

# Module Drop-Ins for Courses in Science & Religion



Dear Professor or Student of Science & Religion:

At the Center for Theology and the Natural Sciences (CTNS) we have for some time encouraged faculty in undergraduate institutions, seminaries, and university graduate programs to integrate the dialogue between Science and Religion into existing disciplinary teaching. Students both in the sciences and in Religious Studies or Theology would benefit with this broadening of horizons.

What we offer here is a number of individual *Modules* on selected topics which could easily be dropped-in an existing syllabus. In a 3-credit science course dealing with physical cosmology or evolutionary biology, for example, the faculty person could simply drop in a module on astrotheology or the evolution controversy. In a university or seminary setting, a professor of Hebrew Scriptures might select one or both of these same two modules as well. Each module is designed for one week's study out of a quarter or semester, whether the class meets

once for three hours or twice for ninety minutes. Below is a list of the modules included here. Try one or two and let CTNS know how well it works: [CTNS.org](http://CTNS.org).

Introduction to the Science & Religion Dialogue  
Animals in Science and Theology  
Astrobiology, Astrotheology, and Contact with ETI  
Big History (complete course)  
Creation, Big Bang Cosmology, and the Fine Tuning of the Universe  
Ecology & Ethics  
The Evolution Controversy  
Genetics, Stem Cells, CRISPR, and Bioethics  
Islam and Science  
Judaism and Science  
Neuroscience & Theological Anthropology  
Physics and Divine Action  
Transhumanism: Theological Responses



## Module

# Introduction to the Science & Religion Dialogue

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Cosmology or Evolutionary Biology

Homiletics

Religious Studies

Metaphysics: Epistemology

Introduction to Theology

Systematic Theology: Methodology

1 week's assignment for 3 hours of class meeting

### WAYS OF RELATIONG SCIENCE & RELIGION

Is science at war with religion? It certainly looks like it. But, a closer examination will show that the situation is complicated. Genuine science is not at war with authentic religion. Scientism, a naturalistic ideology built on science, is certainly at war with all non-scientific forms of belief, including Christianity and other religious traditions. Nevertheless, individual religious adherents committed to Christianity, Judaism, Islam, and many classic religious traditions function every day as research scientists, sometimes celebrating how the natural world sings poetically to its divine creator.

It will be illuminating to adumbrate eight ways or models that Science and Religion relate. Four fit the warfare image: (1) scientism, (2) scientific imperialism, (3) ecclesiastical authoritarianism, and the culture war over (4) evolution. Four others fit the non-warfare image: (5) the two books, (6) the two languages, (7) ethical cooperation, and (8) hypothetical consonance leading to creative mutual interaction.

## DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of alternative models for relating science with religion ;
2. ability to describe issues at stake;
3. awareness of non-warfare consonance and the prospects for a cooperative future.

## REQUIRED READING

"Barbour's Typologies," <http://serc.carleton.edu/sp/library/sac/examples/barbour.html>

Peters, Ted, "Science in Seminary? Really? *Dialog* 54:2 (Sum 2015) 121-124.

<http://tedstimelytake.com/theological-briefs/>

Peters, Ted, "Science and Theology: Where Are We?" pp. 15-44 of *Science, Theology, Ethics*.

Ashgate 2003. ISBN 0-7546-0825-5 (PBK); 0-7546-0824-7 (HBK)

<http://tedstimelytake.com/wp-content/uploads/2014/02/Peters-STE-1-SciRel-Models.pdf>

*When God and Science Meet*. <https://t.e2ma.net/webview/j9xfi/36778e147060057b34a5abce3b44fc9b>

## RFECOMMENDED READING (Select)

Barbour, Ian G., *When Science Meets Religion: Enemies, Strangers, or Partners?* New York: Harper, 2000. ISBN978-0-06-060381-6.

Peters, Ted, "In Memoriam: Ian Graeme Barbour (1923-2013)." *Journal of the American Academy of Religion*. 82:2 (June 2014) 307-312.

<http://jaar.oxfordjournals.org/content/82/2/307.full.pdf?keytype=ref&ijkey=zvqicMweLCVaLS6>

OHRs *The Oxford Handbook of Religion and Science*, ed. by Philip Clayton and Zachary

Simpson. Oxford and New York: Oxford University Press, 2006.

ISBN 0-19-9279278-6. Hardbound 2006 or Paperback 2008 okay.

