

Science & Religion: Conflicts & Connections

Course Number: BLS 393

Institution: University of Washington, Bothell

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Required Texts:

Barbour, Ian G., *Religion and Science* (1997)

And *Articles on reserve list (at Library Reserve Desk) and online at <http://www.bothell.washington.edu/library/reserve.html>) See bibliography at end of syllabus.

Course Content:

This course, which covers the sixteenth century to the present, provides an introduction to the historical and contemporary relationship between world religions and modern science. Living in today's high-tech world, most of us trust that the highly developed methods of science will continue to reveal to us the nature and workings of our world and the universe. We rarely conceive of philosophers or theologians pondering scientific questions. In fact, long before the emergence of the word "science" in the 19th century, Greek and Judeo-Christian philosophers and religious thinkers explored the origin, nature, and purpose of the cosmos and human beings. Because modern science originated primarily in the West out of their investigations, it will be mostly with the concepts of Judeo-Christianity that this course will be concerned. However, due to the religious pluralism of our world and the contribution of Islamic scientists, we will also explore religious concepts in the other large religious traditions of Islam, Hinduism, and Buddhism in their interaction with western science. We will follow the various paths to truth trod by scientists and religious thinkers and consider whether their various epistemological and metaphysical footsteps are in any way commensurable. In other words, the course will highlight key ideas in science and religion that have been most useful in our attempt to "explain things." We will review what is happening at the frontiers of science in physics, biology, and neuroscience, focusing particularly on those observations and concepts that best explain the origin and destiny of the universe and of human life. We will also look at new Christian and some non-Western theologies that offer alternative ways of conceiving traditional concepts of God, the human self, and afterlife. Hopefully, we will discover what each discipline can or cannot tell us about the origins, nature, and purpose of human life in our present universe.

Course Goals:

To understand basic methods and concepts employed by religious scholars and scientists, including the use of various epistemologies and scientific methods, and the similarities and differences in their pursuits.

To approach current religious and scientific issues with an understanding of their respective and/or shared worldviews and past histories, noting the critique of dominant perspectives and the cultural validity of alternative views.

To become more aware of our unexamined presuppositions and to be willing to read a text concerning an unfamiliar religious or scientific perspective with empathetic understanding.

To analyze the nature of reliable knowledge and the limitations of both scientific and religious perspectives.

To further hone our critical reading, research, and writing skills.

Course Requirements and Grading:

Discussion and Reading Journals-- This lecture/discussion course will stress class and group discussion centering on the assigned readings (so appropriate texts must be brought to class) and moving outward to broader questions of historical context and interpretation. Discussions are collective and collaborative enterprises which to function successfully demand every member's preparation, attendance, and participation. You should come to class ready to exchange ideas about the topics under study, ready to speculate and to question and also to ask for explanations when you feel confused. To ensure you keep up with the reading assignments, you will be asked to make regular entries in a journal including notes about the readings as well as any questions or reflections you have about them. Participation in class and small group discussion and the unannounced collection of your journals will count for approximately 25 percent of final course grade.

Tests-- There will be three in-class blue (or green) book tests that will each count for approximately 25 percent of the final course grade. These tests will consist of a response to a question that will be primarily based on the readings, but could also be drawn from class discussions, films, and lectures preceding each due date. (See class schedule below.) You will be given a single question of multiple parts, three or four class sessions before you take it, and you are to answer the question as directly and specifically as possible, using your knowledge and interpretation of the arguments and the evidence presented in your readings. You should think of these exams as both testing your understanding of all the assigned readings and as analytic (or argumentative) essays that follow the rules of thesis development and supporting evidence. You may use the questions provided below to prepare for the tests and for class discussions.

Please bring your own blue or green book to class. They can be purchased at the bookstore.

Class Schedule Lectures and Discussion

Week 1 Course Introduction and Philosophical Issues: Scientific and Religious Ways of Knowing

Jan. 7 & 9 Introducing epistemology and induction and deduction. Rationalism, empiricism and teleology.

Reading:

Barbour, Introduction; Schilling, "Making Connections," and Schmidt, "Words and Images"

Explain what you think science is and how science acquires knowledge. Then compare with religious beliefs and how you think the latter are gained.

In what ways is science inductive and in what ways deductive? In what ways is observation necessary but insufficient to perform science and how does the interpretation of observations depend on the assumptions of the observer?

