

HOPR 196 -- Honors Program Seminar

Relating Theology and the Natural Sciences on Contemporary Issues

Fall 1998, Monday 3-5:25, 143 Cudahy Hall

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Office Hours on Monday 12:30-2:30 and by appointment on Friday 12-3

207 Coughlin Hall, x85508 (x87170 messages)

Description

This course has been designed to facilitate more comprehensive thinking about contemporary issues at the boundaries of theology and the natural sciences -- the origins and nature of the universe, of life, and of human consciousness. Toward this end, we will begin with an historical overview of the diverse and sometimes problematic ways in which theologians and natural scientists have perceived the relationship between their disciplines. We will proceed subsequently (1) to explore in depth the similarities and differences between the disciplines today with emphasis on their purviews, data, methods, and limitations in addressing issues, (2) to compare four basic models for relating theology and the natural sciences with emphasis on dialogue between the disciplines which respects the distinct contributions each makes to issues and avoids their conflation or confusion, (3) to examine representative works with the aim of discerning the extent to which more cogent theological discourse about contemporary issues can be achieved when theology is informed by the natural sciences, and (4) to pursue individual research on topics in which theology and a natural science are interfaced. During one of the last three sessions of the seminar, you will present your research findings to the other students and respond to their inquiries about your project.

Because this course fulfills a seminar requirement for Honors Program students, it will be conducted in ways which allow maximum opportunities for you to share with one another your inquiry into and insights on assigned readings. To facilitate preparing for seminar sessions, you will be required to prepare written reflections on the readings for most sessions and to contribute substantively to class discussions. On some occasions, you will work in smaller groups on specified tasks and report out your conclusions to the reassembled students for discussion.

One aspect of this course will depart from the seminar style, however. Because the readings deal with data and theories from several scientific disciplines in which some students may not have had academic training, Marquette faculty from the Physics, Biology, Health Sciences and Mathematics departments will give presentations on cosmology, evolutionary biology, brain physiology and mathematical mapping of the universe. These lectures will be followed by a comment and question period in which you are required to engage the visiting faculty.

Objectives

(1) To understand and appreciate the purview, data, methods, and limitations of theology and the various natural sciences; (2) to identify the distinct dimensions of thinking which the disciplines contribute to issues at their boundaries; (3) to analyze for their plausibility representative contemporary works in which the disciplines are interfaced on matters pertaining to the origins and nature of the universe, of life, and of consciousness; (4) to discern the constraints placed on theological discourse by scientific findings when addressing mutual topics; (5) to exercise critical thinking skills in seminar discussion; and (6) to demonstrate research capabilities by producing a seminar paper which interfaces theology and one of the natural sciences on a contemporary topic.

Basis for Evaluation

You will be evaluated on the basis of written reflections on the assigned readings to be turned in the day discussed in class (25%), contributions to discussions, engaging the visiting scientists, and participation in

occasional smaller group activities (30%), presentation in class of your findings from research relating the disciplines on a contemporary issue which you have chosen with my approval (15%), and the final text of your 12-15 page research-reflection paper (30%).

Required Texts

Ian Barbour, *Religion and Science: Historical and Contemporary Issues* (1997)
Stephen Hawking, *A Brief History of Time* (1988)
Handouts and Readings on Reserve

Class Attendance Policy

Because your substantive participation is key to the nature of this seminar, attendance is required for the duration of each session. Any unexcused absence will lower your grade by a full letter, and an absence will be allowed only under extreme and verified circumstances. Tardiness will also lower your grade up to a letter according to its length and frequency.

Academic Honesty Policy

Students are expected to represent their own efforts in all written and verbal work. Penalties for academic dishonesty will be rigorously administered as indicated in Marquette's *Undergraduate Bulletin*.

Tentative Schedule of Class Sessions, Presentations by MU Scientists, and Assignments

Introduction, Historical Overview and the Characteristics of the Disciplines

August 31 -- Introduction to the Seminar: Self-introductions, overview of the syllabus, explanation of required and supplementary works, perusal of the bibliography, discussion of comparative world views and Barbour's models of God's relationship with the world; brief lecture on how theology and the natural "sciences" were perceived in relation to one another up to the 16th century.

Assignment for next session: Read Barbour chaps 1-3 and prepare 1-2 page reflection paper on how best to characterize the relationship between theology and the natural sciences through the end of the 19th century.

Optional supplementary readings: Selections of texts by St. Augustine, St. Albert the Great, Johannes Kepler, Galileo Galilei, Sir Isaac Newton, John Ray, Charles Darwin and Thomas Huxley (on Reserve as "Historical Overview").