**This comprehensive volume is valuable for almost all modules.**

OHRs 4 Polkinghorne, "Christianity and Science"

OHRs 5 Nasr, "Islam and Science"

OHRs 8 Atkins, "Atheism and Science"

OHRs 3 Samuelson, "Judaism and Science"

OHRs 5 Nasr, "Islam and Science"

OHRs 8 Atkins, "Atheism and Science"

ORRS 48 Stenmark, "Feminist..."

OHRs 22 Pannenberg, "Contributions from Systematic Theology"

OHN = *On Human Nature*, eds., Michel Tibayrenc and Francisco J. Ayala.

Amsterdam: Elsevier, 2017. ISBN 978-0-12-420190-3.

**This comprehensive volume is valuable for Science classes.**

OHN 21 M. Reimers and B. Oakley, "Empathy, Theory of Mind, Cognition, Morality, and Altruism"

OHN 30 J. Roughgarden, "Homosexuality and Evolution: A Critical Appraisal"

OHN 33 F.J. Ayala, "Human Evolution and Progress"

OHN 35 F.J. Ayala, "Adaptive Significance of Ethics and Aesthetics"

OHN 39 T. Borchert, "History and Diversity of Religion"

OHN 41, T. Peters, "Universal Humanity, Religious Particularity, and Scientific Reductionism"

Ted Peters with Gaymon Bennett and Kang Phee Seng, *Bridging Science and Religion*.

**This anthology is available in multiple languages.**

English: SCM Press 2002 and Fortress Press 2003.

Traditional Chinese, 科學與宗教 Chung Hwa Book Company, Ltd., in Hong Kong, 2003

Simplified Chinese, 橋 : 科學與宗教 China Social Sciences Press, Beijing, China, 2002

Portuguese, *Construindo Pontes Entre a Ciência ea Religião*

Translated by Luis Carlos Borges; Supervised by Eduardo Cruz

Edicoes Loyola in Sao Paulo, Brazil, 2004

German, *Brücken bauen Naturwissenschaft und Religion*. Vandenhoeck & Ruprecht in Goettingen, 2006

Indonesian Bahasa, *Menjembatani sains dan agama*

Forwards by Prof. Dr. H.M. Amim Abdullah and Pdt. Prof. E. Gerritt Singgih, Ph.D.

Translated by Jessica Christiania Pattinasarany. Gunung Mulia in Jakarta, Indonesia, 2004

Spanish, *Ciencia y religión en diálogo. Un puente en construcción* UPAEP in Pubela, Mexico, 2005.



## Module

# Animals in Science & Theology

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Evolutionary Biology

Biology or Zoology

Religious Studies

Theological Anthropology

Introduction to Theology

Systematic Theology: Methodology

1 week's assignment for 3 hours of class meeting

### ANIMALS IN SCIENCE AND THEOLOGY

Both scientific and theological anthropology these days emphasize relationality-- that is, we *Homo sapiens* cannot be who we are apart from our relationship to one another, to the environment, to the plant world, and to the animal world. We are interdependent.

Just what should be the moral status of the animals around us and upon whom we are dependent? Do animals have intrinsic value, or only utilitarian

value? Do animals share with human beings the *imago Dei*, the divine image?  
Should animals be baptized by Christians?

## DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of current conversation regarding the relationship of humanity to animals.
2. ability to describe issues at stake;
3. at least a tentative moral stand toward the animals with whom we share our planet.

## REQUIRED READING

Either,

Joshua Moritz, "Animals and the Image of God in the Bible and Beyond"

*Dialog* 48:2 (Summer 2009) 134-146.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6385.2009.00449.x/abstract>

Oliver Putz, "Moral Apes, Human Uniqueness, and the Image of God," *Zygon* 44:3 (September 2009) 613-624.

Or,

Marc Bekoff, "The Evolution of Animal Play, Emotions, and Social Morality: On Science, Theology, Spirituality, Personhood, and Love," *Zygon* 36:4 (December 2001) 615-655.

Celia Deane-Drummond, "The birth of morality and the fall of Adam through an evolutionary and inter-species lens," *Theology Today* 72:2 (July 2015) 182-193.

Or,

OHRS *The Oxford Handbook of Religion and Science*, ed. by Philip Clayton and Zachary

Simpson. Oxford and New York: Oxford University Press, 2006.

ISBN 0-19-9279278-6. Hardbound 2006 or Paperback 2008 okay.

**This comprehensive volume is valuable for almost all modules.**

OHRS 52 Celia Deane-Drummond, "Theology, Ecology, and Values"

OHRS 55 Nancy Howell, "Relations between *Homo sapiens* and Other Animals"

Or,

RCRS: *The Routledge Companion to Religion and*

*Science*, eds., James W. Haag, Gregory R. Peterson, and Michael L. Spezio. London: Routledge, 2012.

