

# **Christian Theology and Natural Science: An Introduction to the Conversation**

Course Number: TH412, 3 Hours Credit  
Institution: North American Baptist Seminary

Instructor: Ben Leslie

The course is an introduction to the wide-ranging conversation now taking place between the natural sciences and Christian theology. Course content includes brief attention to the historical context out of which current issues have arisen, a comparison of methods of inquiry (including the use of paradigms, models and metaphors), and a series of engagements with those areas of scientific investigation which in various ways present a challenge (or resource!) to traditional Christian belief, such as Big Bang cosmology, evolutionary theory, quantum theory, chaos theory, and neuroscience.

Learning objectives for the student include (but are not limited to):

- ability to articulate a clear and accurate definition of science, its tasks, goals and methods as well as a definition of theology, its tasks, goals and methods
- a heightened awareness of the full range of contemporary engagement between theology and the sciences
- greater understanding of the range of models within Christian thought for relating science and Christian belief
- cultivation of a spirit of openness to scientific inquiry and its potential for strengthening the effectiveness of Christian witness and self-understanding
- development of a personal model or style for investigating areas of mutual concern for science and theology.
- in-depth knowledge of a selected particular issue in the range of science and religion studies

## **Prerequisites**

New Testament Literature (NT101) and Old Testament Literature (OT101) are prerequisites. Prerequisites may be waived by permission of the professor on the basis of previous work in biblical studies. It is assumed that all participants have completed basic work in some area of the sciences as part of a baccalaureate degree.

## **Format**

The general plan for each class meeting is as follows: a lecture presentation of 30-60 minutes by the course instructor on the topic of the week (see course calendar below), followed by a period of questions and discussion. Occasionally there will be two lectures, one by the course instructor and another by a guest speaker, with discussions following each presentation. The presentation(s) will be followed by a period (of 50-75 minutes) of “informed discussion” over the readings, at least a portion of which will correspond to the topic of the week. “Informed discussion” requires careful reading of the week’s assigned texts and consideration of study questions prior to the class meeting!

Students will share leadership in initiating and guiding this part of the class time. A set of focus questions will help students prepare for the discussion time. The final section of most class sessions will consist of an “application session.” Utilizing small group techniques, students will be asked to consider a case-study, biblical, historical or theological text in light of the topic of the week, and develop a creative response to the implied problem.

## **Requirements**

1. Attendance! Everyone is expected to attend every class session. If it is absolutely necessary to miss a class, contact the professor for a make-up assignment.
2. Required readings must be completed prior to the assigned class period. Students will write a one page abstract on each of the four required textbooks. See “Paper Guidelines” below for details.
3. Each student will lead or co-lead a discussion period. Discussion leadership includes a quick overview of key ideas from the assigned reading and an initial open-ended response to the focus questions. Discussion leaders are responsible for keeping the discussion on track and moving in a constructive direction.
4. Each student will write a research paper of 15-20 pages on a specific question in the area of science and theology studies, due the final day of class. See “Paper Guidelines” below for more specific information.

Each student will maintain a weekly journal. The journal should have a multiple-page entry for each week of class containing two distinct parts: (1) A set of readable and orderly notes summarizing the week’s lecture and discussion period. (2) An evaluative response. The evaluative response may record such things as what was found to be helpful, new insights gained, questions that were raised you would like to pursue further, etc.

## **Due Dates**

- Paper topic: Week 3
- Abstract on Wolterstorff: Week 3
- Research Paper Outline and Bibliography: Week 5
- Weekly Journal (first review): Week 7
- Final Paper: Week 10
- Abstract on Brown, *et al*: Week 11
- Abstract on Southgate: Week 12
- Abstract on Worthing: Week 12
- Weekly Journal (second review: Week 12 (2 days after class)

## **Evaluation**

The final course grade will be determined according to the following formula:

- Weekly Journal: 20%
- Discussion leadership: 20%

- Outline and Bibliography for paper: 10%
- Abstracts (5% each): 20%
- Research paper: 30%

### **Reading List & Available Resources**

The following texts should be read in their entirety:

- Ian Barbour, *Religion and Science: Historical and Contemporary Issues* (HarperCollins, 1997)
- Wolterstorff, Nicholas, *Reason within the Bounds of Religion* (Eerdmans, 1994)
- Additional short readings are also required for many class sessions. Additional and recommended readings can be found on the library reserve shelf. See “Course Calendar” for specific titles.