September 14 -- Historical Overview of the Theology-Natural Sciences Relationship: General comments and clarifying questions on the assigned reading, individual presentations of reflections, and responses to reflections.

Assignment for next session: Read Barbour chap 4 and "Message of His Holiness Pope John Paul II" to the Director of the Vatican Observatory in *Physics, Philosophy and Theology* (on Reserve), prepare a chart identifying key features, advantages and/or weaknesses of each way of relating the disciplines.

Optional: Vaux's "Theology as the Queen (Bee) of the Disciplines?" *Zygon* 25 (September 1990): 317-22, McMullin articles (on Reserve), and others identified from the course bibliography.

September 21 -- Ways of Relating the Disciplines: General comments and clarifying questions on the reading assignment, group work experimenting with Barbour's "ways" of relating the disciplines, discussion on arguments for interdisciplinary "dialogue" posited by Barbour and Pope John Paul II.

Assignment for next session: Read Barbour chaps 5-6 and write a reflection as directed.

Optional supplementary readings as identified from the bibliography.

September 28 -- Comparison of the Characteristics of the Disciplines: Shared reflections on reading assignment; view and discuss "Soul of the Universe" video.

Assignment for next session: Read Barbour chap 7 and complete writing task as directed in preparation for Dr. Merrill's presentation.

Optional: Articles in *Chaos and Complexity*, ed. Russell et al. (on Reserve).

On the Origins and Nature of the Universe

October 5 -- Theology and the Theories of Science: Shared reflections on assigned reading; presentation on modeling chaos and complexity in the universe by **Dr. Stephen Merrill**, Department of Mathematics, Statistics and Computer Science; discussion regarding theological implications of theoretical findings.

Assignment for next session: Read Barbour chap 8, complete written assignment as directed in preparation for Dr. Mendelson's presentation.

Optional: Essays from *Physics, Philosophy and Theology* ed. Russell et al., and *Quantum Cosmology and the Laws of Nature* ed. Russell et al.

October 12 -- Presentation by **Dr. Kenneth Mendelson**, Department of Physics, on evidence for concluding to the universe's beginning, continuing unfolding and end; discussion of theological implications with some emphasis on evidence of design in the universe and the anthropic principle.

Assignment for next session: Read Hawking's *A Brief History of Time* and write one-two page reflection for discussion on designated topic.

October 19 -- Shared reflections from Hawking; reformulation of the doctrine of creation informed by contemporary cosmology; view and discuss "God, Darwin & Dinosaurs"; survey on attitudes toward evolution.

Assignment for next session: Read Barbour chap 9 and Pope John Paul II's statement on evolution (on Reserve); write reflection on topic identified.

Optional: Swinburne's *The Evolution of the Soul*, Ward's *Defending the Soul* (on Reserve), McMullin's "Evolution and Special Creation" in *Zygon* 28 (September 1993): 299-336, and others from the bibliography.

The Origins and Nature of Life

October 26 -- Share reflections on Barbour chap 9 and Pope John Paul II's statement on evolution; view and discuss "The Evolving Soul"; identify implications for reformulating the doctrine of the human soul when informed by contemporary science.

Assignment for next session: Read Barbour chap 10 and prepare written assignment in anticipation of Dr. Karrer's presentation.

Optional: Ayala's "The Biological Roots of Morality" in *Biology and Philosophy* 2 (1987): 235-52, and other suggestions from the bibliography.

November 2 -- Seminar paper proposal due; observations on Barbour's chap 10; presentation by **Dr. Kathy Karrer**, Department of Biology, on her discipline's findings about the origins and nature of animate beings and the DNA's role in determining their characteristics; identification and discussion of theological implications; reformulating notions about human free will in light of contemporary science.

Assignment for next session: Choose one article pertaining to the origins and nature of consciousness from a list to be circulated and prepare overview for presentation in class.

The Origins and Nature of Consciousness

November 9 -- Introduction to the topic; report on articles chosen followed by discussion; view and discuss "Silicon Soul."

Assignment for next session: Review Barbour pp 258-63 and prepare written assignment as directed in preparation for Dr. Cullinan's presentation.

November 16 -- Presentation on the physiology of the brain by **Dr. William Cullinan**, Department of Health Sciences; identification and discussion of theological implications including the human capacity to open consciously and respond to God's self-communication; clarification of format for next three sessions.

Presentations of Outlines of Seminar Papers

November 23, 30 and December 7 -- Presentations in a specified sequence.

Seminar Papers due by Noon on Friday, December 11.