ISBN 978-0-415-49244-7 (hbk) or 978-0-203-80351-6 (ebk).

**This comprehensive volume is valuable for almost all modules.**

RCRS 45 Ellison Banks Findly, "Animals as religious and soteriological beings: A Hindu perspective"

RCRS 46 Gregory R. Peterson, "Animals and Christianity,"



## Module: Astrobiology, Astrotheology, and Contact with ETI

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Astronomy or Astrobiology

Christian Education

Systematic Theology: Creation, Anthropology

1 week's assignment for 3 hours of class meeting

### ASTROBIOLOGY, ASTROTHEOLOGY & CONTACT WITH ETI

Outer space vibrates with spiritual meaning within the human soul. Astronomy and astrobiology along with related space sciences thrill us with expectations and even hopes of finding microbial life within our solar system and intelligent life on exoplanets elsewhere in the Milky Way. If we earthlings find that we share our universe with other living neighbors in space, how will this impact our theology of creation and the human condition?

This unit introduces the cross-over discipline of Astrotheology. *Astrotheology is that branch of theology which provides a critical analysis of the contemporary space sciences combined with an explication of classic doctrines such as creation and Christology for the purpose of constructing a comprehensive and meaningful understanding of our human situation within an astonishingly immense cosmos.* The agenda of astrotheology asks: (1) Will confirmation of ETI cause terrestrial



religion to collapse? (2) Can the scope of God's creation include the entire cosmos? (3) What can we expect when we encounter ETI? Should we take UFOs seriously? (5) How can religious leaders prepare theologically and ethically to greet our new space neighbors?

## DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of basic agenda of Astrobiology and Astrotheology;
2. ability to describe issues at stake;
3. awareness of theological and ethical implications.

## REQUIRED READING

Peters, Ted, "Astrotheology," Chapter 72 of *The Routledge Companion to Modern Christian Thought*, ed. Chad Meister and James Beilby. London and New York: Routledge, 2013, pp. 838-853;  
<http://tedstimelytake.com/wp-content/uploads/2014/03/2013-Astrotheology-Peters-Routledge.pdf>  
OR, "Introducing Astrotheology"  
<http://tedstimelytake.com/wp-content/uploads/2012/12/AstrotheologyPETERS.pdf>

Peters, Ted, "Twelve Ethical Issues in Exploring Our Solar Ghetto"

## RECOMMENDED READING

Wilkinson, David. *Science, Religion, and the Search for Extraterrestrial Intelligence*.  
Oxford UK: Oxford University Press 2013.

RCRS: *The Routledge Companion to Religion and Science*, eds., James W. Haag, Gregory R. Peterson, and Michael L. Spezio. London: Routledge, 2012.  
ISBN 978-0-415-49244-7 (hbk) or 978-0-203-80351-6 (ebk).

**This comprehensive volume is valuable for almost all modules.**

RCRS 10 Grace Wolf-Chase, "Astronomy: From star gazing to astrobiology"

RCRS 11 Gerald James Larson, "Hindu cosmogony/cosmology"

RCRS 13 Antje Jackelén, "Cosmology and theology"

## ADDITIONAL RESOURCES

NASA Astrobiology Strategy:

[https://nai.nasa.gov/media/medialibrary/2016/04/NASA\\_Astrobiology\\_Strategy\\_2015\\_FINAL\\_041216.pdf](https://nai.nasa.gov/media/medialibrary/2016/04/NASA_Astrobiology_Strategy_2015_FINAL_041216.pdf)

SETI Institute, <http://www.seti.org/>

METI, [meti.org](http://meti.org)

CTNS Website: [ctns.org](http://ctns.org)

Ted Peters' Website: [TedsTimelyTake.com](http://TedsTimelyTake.com)

Biologos: <http://biologos.org/blogs/chris-stump-equipping-educators/series/this-week-in-creation>



## Big History Course (Complete)

This is not a module. Rather, this skeletal syllabus suggests how to structure an existing or new course in Big History. It may also be valuable for an introduction to Humanities or even Evolutionary Biology. What we offer here is a basic description of the entire course, including the specific drop-ins dealing with the question of God within a scientific account of natural and human history.