The following video is also available on the reserve shelf and is recommended viewing:

“The Creation of the Universe” Parts 1 & 2, (PBS)

Impressive photography and special effects graphically illustrate the Big Bang theory. Interviews with Stephen Hawking and other prominent scientists. (90 minutes)

If schedules permit we will set up a group viewing time outside of the normal class meeting time.

### **Course Calendar**

#### **Week 1**

Historical Overview: Science and Religion in the Western tradition.

After an introduction to the course, we will survey the rise of modern science in the seventeenth and eighteenth centuries, examine the role of Christian thought in the emergence of “scientific thinking,” and examine a series of early controversies between science and Christian faith with special attention to Galileo. The lecture will help the student situate contemporary controversies and discussions in historical context. Focus Questions: Is warfare an accurate way to describe the historical relationship between Christianity and science? How do various types of biblical interpretation affect Christian responses to scientific advance? Application Session: Students will respond to a short text from John Calvin, *Commentary on Genesis* (1:16), exploring the view of science in its relationship to Christian faith.

Recommended Reading:

J. H. Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge Univ. Press, 1991)

What is Science? What is Theology? Guest speaker, Dr. Arlen Viste, Prof. of Chemistry, Augustana College, will introduce our topic by presenting on the methods of scientific investigation and the nature of scientific knowledge. Prof. Leslie will speak to the science of biblical interpretation and the movement from text to theological formulation.

Students will also be introduced to the use of metaphors, models, and paradigms in theological understanding. Focus Questions: In what ways are the methods of theology and science alike and unlike? How can an appreciation for the ways in which theological language works (via metaphors, models, etc.) help toward a positive interplay of theological and scientific understanding?

Reading:

Wolterstorff, Pt. I, "Faith and Theory"

Ian Barbour, "Models and Paradigms" & "Similarities and Differences," Chs. 5 & 6 of *Religion and Science*

Additional Required:

John Polkinghorne, "Finding Truth: Science and Religion Compared," Ch. 2 of *Belief in God in an Age of Science* (Yale Univ., 1998)

Recommended:

Sallie McFague, *Models of God in Religious Language* (Fortress, 1982)

### **Week 3**

How Science and Theology Relate: Proposals and Problems.

The lecture will survey Ian Barbour's models of relation (Warfare, Independence, Dialogue, and Integration) and will argue that while the models are helpful abstractions, the reality of the relationship between science and theology is typically far more complex than any of the individual models allow. Focus Questions: What is most and least helpful for you in Barbour's models? On the basis of the models, describe a possible method for relating scientific understanding with Christian faith when the two overlap or create tensions. How might Wolterstorff's vision for the role of reason in Christian faith assist in the task? Application Session: Does science need theology? Students will respond to excerpts from Wolfhart Pannenberg's, "Theological Questions to Scientists," in *The Sciences and Theology in the Twentieth Century*, ed. Arthur Peacocke (Univ. Notre Dame, 1981).

Reading:

Wolterstorff, Pt 2 "Theory and Praxis"

Ian Barbour, "Ways of Relating Science and Religion" Ch. 4 *Religion and Science*

Recommended:

J. Wentzel Van Huyssteen, *Duet or Duel?* (Trinity, 1998)

N.H. Gregersen and W. van Huyssteen, *Rethinking Theology and Science: Six Models for the Current Dialogue* (Eerdmans, 1998)

### **Week 4**

Where in the World is God? Models for Relating God and Nature.

