the human being to the more-than-human world; presentation by MU ecologist **Dr. James Maki** on the makeup and functioning of ecosystems; review of Aldo Leopold's concept of the "community" in *The Sand County Almanac*, and the definition of "ecosystem" in the Great Lakes Water Quality Agreement.

4.8 -- Discuss Wald's "Life and Mind in the Universe" (214-19), Feinberg and Shapiro's "A Puddlian Fable" (220-21), and Dyson's "A Growing God" (209-12).

4.10 -- Groups prepare positions on the subject question building on above readings, lectures and Haught's "Do We Belong Here?" in *Science and Religion* (120-41); reflection on theological anthropology centering on living virtuously as integral parts of Earth's ecosystems.

Does the Universe Have a Purpose?

4.15 -- Working model proposals due; intro lecture to topic; presentation on chaos and complexity by MU

math professor **Dr. Stephen Merrill**; identify theological implications incorporating points made by Haught in "Why is there Complexity in Nature?" in *Science and Religion* (142-61).

4.17 -- Discuss Dillard's "All Nature is Touch and Go" (231-33) and Polkinghorne's "More to the World Than Meets the Eye" (235-45); drama student's reading of Swimme's "A Cosmic Story" (110-19) in Huchingson's anthology.

4.22 -- Working models due; preparation of group positions on the above question from the lectures, readings and Haught's "Does the Universe Have a Purpose?" in *Science and Religion* (162-82); reflection on eschatology and God's omnipotence informed by contemporary science.

Does Science Rule Out a Personal God?

4.24 -- Intro lecture on God as "person" in the Judæo-Christian tradition; discuss notions of a "personal God" in Einstein's "Science and Religion" (148-51), Tillich's "Science and Religion" (153-56), and Bube's "The Failure of the God-of-the-Gaps" (131-40) in Huchingson's anthology.

4.29 -- Class discussion of the four positions on the subject question from above readings and Haught's "Does Science Rule Out a Personal God?" in *Science and Religion* (27-46); reflection on the doctrine of the Trinity in light of contemporary science.

5.1 -- Conclusions and directions for final exam.

FINAL EXAMINATION -- Thursday, May 8, 10:30 a.m.-12:30 p.m.