### BIG HISTORY

The course description for the entire course might look like this:

This course on Big History will place World History and the question of God within the larger setting of Big Bang cosmology, evolution, and the future of Planet Earth. Beginning with the Big Bang nearly 13.8 billion years ago, the story Big History tells is an evidence-based account of emergent complexity, with simpler components combining into new units with new properties and greater energy flows. Nature has a history, just as the human race has a history. And what happens in nature exerts a big impact on what happens in the course of human events and the evolution of human consciousness. Within this framework, this Big History course will ask the question of God just as did our ancestors in China, India, Israel, and Greece during the first millennium before the common era. Studying history is a sure way to study what goes on within the student's own mind.

## DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of the story of the cosmos as Big History tells it;
2. rudimentary knowledge of the Axial Age and its religious insights;
3. awareness of reasons how the experience of transcendence forms the human soul.

## REQUIRED READING for the entire course.

Christian, David, Cynthia Stokes Brown, and Craig Benjamin, *Big History: Between Nothing and Everything*. New York: MacGraw Hill, 2014.

Peters, Ted, *God in Cosmic History: Where Science and History Meet Religion*. Winona WI: Anselm Academic, 2017.

Notice in the table of contents of *Big History* how this basic text is organized according to historical thresholds. Construct the course syllabus according to the progression of this text and simply add relevant chapters from *God in Cosmic History*. Here are some examples for a syllabus.

## SKELETON of the SYLLABUS STRUCTURE.

### Unit 1

*Big History*, Chapters 1,2,  
*God in Cosmic History*, Chapters 1,2,3

### Unit 2

*Big History*, Chapter 3,4  
*God in Cosmic History*, Chapters 4,5,6

### Unit 3

Paul Davies, "Universes Galore: Where Will It All End?" AAAS/DoSER website:  
file:///C:/Users/Ted/Downloads/Universes%20Galore%20Where%20Will%20it%20All%20End.pdf  
*God in Big History*, Chapters 10,11

#### Unit 4

*Big History*, Chapter 5,6,  
*God in Cosmic History*, Chapters 7,8,9,12

#### Unit 5

*Big History*, Chapters 7,8,9,  
*God in Cosmic History*, Chapters 13,14,15,16

#### Unit 6

*Big History*, Chapters 10,11  
*God in Big History*, Chapters 17,18,19,20

#### Unit 7

*Big History*, Chapters 12,13  
*God in Big History*, Chapters 21,22

WEB RESSOURCES ARE RICH. ADD SOME TO CLASS SESSIONS.

Visit the International Big History Association website for excellent additional resources.  
<http://www.ibhanet.org/>

"Cosmos: A Space-Time Odyssey 2014." <http://geektv.me/watch-online/cosmos-a-space-time-odyssey>.

Narrated by physicist and educator Neil deGrasse Tyson, this made-for-television reiteration of Carl Sagan's series on the cosmos provides an informative visual treat. The big bang bangs on the screen, and the viewer relives cosmic history in this imaginative yet scientifically sound story.

"God and the Universe," Season 6, Episode 7, of "The Universe," The History Channel,  
<http://www.history.com/shows/the-universe>

For humor, try *Monty Python Universe Song*, <https://www.youtube.com/watch?v=yq4uCWtQE24>.

Web Sources: "How the Earth Was Made." H, the History Channel.  
<http://www.history.com/shows/how-the-earth-was-made>.



## Module

# Creation, Big Bang Cosmology, and the Fine Tuning of the Universe

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Cosmology or Evolutionary Biology

Religious Studies

Scripture: Genesis

Introduction to Theology

Systematic Theology

1 week's assignment for 3 hours of class meeting

## CREATION & BIG BANG COSMOLOGY

Did God create the physical universe out of nothing, *creatio ex nihilo*? Is God's creative work continuing, *creatio continua*?

The Hebrew Scriptures make it clear that reality is fundamentally historical in character. Recent scientific theories such as thermodynamics and Big Bang cosmology both attest to the contingent, historical, and dynamic character of the natural world. Physical cosmology is at minimum consonant with the biblical picture of the physical world as historical, changing, and open to newness in the future.

## DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of basic theological distinctions such as creation from nothing and continuing creation;
2. rudimentary knowledge of Big Bang cosmology;
3. awareness of reasons why it appears that physical cosmology and creation appear consonant.