The lecture will introduce a variety of ways in which Christian thought attempts to

describe God's relationship to the cosmos. Is God *a part of* the world or *apart from* the world? Particular attention is paid to the approach of process theology and the model of panentheism, seeking to uncover their attractiveness for an integration of theology and science as well as their drawbacks. Focus Questions: What are the advantages of a process model for the church? Is a process god worthy of worship? How does the question of God's relationship to nature become relevant for the teaching, preaching and pastoral care of the church? Video: "Natural Connections" (New Dimensions Media) A CBC production depicts evolution from the Big Bang to humanity, emphasizing the interconnection and unity of all life. (48 minutes) Question for discussion: What kind of God is most consistent with the view of nature presented in "Natural Connections"?

Reading:

Ian Barbour, "Process Thought" & "God and Nature," Chs. 11 & 12 in *Religion and Science*

Additional Required:

Malcolm A. Jeeves & R. J. Berry, "The God of the Physical Universe," Ch. 5 of *Science, Life, and Christian Belief* (Baker, 1998)

Recommended:

Philip Clayton, "Rethinking the Relation of God and the World: Panentheism and the Contribution of Philosophy," Ch. 5 of *God and Contemporary Science* (Eerdmans, 1997)

Clark Pinnock, *et al.*, *The Openness of God* (IVP, 1994) esp. Ch. 3, "Systematic Theology"

## **Week 5**

The Origin of the Universe.

Dr. Arlen Viste, Prof. of Chemistry, Augustana College, will join us again, this time to present a synopsis of Big Bang Cosmology as currently understood by the scientific community. Dr. Viste will help the class explore the compatibility of Christian belief in a Creator God with scientific perspectives on causality. Prof. Leslie will speak to the origin and substance of the church's traditional confession of *creatio ex nihilo*. Focus Questions: Does the Christian confession of a creation out of nothing contain a scientific claim? If so, what? Weigh the biblical evidence for a creation out of nothing. How much weight should theology attach to Big Bang cosmology in relation to the Christian belief in creation?

Reading:

Ian Barbour, "Physics and Metaphysics" & "Astronomy and Creation," Chs. 7 & 8 in *Religion in an Age of Science*

Recommended:

Robert J. Russell, *et al.*, eds. *Physics, Philosophy and Theology: A Common Quest for Understanding* (Vatican Observatory, 1997), see esp. W. R. Stoeger, S.J., "Contemporary Cosmology and Its Implications for the Science-Religion Dialogue"

## **Week 6**

### Genesis and Modern Science

Dr. Gordon Harris, Prof. of Old Testament, will lead the class in an exploration of the biblical text exploring its composition, literary genre, history of interpretation and role in the conversation between science and Christian faith. Focus Questions: Is the Genesis creation narrative science in the modern sense of that term? Does the text require a particular belief or beliefs for Christians that could be described as scientific? What does the text teach about God and God's relationship to the world?

#### Required Reading:

Genesis 1 & 2

Read the relevant sections of any critical commentary on the text. E.g., *Word Biblical Commentary, Vol 1.*

John H. Stek, "What Says Scripture?" in *Portraits of Creation*, ed. Howard J. van Til et al.

#### Recommended:

Lloyd R. Bailey, *Genesis, Creation and Creationism* (Paulist Press, 1993)

## **Week 7**

### Evolution, Natural Selection and God.

Guest Speaker Dr. Craig Spencer, Prof. of Biology, Augustana College, will lecture on the evidence for evolutionary development and natural selection, speaking also to its compatibility with Christian revelation. Focus Questions: How does a Christian doctrine of Fall and Sin make sense in light of an evolutionary theory of human origins? What is reductionism in this case, and what is a possible, rational, Christian response?

#### Reading:

Ian Barbour, "Evolutionary Theory," Ch. 9 in *Religion and Science*

Steve Jones, "The Nature of Evolution," (pp 9-16) and C.B. Stringer, "The Evolution of Early Humans," (pp 241-251) in Steve Jones, et al, eds., *The Cambridge Encyclopedia of Human Evolution* (Cambridge University Press, 1992).