In addition to examining facts, in what other ways can one achieve knowledge?

How does the goal of objectivity influence the character of language used by science? What is "double-intentional" language and why do some people maintain that religious language is emotive and substantively meaningless?

Week 2 Development of Science and its Relation to Theology

Jan 14 & 16

Reading:

Barbour Chaps.1 & 2

Medieval to Newtonian Cosmology -- an overview of paradigms and new disciplines fashioned after the Newtonian model.

Explain how modern science originated. Did a Christian worldview consensus have anything to do with the scientific revolution? Did science and religion share common concerns?

Galileo's and Newton's Principal Discoveries. Why were they and why did Newton's theories encounter less resistance than Galileo's? Were the two scientists questioning God's existence?

Enlightenment Science & Rational Religion; Scientific Empiricism & Religious Agnosticism

What is Enlightenment science and rational religion? Explain reductionism. What does Barbour mean when he says LaPlace's physics was deterministic and reductionist?

What was the contribution of Descartes and Bacon to the modern scientific outlook and method?

What was Deism and the Enlightenment view of progress?

Compare Hume's epistemology to that of Kant.

Week 3 The Scientific Method, Darwin, and the Rise of Liberal Theology;
Islamic Science

Jan. 23, Holiday Monday

Reading:

Barbour, Chaps 3 & 4; Baker, "The Unity of Science and Spiritual Knowledge: The Islamic Experience," and Nasr, "Islam and the Problem of Modern Science"

Explain the Darwin's theory of evolution and the Christian argument of Design. Is the latter the same as biblical literalism? What is natural theology?

Explain the difference between Lamarck's theory of evolution and Darwin's. What is Darwinism? How did the Enlightenment concept of progress affect interpretations of evolution?

Which Biblical doctrines in particular did Darwinism challenge? What is meant by the higher criticism of the Bible and what impact did it have on Christian doctrine? Explain how the modernist movement and liberal theology came about in Christianity.

Ways of Relating Science & Religion

Explain Barbour's four models of the relations of science and religion--conflict, independence, dialogue and integration. Which does he favor and why?

Does Barbour believe that history, for the most part, supports the conflict model?

Describe scientific materialism, biblical literalism, and creationism. What is the difference between the biblical account of creation in Genesis and creationism?

Are the methodologies of science and religion in any way similar or are they at odds with each other? Is religion always a matter of unalterable dogma while science is an open-minded search for truth? Do they necessarily speak different languages and use different methodologies?

Explain the dialogue and integration models. How do they differ and what kinds of examples does Barbour use to support them? How does natural theology differ from a theology of nature?

Does Islamic science differ from Western scientific methodology? Does belief in Islam and the Qur'an make modern science impossible for devout Muslims?

First Test, Mon. Jan 28 for Weeks 1-3

Week 4 Physics and Metaphysics

Jan 28 & 30

Reading:

Barbour, Chap. 7; Thuan, "Science and Buddhism," and Nanajivako, "Aniccama--The Buddhist Theory of Impermanence."

Relativity and Quantum Theory and their Metaphysical Implications; Buddhist Metaphysics

Explain Classical Realism, Critical Realism, and Instrumentalism; Spacetime, and Quantum Providence.

How did Einstein's theories create a revolution in physics? What is the theory of relativity?

Explain: the double slit experiment, Bell's theorem, the Heisenberg Uncertainty Principle and "Schrodinger's Cat." What are some metaphysical implications that Barbour describes for quantum mechanics? What are the implications of quantum mechanics for philosophical materialism and scientific realism?

What do we mean by uncertainty and complementarity in quantum theory?

Is the idea of Providence, perhaps operating at the level of quantum mechanics, (as Barbour proposes) credible in our scientific age?

Explain the Buddhist theories of impermanence and reincarnation, and interdependence. Do you see any relationship here with quantum principles?

Week 5 Origin of the Universe: Big Bang & Genesis

Feb. 4 & 6

Reading:

Barbour, Chap. 8; Genesis, chapters 1-11; and Worthing, “Did God Create the Universe out of Nothing?”

Explain: Creation in Genesis, Grand Unified Theory, Contingency, Creation Ex Nihilo, Eschatology, and Competing Cosmologies

What are the Big Bang and Steady State theories and what are their current statuses among contemporary astrophysicists? Is the universe finite or infinite and can it be both infinite and bounded?