## REQUIRED READING

Robert John Russell, "The Doctrine of Creation out of Nothing in Relation to Big Bang and Quantum Cosmologies" AAAS/DoSER website:

file:///C:/Users/Ted/Downloads/The%20Doctrine%20of%20Creation%20out%20of%20Nothing.pdf

William Lane Craig, "The Teleological Argument and the Anthropic Principle," AAAS/DoSER website:

file:///C:/Users/Ted/Downloads/The%20Doctrine%20of%20Creation%20out%20of%20Nothing.pdf

Paul Davies, "Universes Galore: Where Will It All End?" AAAS/DoSER website:

file:///C:/Users/Ted/Downloads/Universes%20Galore%20Where%20Will%20it%20All%20End.pdf



## Module

# Ecology, Theology, & Ethics

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Religious Studies

Systematic Theology: Creation

Ethics

Environmental Studies

1 week's assignment for 3 hours of class meeting

### ECOLOGY & ETHICS

More than half a century ago scientists and futurists forecasted that reckless human practices--increased agricultural and industrial production, depletion of non-renewable natural resources, human population growth, pollution growth, and release of carbon into the atmosphere--would lead to climate change and biological die-backs. Those dire forecasts are now becoming fulfilled as Planet Earth suffers from losses in its life-giving power.

With the exception of the World Council of Churches in the late 1960s and 1970s, the theological community ignored scientific prophecies; religious leaders did not take the ecological challenge seriously until the Chernobyl nuclear spill in 1986. In more recent decades, theologians have moved the health of our planet into the center of their ethical concern. By tying ecological ethics with the longstanding Christian concern for global justice, theologians today are becoming spokespersons

for the kind of economic justice that is necessary if the human race is to take responsibility for planetary health.

## DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of the debate over climate change;
2. ability to describe issues at stake;
3. awareness of theological and ethical commitments.

## REQUIRED READING

EITHER,

OHRS *The Oxford Handbook of Religion and Science*, ed. by Philip Clayton and Zachary Simpson. Oxford and New York: Oxford University Press, 2006.

ISBN 0-19-9279278-6. Hardbound 2006 or Paperback 2008 okay.

**This comprehensive volume is valuable for almost all modules.**

OHRS 13 Bratton, "Ecology and Religion"

OHRS 52 Deane-Drummond, "Theology, Ecology, and Values"

OHRS 53 Rolston, "Environmental Ethics and Religion/Science"

OR,

RCRS: *The Routledge Companion to Religion and*

*Science*, eds., James W. Haag, Gregory R. Peterson, and Michael L. Spezio. London: Routledge, 2012.

ISBN 978-0-415-49244-7 (hbk) or 978-0-203-80351-6 (ebk).

**This comprehensive volume is valuable for almost all modules.**

RCRS 30 Nathaniel F. Barrett, and William R. Jordan, III, "Frontiers in Religion and Ecology"

RCRS 31 Hava Tirosch-Samuels, "Judaism and the Science of Ecology"

RCRS 32 Christopher Key Chapple, "Asian Religions, Ecology, and the Integrity of Nature"

RCRS 33 Whitney A. Bauman, "Meaning-Making Practices and Environmental History"

OR,

Pope Francis, *Laudato Si*.

[https://w2.vatican.va/content/dam/francesco/pdf/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si\\_en.pdf](https://w2.vatican.va/content/dam/francesco/pdf/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si_en.pdf)

## RFECOMMENDED READING

Moe-Lobeda, Cynthia, *Resisting Structural Evil: Love as Ecological-Economic Vocation*.

Minneapolis: Fortress, 2013. ISBN 978-1-4514-6267-8; eBook 978-1-4514-2639-7.

## ADDITIONAL RESOURCES

CTNS Website: [ctns.org](http://ctns.org)

Ted Peters' Website: [TedsTimelyTake.com](http://TedsTimelyTake.com)

Biologos: <http://biologos.org/blogs/chris-stump-equipping-educators/series/this-week-in-creation>





## Module

# The Evolution Controversy

Science Module for a course in either Religious Studies or Theology

Drop in to a course syllabus (with modifications) in

Evolutionary Biology

Old Testament; Genesis

Introduction to Theology

Systematic Theology: Creation

1 week's assignment for a 3 hour class meeting

### THE EVOLUTION CONTROVERSY

This module will cover the controversy over Charles's Darwin's theory of evolution in contemporary Christianity, Islam, science, and public education. The contending schools of thought will be briefly summarized, compared, and contrasted: (1) the theory of evolution as science only; (2) reductionist materialism or atheism; (3) biblical and scientific creationism; (4) intelligent design; and (5) theistic evolution.

This module will be valuable to students studying the Hebrew scriptures, because the interpretation of the Bible is central to this controversy. It will also be valuable to students in systematic theology, because it amplifies the doctrine of creation and challenges the theologian to confront both *creatio ex nihilo* and *creatio continua*.