#### Recommended:

Malcolm A. Jeeves & R. J. Berry, "Evolution," Ch. 7 of *Science, Life, and Christian Belief* (Baker, 1998)

Philip Hefner, *The Human Factor: Evolution, Culture, and Religion* (Fortress, 1993)

## **Week 8**

### The Age of the Earth / Critical Responses to Darwinism.

In response to the scientific presentation on the theory of evolution, we will explore two contemporary negative responses: the movements of "Scientific Creationism," and

“Intelligent Design.” Because of the provocative and controversial nature of the “scientific” claims asserted by “Creation Science,” Prof. Keith Perkins, III a specialist in biology who also has expertise in the earth sciences, will be on hand to explain scientific perspectives on the age of the earth, particularly with reference to geology and biology. Focus questions: In light of Week 2’s lecture and readings, does Scientific Creationism qualify as science? What is the model of relationship between science and Christianity envisioned by Creation Science? What is the interpretation of Genesis 1 & 2 that is presupposed by Creation Science? What is the view of scientific explanation envisioned by the ID movement? Application Session: Should “Scientific Creationism” or “Intelligent Design Theory” be taught in the public schools alongside the theory of evolution?

Required reading:

Henry M. Morris, “Science on Origins,” *Fundamentalist Journal* 6 (March, 1987) 19-21.

Robert E. Snow, “A Critique of the Creation Science Movement” Ch. 6 in *Portraits of Creation*, ed. Howard J. Van Til, *et al.* (Eerdmans, 1990)

William A. Dembski, “Intelligent Design Coming Clean,” Discovery Institute Article Database

Wesley R. Elsberry, “What Does ‘Intelligent Agency by Proxy’ Do for the Design Inference?”

Wesley R. Elsberry, Review of *The Design Inference* in “Reports of the National Center for Science Education”

Recommended:

Roland Mushat Frye, ed. *Is God a Creationist? The Religious Case Against Creation-Science* (Scribners, 1983)

John C. Whitcomb, Henry M. Morris, *The Genesis Flood: The Biblical Record and Its Scientific Implications* (Baker, 1961)

Ronald Numbers, *The Creationists: The Evolution of Scientific Creationism* (Univ California, 1992)

Howard J. Van Til, *et al.* *Science Held Hostage: What’s Wrong with Creation Science and Evolutionism* (IVP, 1988)

## **Week 9**

Theology After Darwin.

In this unit, Dr. Leslie will present an overview of the critics of religious thought in light of evolutionary theory, as well as attempts of the church to formulate a positive response. Special attention is given to the scepticism of Richard Dawkins and the positive formulations of the Roman Catholic Church and a recent proposal by the

Christian theorist Holmes Rolston, III. Focus Questions: Do what extent does the philosophy of the skeptics pose a challenge to the church? Is the Catholic response coherent in your view?

Required Reading:

Ian Barbour, "Biology and Theology in the 19<sup>th</sup> Century," Ch 3, *Religion and Science*

Holmes Rolston, III, "Evolutionary History and Divine Presence," in *Genes, Genesis and God* (1977)

Recommended:

John F. Haught, *God After Darwin: A Theology of Evolution* (Westview, 2000)

### **Week 10**

Divine Action, Providence, and Physical Law.

Guest Speaker Dr. Dennis Roark, Professor of computer science and mathematics at the University of Sioux Falls, will introduce quantum theory, its contribution to a non-deterministic account of the universe, and its promise for a theology of divine action.

Focus Questions: Does a scientifically compatible view of divine action allow for a faithful Christian account of divine omnipotence? How does a scientifically accountable view of providence affect one's theology of prayer? Why are scientists reluctant to acknowledge miracles? What theological problems are occasioned by a theology that allows for occasional, benevolent supernatural interventions?

Required Reading:

Mark W. Worthing, "Is God Still Active in the Universe," Ch 4 in *God, Creation, and Contemporary Physics*

John Polkinghorne, "Divine Action," Ch. 5 in *Science and Theology: An Introduction* (Fortress, 1998)

Recommended:

Keith Ward, *God, Chance & Necessity* (Oneworld, 1996)

### **Week 11**

Human Nature in Theology and Science, I.