How does the Big Bang affect belief in God as Creator?

Does the Bible teach the doctrine of creatio ex nihilo (creation out of nothing) in which there was a first moment before which there was only God? If so, how does this conform with current scientific theories for the origin of the universe?

Week 6 Origins, Design, Chance, & Necessity in the Cosmos; Anthropic Principle

Feb. 11 & 13

Reading:

Ellis, *Before the Beginning: Cosmology Explained*, Chaps. 7-8; Davies, “Can the Universe Create Itself?” and Giberson, “The Anthropic Principle: A Postmodern Creation Myth?”

Explain the weak and strong anthropic principles. What is the difference between high probability and necessity?

What is Hubble’s Law? Is the universe expanding or contracting? Explain the Second Law of Thermodynamics and entropy? Is a “heat death” of the universe a possibility? What is a singularity and what is Olber’s Paradox?

What is the difference between modern and traditional concepts of the design argument? What has free will to do with an anthropic universe?

Explain the materialist, Marxist, sociobiological, and relativist viewpoints on the purpose and meaning of the universe and humanity. Contrast these with religious viewpoints.

What does Giberson mean by the Copernican or Mediocrity principle? How does he distinguish the weak from the strong anthropic principle and does he subscribe to either; if so, which?

Second Test Weds., Feb. 20 for Weeks 4-6

Week 7 Evolution and Genetics: Modern Scientific Synthesis &
Theological & Ethical Implications

Feb. 20, Holiday Monday

Reading:

Barbour, Chap. 9; Collins & Jegalian, “Deciphering the Code of Life,” and Kirthisinghe, “Karma, Rebirth and Genetics”

Explain: Natural Selection, Role of Genes and the Environment on Heredity, the Emergence of Life on Earth, DNA, Biological Determinism, Sentience and Purposiveness, Conflict, Independence, Dialogue and Synthesis between Evolution and Creation

Explain natural selection & the chance and design arguments. What is the “modern synthesis”?

What are some of the implications of recent discoveries in genetics?

Explain Barbour’s different forms of reductionism. Why does he emphasize these?

What do you think of Barbour’s argument that law and chance are complementary rather than conflicting principles in nature and that a creator God could design such a system?

What does Barbour propose as a contemporary view of God as creator?

What is Kirthisinghe’s interpretation of the Buddhist view of genetics?

Week 8 Biology and Human Nature

Feb. 25 & 27

Reading:

Barbour, Chap. 10; Drew, “Genes and Human Behavior: The Emerging Paradigm”; McGee, “Parenting in an Era of Genetics” and Wolpe, “If I am Only My Genes, What Am I?: Genetic Essentialism and a Jewish Response.”

Explain: Sociobiology & Cultural Evolution, Mind/Brain Dualism, Evolution of Religion, Biblical Views of Human Nature, Process Thought

In what way are Edward O. Wilson's writings reductionist, according to Barbour?

Describe the dualistic, two-aspect, materialistic and multi-level theories of the mind. What is the nature of human beings according to the Bible?

What is the influence of genes on personality, intelligence and social behaviors?

What does Wolpe mean by the "genetic self" and what implications does it have for views of human nature?

What are some of the dangers McGee warns parents against with the advent of genetic technologies?

What are some of the results that Drew cites of recent studies investigating the genetic basis of human behavior and what are their implications for society?

Week 9 Western Science and Life after Death in Judaism, Christianity, and Buddhism

March 4 & 6

Reading:

Segal, "Judaism"; Penelhum, "Christianity"; Neumaier-Dargyay, "Buddhism"; and Liversidge, "Frank Tipler."

How would you characterize Jewish beliefs in the afterlife? Is there a single position? Summarize Penelhum's version of Christian beliefs in the hereafter. Do you agree with him?

What is the common Buddhist view of death? How does the Pali tradition differ from the Tibetan Buddhist tradition? What is the teaching and purpose of the Tibetan Book of the Dead?

What is eschatology, according to Polkinghorne? What relevance does it have today?

How does Frank Tipler envision human immortality?

Week 10 Neuroscience, God, and the Soul in an Age of Science; the Future of Faith

March 11 & 13

Reading:

Murphy, "Human Nature: Historical, Scientific, and Religious Issues"; Jeeves, "Brain, Mind, and Behavior"; Mellert "The Future of God"; and Updike, "The Future of Faith."