What theologians and ethicists need to take seriously within the framework of theistic evolution is the problem of suffering. Suffering is built into nature. How can religious faith in a gracious and loving God be reconciled to the indisputable fact that the evolutionary struggle for life necessarily includes disease, predation,

suffering, and death? Theologically this is called the *theodicy problem*, and even Charles Darwin addressed the issue when constructing his theory of descent with modification due to natural selection.

### DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of the competing schools of thought and describe them fairly;
2. awareness of the particular mode of biblical interpretation assumed in the debate;
3. integration of Darwinian evolution into questions surrounding God's creation.

### REQUIRED READING

Ted Peters & Martinez Hewlett, *Can You Believe in God and Evolution?* Nashville TN: Abingdon Press, 2009; ISBN 0-687-33551-5 (pbk).

Charles Darwin, *Origin of Species*, Chapter IV.

[http://www.evolbiol.ru/docs/docs/large\\_files/charles\\_darwin.pdf](http://www.evolbiol.ru/docs/docs/large_files/charles_darwin.pdf)

### RECOMMENDED READING

Celia Deane-Drummond, *Christ and Evolution*. Minneapolis MN: Fortress Press, 2009. ISBN 978-0-8006-4013-2 (pbk).

John F. Haught, *Science and Faith: A New Introduction*. New York: Paulist Press, 2012. ISBN 978-0-8091-4806-6 (pbk).

Karl Rahner, "Christology within an Evolutionary View of the World," TI, V: 8.

Pope John Paul II, "Evolution and the Living God," *Science and Theology: The New Consonance*, ed., Ted Peters. New York: Harper, Westview1998; 149-152.

George V. Coyne, S.J., "Evolution and the Human Person: The Pope in Dialogue," *Science and Theology: The New Consonance*, ed., Ted Peters. New York: Harper, Westview1998; 153-161.

Anne M. Clifford, C.S.J., "Biological Evolution and the Human Soul: A Theological Proposal for Generationism," *Science and Theology: The New Consonance*, ed., Ted Peters. New York: Harper, Westview1998; 162-173.

OHN = *On Human Nature*, eds., Michel Tibayrenc and Francisco J. Ayala.

Amsterdam: Elsevier, 2017. ISBN 978-0-12-420190-3.

**This comprehensive volume is valuable for Science classes.**

OHN 8 T.M. Preuss, "The Human Brain: Evolution and Distinctive Features"

OHN 16 M.V. Flinn, "The Human Family: Evolutionary Origins and Adaptive Significance"

OHN 24 W.M. Baum, "Behavior Analysis, Darwinian Evolutionary Processes, and the Diversity of Human Behavior"

OHN 30 J. Roughgarden, "Homosexuality and Evolution: A Critical Appraisal"

OHN 32 T.W. Deacon, "Human Variability and the Origins and Evolution of Language"

OHN 33 F.J. Ayala, "Human Evolution and Progress"  
OHN 35 F.J. Ayala, "Adaptive Significance of Ethics and Aesthetics"  
OHN 37 M. Tibayrenc, "The Race/Ethnic Debate: An Outsider's View"  
OHN 38 M. Ruse, "Social Darwinism"  
OHN 39 T. Borchert, "History and Diversity of Religion"  
OHN 41, T. Peters, "Universal Humanity, Religious Particularity, and Scientific Reductionism"

RCRS: *The Routledge Companion to Religion and*

*Science*, eds., James W. Haag, Gregory R. Peterson, and Michael L. Spezio. London: Routledge, 2012.  
ISBN 978-0-415-49244-7 (hbk) or 978-0-203-80351-6 (ebk).

**This comprehensive volume is valuable for almost all modules.**

RCRS 22 Ursula Goodenough, "The biological antecedents of human suffering"

RCRS 23 Holmes Rolston III, "Suffering through something higher"

Websites:

Harun Yaha (Islam), <http://www.harunyahya.com/>

Answers in Genesis, <https://answersingenesis.org/>

Intelligent Design, <http://www.intelligentdesign.org/whatisid.php>

Clergy Letter Project,

[http://www.theclergyletterproject.org/Christian\\_Clergy/ChrClergyLtr.htm](http://www.theclergyletterproject.org/Christian_Clergy/ChrClergyLtr.htm)



## Module

# Genetics, Stem Cells, CRISPR, and Bioethics

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Genetics

Systematic Theology: Anthropology

Moral Theology

Ethics

1 week's assignment for 3 hours of class meeting

### GENETICS, STEM CELLS, AND BIOETHICS

From 1990 into 2003 the worldwide Human Genome Project mapped the human genome, sequencing DNA nucleotides and locating many of our genes. For a period some scientists touted that DNA provides the essence of what makes a human being and suggesting support for genetic determinism. Moral and legal issues exploded over genetic testing, abortion to eliminate certain genes, insurance discrimination, and the return of eugenics in free market form. Theologians have been compelled to re-think many inherited assumptions regarding human nature, and bioethicists have sought to persuade the larger society to love its children regardless of genetic make-up and protect those with genetic difficulties from financial injustice.