Dr. Keith Jones, Professor of Psychology, University of Sioux Falls, will present a social-cognitive account of human thought and action offering scientific insights on such questions as, "What is a thought? a motivation?" and "What is a personal identity?"

Focus Questions: Compare the terms brain, mind and soul. Where do they overlap? How do they differ? Can science speak of a soul? Application Session: Brain disease or injury can often result in a radical change of an individual's personality. What does this phenomenon suggest regarding the theological idea of a human soul? Christian theologians today emphasize that the Christian understanding of human nature requires an emphasis on the notion of embodiment? What does this mean, and what are its implications for the theology and practices of the church?



Reading:

Malcolm Jeeves, "Brain, Mind and Behavior," Ch 4 in Warren S. Brown, et al, ed., *Whatever Happened to the Soul?* (Fortress, 1998)

Warren S. Brown, "Cognitive Contributions to Soul," in Brown, et al, ed., *Whatever Happened to the Soul?*

Recommended:

James B. Asbrook & Carol Rausch Albright, *The Humanizing Brain: Where Religion and Neuroscience Meet* (Pilgrim Press, 1997)

**Week 12**

Human Nature in Theology and Science, II.

Continuing the focus of the previous week, the lecture will present observations on biblical anthropology, distinguishing biblical perspectives from the later additions of Greek thought. Key terms, such as those usually translated as "soul" and "spirit," will be examined to show how they operate as dynamic designations of human function rather than as metaphysical technical terms. The lecture will conclude, after a discussion of the text, with an assessment of the book by Prof. Leslie and an appreciation for the use of "soul" language in a scientifically responsible theology. Focus Questions: How persuasive do you find the argument for nonreductive physicalism? How does nonreductive physicalism make the theologian's task easier? more difficult? Evaluate the compatibility of nonreductive physicalism with the Christian doctrine of the resurrection of the dead. Application Session: Groups will discuss and present on case studies which require an application of theological anthropology to boundary situations in bioethics such as the following: How might nonreductive physicalism inform a Christian view of the status of fetal life? in-vitro fertilization and fetal tissue research? a person in a persistent vegetative state?

Required Reading:

Ian Barbour, "Human Nature," Ch. 10 in *Religion and Science*

Nancy Murphy "Nonreductive Physicalism: Philosophical Issues," Ch. 6 in Brown, et al., ed., *Whatever Happened to the Soul?*

Joel Green, "Bodies—That Is, Human Lives": A Re-Examination of Human Nature in the Bible" Ch. 7 in Brown, et al., ed., *Whatever Happened to the Soul?*

**Paper Guidelines**

Abstracts should be approximately one, no more than two, pages in length, double-spaced. The abstract is a summary of the thesis and major ideas of the book. It is not an evaluation or critique. Abstracts are evaluated on evidence of comprehension. Necessarily each abstract will focus on the "big picture" of each text, identifying as far as possible the major sub-theses that help build the author's case.

Research Papers may be on any topic relevant to the course. A list of topics will be provided the first day of class, but students may also choose another topic of interest. It is essential that all papers include focus on a particular area of scientific research and a relevant area of Christian belief. Topics must be chosen by week 3. An outline and preliminary reading list are due week 5. Reading lists should include not only works by scholars writing in the religion and science area, but also works in the natural sciences and in Christian theology. Students may need to consult libraries at the University of Sioux Falls or Augustana College to find appropriate sources in the natural sciences.

Papers should explore the relationship between a particular area of scientific understanding and Christian belief. Key questions to explore will likely include the following:

- How does science bear on Christian belief in this case?
- What is the historical context of this relationship?
- What are the major alternatives for relating theology and science in this case? (E.g., if the focus is on a particular set of biblical texts, what are some of the different interpretive approaches that might address an awareness of scientific understanding?)

The paper should defend a particular way of integrating science and theology for the chosen topic. Remember that all good research papers have a clearly articulated thesis, a well-organized outline, and a definite summary/conclusion. You may consult with the professor about your paper at any time in the semester. Feel free to submit drafts for review and comment. Form and style guidelines will be distributed in class.