

Science and Religion: Historical and Contemporary Perspectives in the Western World and South Africa

Institution: University of Natal, Durban, S. Africa

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Aims

To acquaint students with

- the nature of scientific and theological inquiry, highlighting their similarities, differences and complementarity
- the main historical and contemporary interactions between science and religion, and some of the main participants
- the significance of science & religion issues in the present development of South African society and through such cross-disciplinary and cross-cultural inquiry to encourage
- the search for unity of knowledge and understanding about this evolving universe and its inhabitants
- understanding of some of the contrasts between world-views.

Course structure and student assessment

The course will run over eight weeks and will be focussed on the reading and preparation for a two-and-a-half-hour weekly seminar. As this is a graduate class, students will be allocated an appreciable amount of reading each week (receiving in advance the reading list for the entire course). In any given week all the students will be assigned about 150 pages of core material. At least as much additional reading will be required of four students designated for that week: two to present a 10 to 12 page essay each and two others to respond. Each student will thus present once and respond once. (This scheme can, of course, be adjusted to the number of students enrolled). All will be expected to participate in the discussion of each essay and its main issues. Their assessment will be weighted thus: essay (35 %), response to an essay (15 %) and finally a six-hour open book examination (50 %).

The seminars will be supplemented by individual tutorials as required, together with the presentation of audio-visual material such as Angela Tilby's three-part television series, "Soul" (1992), and a set of new video recordings entitled "Transformations of Religion and Science: a series of evening dialogues" (1996), sponsored by the Scientific and Medical Network (London).

The task of the instructor/facilitator will be to introduce the course and give a brief overview of the main issues; encourage wide participation in the discussion; give critical comment at the end of each presentation/discussion; mark the seminar performances and examination papers.

Course syllabus with reading lists

At least one introductory meeting will be held to outline the course structure and the materials available. Students will be invited to discuss their preliminary ideas about the course and their perceptions of science and religion -- the aim will be to promote understanding of one another and of the corporate aspect of the course. They will receive copies of the syllabus and be invited to select their essay topics. The following represents the proposed syllabus, with asterisks marking the core reading material.

Week 1: Science & Religion: Conflict, Coexistence and Complementarity

"Science deals with facts; religion deals with beliefs":

similarities and differences in the two ways of knowing

Scientism, creationism and the spectrum of interactions

The myth of endemic conflict

Are Western scientific and African traditional world-views adequate?

Reading list:

* Religion in an Age of Science (I Barbour), 3- 92

* Beliefs and Values in Science Education (M Poole), 15-64

Science and Religion (J Brooke), 1- 51

We believe in God (Doctrine Commission of C of E), 17-33

Knowledge and Experience in Science and Religion

(Janet Soskice in "PPT", ed RJ Russell ...), 173-183

Old Gods, New Worlds (from A Appiah's "In my Father's House"), 107-136

Week 2: The Rise of Modern Science I

The "enchanted world of medieval Christianity"

The "Scientific Revolution" and its causes

The roles of Copernicus, Kepler and Galileo

Galileo and the Church

Reading list

- * Science and Religion (J Brooke), 52-116
- * Cross-currents (C Russell), 22-52
- * Open U course, Unit 2, 55-78
- * Beliefs and Values in Science Education (M Poole), 99-114
- * The Galileo Affair (O Gingerich, Sci Am, Aug 1982), 118-127

Open U, primary sources (Kepler, Galileo), 7-17, 29-49

The Origins of Modern Science (H Butterfield), 1-36, 55-76 Religion & the Rise of Modern Science (R Hooykaas), 75-96

God and Nature (ed Lindberg and Numbers), 76-103, 114-133

Science & Religious Belief (ed C Russell), 20-73

Week 3: Rise of Modern Science II

Descartes' philosophical ideas (cosmology and nature)

Boyle on Providence in a mechanistic universe

Newton's mechanics (laws of motion and gravity) and theology of nature

Aspects of Enlightenment: Deism and Natural Theology

Reading list

- * Science and Religion (J Brooke), 117-151
 - * Cross-currents (C Russell), 55-97, 109-124
 - * Open U course, Unit 4, 15-33
 - * Open U course, Unit 5, 69-92
 - * The Origins of Modern Science (H Butterfield), 175-190
- The Origins of Modern Science (H Butterfield), 117-158
- Open U, primary sources (Descartes, Newton), 71-81, 131-136

Religion and the Rise of Modern Science (R Hooykaas), 1-52 God and Nature (ed Lindberg and Numbers), 218-253

The Newtonian Settlement & the Origins of Atheism

(MJ Buckley, "PPT" ed RJ Russell...), 81-99

Week 4: Natural History and Religious Belief I

Earth history: early geology and the Biblical account

Geological theories: catastrophism and uniformitarianism

Ideas of Cuvier, Buckland, Lyell and Sedgwick:

physical processes and divine action

Reading list

* Science and Religion (J Brooke), 226-274

* Cross-currents (C Russell), 127-139

* Open U course, Unit 11, 59-87

* Open U course, Unit 12, 9-50

Genesis and Geology (CC Gillispie), 3-183

God and Nature (ed Lindberg and Numbers), 296-345

Science and Religious Belief (ed C Russell), 205-237

Week 5: Natural History and Religious Belief II

The story of Darwin and his Theory of Evolution

Other key figures in the ensuing controversy

The challenge to religious belief

Neo-Darwinian synthesis: then "what is man?"