Then, the isolation of human embryonic stem cells in 1998 was greeted with a global cheer of joy over the anticipated victories of regenerative medicine. Yet,

some naturalists, evangelicals, and Roman Catholics sought to end the research game before it would begin. Why? Ethicists seemed to talk past one another in answering this question. Like a baseball roster, this unit will list the players and their positions. Ethicists and moral theologians pitch their moral arguments from within their respective frameworks: (1) the medical benefits framework; (2) the embryo protection framework; (3) the nature protection framework; and (4) the research standards framework.

Just recently, scientists at the University of California in Berkeley have made a new discovery known as CRISPR-Cas9, a form of inexpensive gene editing. As the possibility of editing the genomes of a large number of human beings as well as animal species becomes more real, an urgency for social and moral guideless is pressing. How can moral theologians and ethicists incorporate this science into their own thinking and contribute to the wider cultural discussion?

### DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of basic genetics, stem cells, and CRISPR/Cas9;
2. ability to describe issues at stake;
3. awareness of theological and ethical commitments.

### REQUIRED READING

CRISPR at Wikipedia: <https://en.wikipedia.org/wiki/CRISPR>

Watch for CRISPR articles at the TTT (Theologians Testing Transhumanism) site:

<http://theologyandtranshumanism.weebly.com/theology--science-articles.html>

ELCA: "Genetics and Faith: Power, Choice, and Responsibility:"

<http://download.elca.org/ELCA%20Resource%20Repository/GeneticsSS.pdf>

### RECOMMENDED READING

Vatican, *Donum Vitae*,

[http://www.vatican.va/roman\\_curia/congregations/cfaith/documents/rc\\_con\\_cfaith\\_doc\\_19870222\\_respect-for-human-life\\_en.html](http://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_19870222_respect-for-human-life_en.html)

Peters, Ted, *Playing God? Genetic Determinism and Human Freedom*. London and New York: Routledge, 2nd ed., 2003. ISBN 0-415-94248-9; 0-94249-7.

Peters, Ted, "CRISPR, The Precautionary Principle, and Bioethics," *Theology and Science* 13:3 (July 2015)

<http://www.tandfonline.com/doi/abs/10.1080/14746700.2015.1056583>

Peters, Ted, Karen Lebacqz, and Gaymon Bennett, *Sacred Cells? Why Christians Should Support Stem Cell Research*. Lanham MD: Roman and Littlefield, 2008; ISBN 10: 0-7425-6288-3 cloth; 13: 978-0-7425-6288-2 paper.

RCRS: *The Routledge Companion to Religion and*

*Science*, eds., James W. Haag, Gregory R. Peterson, and Michael L. Spezio. London: Routledge, 2012.  
ISBN 978-0-415-49244-7 (hbk) or 978-0-203-80351-6 (ebk).

**This comprehensive volume is valuable for almost all modules.**

RCRS 39 Ronald Cole-Turner, "Biotechnology and Justice"

RCRS 40 Karen Lebacqz, "Justice and biotechnology: Protestant views"

RCRS 41, Ebrahim Moosa, "Muslim ethics and biotechnology"

RCRS 43 Laurie Zoloth, "Justice in the margins of the land: Jewish response to the challenges  
of biotechnology"

## ADDITIONAL RESOURCES

CTNS Website: [ctns.org](http://ctns.org)

Ted Peters' Website: [TedsTimelyTake.com](http://TedsTimelyTake.com)

Biologos: <http://biologos.org/blogs/chris-stump-equipping-educators/series/this-week-in-creation>



## Module: Islam and Science (Double Module Option)

Science Double Module for a course in either Religious Studies or Theology

Drop in to a course syllabus (with modifications) in

Islam

Introduction to Religious Studies

Introduction to Theology

Systematic Theology: Creation

2 week's assignments for a 3 credit hour class

### ISLAM and SCIENCE (2 Modules: a and b)

The relationship of Islam to science both pre-dates the rise of modern science in Western Europe and post-dates it. In the first module (a), "Discourse on Method," we will remember the early history in light of the concept of knowledge deriving from the Qur'an. In the second module (b), "Islam and Cosmology Today," we will look at the moving frontier of science as contemporary Islamic scholars engage it.