What is the difference between the mind and the brain, if any? What is the nature of human consciousness and what does that imply for the existence of the soul?

Explain the dualistic philosophy of human nature and how it originated and developed from ancient to modern times as related by Murphy. What implications do the recent findings of neuroscientists have for belief in the human soul and afterlife?

What are some of the views of 20th-century Christian theologians regarding the soul and life after death? How do they differ from your conceptions?

How does Jeeves explain the relationship of mind to brain? What is a "non-reductive physicalist" explanation and how does it relate to traditional religious beliefs?

Using Mellert and Updike as evidence, argue whether or not the majority of Americans will believe in God, as presently conceived, in the 22nd century.

Third Test Mon., March 18 for weeks 7 - 10

Bibliography of Assigned Articles:

Baker, Osman. "The Unity of Science and Spiritual Knowledge: The Islamic Experience." In Baker, *Tawid and Science: Essays on the History and Philosophy of Islamic Science*, Chap. 4.

Bible, rev. standard ed., Genesis, 1-11.

Collins, Francis and Karin G. Jégalian, "Deciphering the Code of Life," *Scientific American*, December, 1999, pp. 86-91.

Drew, Allan P. "Genes and Human Behavior: The Emerging Paradigm." *Zygon*, March 1997, 32, p 41-50.

Davies, Paul. "Can the Universe Create Itself?" in *The Mind of God: The Scientific Basis for a Rational World*, Chapter 2.

Ellis, George, *Before the Beginning: Cosmology Explained*, Chapters 7 & 8.

Giberson, Karl, "The Anthropic Principle: A Postmodern Creation Myth?" *Journal of Interdisciplinary Studies*, Sept, 1997, pp. 63-90.

Jeeves, Malcolm, "Brain, Mind, and Behavior" in *Whatever Happened to the Soul?: Scientific and Theological Portraits of Human Nature*. Warren S. Brown, Nancey Murphy and H. Newton Malony, eds., pp. 73-98.

Liversidge, Anthony, "Frank Tipler (interview)" *Omni*, v. 17, no. 1, October, 1994, pp. 89-96.

McGee, Glenn, "Parenting in an Era of Genetics," *Hastings Center Report*, March-April 1997, pp. 16-22.

Mellert, Robert B. "The Future of God (How God Fits into Society)" *The Futurist*, Oct 1999, 33 (8), pp. 30-36.

Murphy, Nancey, "Human Nature: Historical, Scientific, and Religious Issues," in *Whatever Happened to the Soul?: Scientific and Theological Portraits of Human Nature*. Warren S. Brown, Nancey Murphy and H. Newton Malony, eds., pp. 1-29.

Nanajivako, Bhikkhu. "Aniccama--The Buddhist Theory of Impermanence." In *Buddhism and Science*, Buddhadasa P. Kirthisinghe, ed. pp. 2-41.

Nasr, Seyyed Hossein. "Islam and the Problem of Modern Science." In *An Early Crescent: The Future of Knowledge and the Environment in Islam*, Ziauddin Sardar, ed., pp. 127-40.

Neumaier-Dargyay, Eva K., "Buddhism" in *Life After Death in World Religions*, Coward, Harold, ed., pp. 87-104.

Penelhum, Terence, "Christianity," in *Life After Death in World Religions*, Coward, Harold, ed., pp. 31-47.

Schilling, Harold K. "Making Connections: The Threefold and Circular Nature of Science and Religion" In *Religion and the Natural Sciences: The Range of Engagement*. pp. 40-46

Schmidt, Roger. "Words and Images: The Functions of Language in Science and Religion." In *Religion and the Natural Sciences: The Range of Engagement*. pp.79-87.

Segal, Eliezer, "Judaism" in *Life After Death in World Religions*, Coward, Harold, ed., pp. 11-30.

Updike, John. "The Future of Faith." *New Yorker*, Nov. 29, 1999, pp. 84-92.

Wolpe, Paul Root, "If I am Only My Genes, What Am I?: Genetic Essentialism and a Jewish Response," *Kennedy Institute of Ethics Journal* 7.3 (1997), pp. 213-30.

Worthing, Mark William, “Did God Create the Universe out of Nothing,” in *God, Creation, and Contemporary Physics*, chap. 3.