Reading list

* Science and Religion (J Brooke), 275-320

* Cross-currents (C Russell), 141-174

* Open U course, Unit 13, 57-98

* Open U course, Unit 14, 105-126

Beliefs and Values in Science Education (M Poole), 115-130

Open U course, Unit 16, 39-67

Open U, primary sources (Darwin, Huxley), 439-482 God and Nature (ed Lindberg and Numbers), 351-390

Science and Religious Belief (ed C Russell), 238-293

Religion in an Age of Science (I Barbour), 154-185

The Nature of the Darwinian Revolution

(Ernst Mayr, Science, vol 176, 2 June 1972), 981-989

Darwin (Desmond and Moore, 1991)

Week 6: Evolution and Christian Fundamentalism in SA and the USA

South Africa: cradle of *homo sapiens*?

South Africa's official stand against Evolution: causes and consequences

Controversies in the USA after World War I

The rise of creationism in South Africa

Reading List

* Controversy in the Twenties (W Gatewood), 3-110

* God and Nature (ed Lindberg and Numbers), 391-415

Controversy in the Twenties (W Gatewood), 113-214

* Integral Christian Scholarship (BJ van der Walt in book on

Christian-Reformed education, Potchefstroom U), 235-260

Christianity & the Inquiring Mind (L Alberts, July 1996)

Papers in the Meester collection (Durban Nat Hist Museum)

History of Paleoanthropology in S Africa (Royal Soc SA)

Week 7: Western Science and African Traditional Thought

Main features of African Traditional Thought (including cause & effect; connectedness of all life; concepts of God)

Robin Horton's comparison of the two systems of thought and responses to it

Bishop Colenso's approach to Zulu traditional thought

Can Christian theology form a bridge between Western scientific and African traditional world-views?

Reading list

* Patterns of thought in Africa and the West (R Horton), 197-258

* Magic, Science, Religion & ... Rationality (S Tambiah), 111-139

* The Problem of the Rationality of Magic

(Jarvey & Agassi in "Rationality" ed B Wilson), 172-193

* Some Problems about Rationality

(S Lukes in "Rationality" ed B Wilson), 194-213

* The Heretic (J Guy), about Bishop John W Colenso, 90-91 also Part II of The Heretic, 95-190

Week 8: Cosmology, Ethics and Natural Theology: new ideas of the Universe as the cradle of humankind

Big Bang model of universe showing intelligibility, fine-tunedness and open-endedness

The universe as the cradle of humankind

Natural theology in a pluralist society: interfaith implications

Justice, Peace and the Integrity of Creation

Reading list

* The Mind of God (P Davies), 39-72, 161-222

* Religion in an Age of Science (I Barbour), 125-153

* God & the Universe: *Kenosis* as the Foundation of Being

(G Ellis, CTNS Bull, vol 14, Spring 1994), 1-14

* Beliefs and Values in Science Education (M Poole), 81-97 Science and Creation (J Polkinghorne), 1-33

Evidence of Purpose (ed JM Templeton), 44-56, 91-104

Contemporary Cosmology and its implications ...

(W Stoeger in "PPT", ed RJ Russell ...), 219-244 Models of God for an Ecological, Evolutionary Era ...

(S McFague in "PPT", ed RJ Russell ...), 249-263

Some available audio-visual material:

"Science and Spiritual Values"

Towards a Unified Theory of Science and Religion

Matter, Life and Soul: towards a New World-View dialogues arr. by Sci. & Medical Network, UK (1996)

"Soul of the Universe" (cosmic evolution from Big Bang)

"Evolving Soul" (organic evolution)

"Silicone Soul" (consciousness) BBC (1992)

"Chaos" BBC (1989)

"Planet Earth", Royal Instit. Christmas Lectures, London (1995)

"Science and Wonders", BBC Radio 4 series of conversations about Science and Belief (1996), Prof Russell Stannard

"The Question is ...?", four-part video series on Science and Religion for use in schools (1995), Prof Russell Stannard

Professor Opoku (Ghanaian sociologist) on local traditional belief (esp on the role of dancing) -- videoed interview