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PH 740 Cosmology, Chaos, and Cloning: The New Dialogue of Science and Theology

David Wilkinson

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Course Introduction
This tutorial is designed for students with special interest in the fields of science and theology. The course will be graded on the "A" to "F" scale.

The last three decades have transformed our understanding of the physical and biological Universe. The work of Stephen Hawking and others on the origin of the Universe has questioned the need for a Creator. The discovery of anthropic balances in the law and circumstance of the Universe has led to a revival of the design argument, while the search for extra-terrestrial intelligence has given anthropology a cosmic dimension. The insights of chaos and quantum theory have demolished the idea of a mechanistic Universe, thus transforming any discussion of providence. Predictions for the future of the planet and the whole Universe paint a picture of futility which raises serious questions for eschatology. In addition, advances and claims in the areas of evolutionary theory, the human genome project and cloning have posed serious questions for the Christian understanding of the human person.

The Christian doctrine of creation cannot be developed in isolation from these insights. At the same time, these insights cannot solely develop the doctrine. Science, theology, philosophy and history need to be in mutual dialogue where they offer mutual enrichment.

The last three decades in particular have demonstrated this dialogue and enrichment, both in academic and popular arenas. This course is concerned to explore this contemporary dialogue, taking seriously the contributions of both science and theology. At the same time it will pay careful attention to the historical dimension of the development of both science and theology.
Course Objectives/Learning Outcomes:
Having completed this course, students should be able:
1. to demonstrate knowledge of current scientific advances in the physical and biological sciences as they impact upon Christian theology;
2. to identify and explain different models for the relationship of science and theology;
3. to explain and apply the Christian doctrine of creation in the context of modern science; and
4. to see the relevance and use the above insights within theological discussion, ministry, apologetics and evangelism.

Course Reading: Required Books
David Wilkinson, God, the Big Bang and Stephen Hawking (Crowborough, UK: Monarch, 1996).

Course Reading: Recommended Books
R.J. Berry, The Care of Creation (Leicester: IVP, 2000).
R. Hooykaas, Religion and the Rise of Modern Science (Edinburgh: Scottish Academic ?).
J. Wyatt, Matters of Life and Death (Leicester: IVP, 1999).
Course Requirements

(1) Class Preparation, Attendance, and Participation. Students will be expected to attend classes having read the required books stated above.

(2) Presented Seminar Paper. 20 minutes in-class presentation. Students will be expected to give one seminar paper as part of the class, choosing from the following subjects in consultation with the lecturer:

1. If there were other intelligent life in the Universe, would God become incarnate in their flesh?
2. If you pray for rain, how will God answer?
3. You are on a committee looking at the ethical implications of cloning. What contributions does your Christian faith make to the discussion?
4. Will artificial intelligence ever become spiritual?
5. You have been invited by a church to talk for 20 minutes on ‘How to be a green church’. What will you say?
7. How universal is Moltmann’s eschatology in interacting with modern science?
8. What are the implications of the scientific picture of the end of the Universe for the Christian doctrine of creation?
9. What opportunities for apologetics does modern science give?
10. How can science enrich your ministry?
11. What should be the church’s view of science – both in theory and practice?

(3) Research Essay. An essay of 4000-5000 words, typed, double-spaced, with appropriate notes and bibliography.

Students will select an essay title from the following:

1. What does the Big Bang theory of the origin of the Universe mean for Christian theology?
2. How have Christians responded to the theory of biological evolution? Which response demonstrates the most helpful model of the relationship between science and religion?
3. What has Genesis 1:1-2:4 to contribute to issues in the physical and biological sciences?
4. Can the insights of modern science be used in evangelism?
### Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 January</td>
<td>-Introduction: An overview of modern scientific discoveries and the nature of the Universe.</td>
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<tr>
<td></td>
<td>-The Biblical understanding of creation</td>
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<td>-key tests - Genesis 1, Colossians 1:15-20</td>
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<td>-God as Creator</td>
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<td>-faithfulness of God in creation</td>
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<td>-image and stewardship</td>
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<td>-worship</td>
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<td>3 January</td>
<td>God, the Big Bang and Stephen Hawking</td>
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<td>-the Big Bang and quantum gravity</td>
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<td>-the cosmological argument</td>
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<td>-revelation and incarnation</td>
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<td>4 January</td>
<td>Human beings in cosmic perspective</td>
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<td>-the revival of the design argument</td>
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<td>-the search for extra-terrestrial life</td>
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<td>-implications for the Christian doctrine of creation of the discovery of ETI?</td>
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<td>5 January</td>
<td>Demolishing the clockwork Universe</td>
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<td>-the uncertainty and togetherness of quantum theory</td>
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<td>-chaos: demolishing the clock</td>
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<td>-providence in scientific perspective</td>
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<td>-miracles and prayer revisited</td>
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<td>8 January</td>
<td>Matters of life and death</td>
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<td>-beginning of life</td>
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<td>-the end of life</td>
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<td>-genetic engineering</td>
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<td>-cloning</td>
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<td>-artificial intelligence</td>
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<td>9 January</td>
<td>Caring for the planet</td>
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<td>-environmental problems</td>
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<td>-different approaches to environmental concern</td>
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<td>-practical Christian action</td>
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<td>-mass extinctions and the end of the planet</td>
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<td>10 January</td>
<td>The troubled waters of evolution</td>
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<td>-identifying the key issues</td>
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<td>-biblical approaches to Genesis 1</td>
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<td>-evolution or evolutionism?</td>
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<td>-Adam as human being</td>
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<td>11 January</td>
<td>The End of the Universe</td>
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<td>-biblical eschatology in cosmic perspective</td>
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<td>-scientific predictions</td>
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<td>-Moltmann and Pannenberg</td>
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<td>12 January</td>
<td>Concluding session:</td>
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-Learning the lessons
Supplementary Reading List for Essays and Seminars
(Not to be included in main reading list)

The Origin and Nature of the Universe
P. Davies, God and the New Physics, (Harmondsworth: Pelican, 1983)
S.W. Hawking, A Brief History of Time, (London: Bantam, 1988)
S.W. Hawking, Black Holes and Baby Universes (London: Bantam, 1993)

Miracles and Providence
C. Brown, That you may believe, (Grand Rapids: Eerdmans, 1985)

Matters of Life and Death

Caring for the Planet

Evolution
P.E. Johnson, Darwin on Trial, (Crowborough: Monarch, 1994).
E. Mayr, One Long Argument: Charles Darwin and the Genesis of Evolutionary Thought,
M. Ruse, Darwinism Defended (Reading, Massachusetts: Addison-Wesley, 1982).

**The End of the Universe**
R. Bauckham (ed.), *God Will Be All in All: The Eschatology of Jürgen Moltmann* (T&T Clark, Edinburgh, 1999)
D.W. Hardy, *God’s Ways with the World*, (Edinburgh, T&T Clark, 1996)
D.W. Hardy, ‘Creation and Eschatology’ in *The Doctrine of Creation*, ed. C. Gunton, (Edinburgh, T&T Clark, 1997)