### DLO (Desired Learning Outcomes).

Each student should demonstrate...

1. awareness of the complexity of Islam and science discourse
2. historical perspective on Islam and science
3. an understanding of history of science, in particular history of science in Islamic civilization.
4. a grasp of Islamic cosmology

## REQUIRED READING for (a) Module, "Discourse on Method"

- *Integrated Encyclopedia of the Qur'ān*, Volume 1, entry "Allah"; <http://online.iequran.com/>
- OHRS 5: Seyyed Hossein Nasr, "Islam and Science," *The Oxford Handbook of Religion and Science*, eds., Philip Clayton and Zachary Simpson. Oxford UK: Oxford University Press, 2006. ISBN 0-19-927927-6 or 978-0-19-927927-2; pages 71-86.
- Muzaffar Iqbal, *Islam and Science*, Aldershot UK: Ashgate, 2003. ISBN 0-7546-0799-2. Chapter 2: "And these are the signs," pages 29-38.

## REQUIRED READING for (b) Module, "Islam and Cosmology Today"

- Muzaffar Iqbal, "Islam and Modern Science: Questions at the Interface," *God, Life, and the Cosmos: Christian and Islamic Perspectives*, eds., Ted Peters, Muzaffar Iqbal, and Syed Nomanul Haq. Aldershot UK: Ashgate, 2002. ISBN 0-7546-0883-2. Pages 3-42.
- Medhi Golshani, "Creation in the Islamic Outlook and in Modern Cosmology," *God, Life, and the Cosmos: Christian and Islamic Perspectives*, eds., Ted Peters, Muzaffar Iqbal, and Syed Nomanul Haq. Aldershot UK: Ashgate, 2002. ISBN 0-7546-0883-2. Pages 223-248.
- Seyyed Hossein Nasr, "The Question of Cosmogogenesis—The Cosmos as a Subject of Scientific Study" in *Islam & Science*, Volume 4 (2006) 1, 43-60..0

## RECOMMENDED READING

- Seyyed Hossein Nasr, *Religion and the Order of Nature*. Oxford UK: Oxford University Press, 1996. ISBN 0-19-510274-6 or 0-19-510823-X.
- Muzaffar Iqbal *Science and Islam*. Westport CT: Greenwood Press, 2007.
- NOTE: some of these copyrighted materials are available for easy download from CTNS for exclusive educational purposes.
- CTNS thanks Muzaffar Iqbal for consultation on this Module.





## Module

# Judaism and Science

Science Module for a course in either Religious Studies or Theology

Drop in to a course syllabus (with modifications) in

Judaica

Religious Studies

Introduction to Theology

Systematic Theology: Creation

1 week's assignment for a 3 hour class meeting

### JUDAISM and SCIENCE

Many of the breakthrough scientific researchers of the modern era have come from the Jewish tradition. Jewish theologians frequently appeal to the principle of *Tikkun Olam* (Hebrew: תיקון עולם or 'תקון עולם'), which suggests that the world we have inherited is not yet complete. God asks the human race,--related in the divine image--to improve the world and thereby continue the work of creation. The Hebrews have been commissioned by God to attend to the welfare of the larger society, to the creation as a whole. Science and technology--especially medical technology--make our world a better place.

## DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

-- knowledge of what some Jewish theologians say about science.

## REQUIRED READING (Select two or three of the following)

RCRS: *The Routledge Companion to Religion and*

*Science*, eds., James W. Haag, Gregory R. Peterson, and Michael L. Spezio. London: Routledge, 2012.  
ISBN 978-0-415-49244-7 (hbk) or 978-0-203-80351-6 (ebk).

**This comprehensive volume is valuable for almost all modules.**

RCRS 8 Noah Efron, "Jews and the study of nature"

RCRS 24 Lawrence Troster, "Magic, monotheism and natural evil: Classical and modern Jewish responses to suffering"

RCRS 31 Hava Tirosch-Samuelsan, "Judaism and the science of ecology"

RCRS 38 Shai Cherry, "Jewish origins: Cosmos, humanity, and Judaism"

RCRS Laurie Zoloth, "Justice in the margins of the land: Jewish responses to the challenges of biotechnology"

## RECOMMENDED READING

OHRS *The Oxford Handbook of Religion and Science*, ed. by Philip Clayton and Zachary Simpson. Oxford and New York: Oxford University Press, 2006.

ISBN 0-19-9279278-6. Hardbound 2006 or Paperback 2008 okay.

**This comprehensive volume is valuable for almost all modules.**

OHRS 3 Norbert Samuelson, "Judaism and Science"

Noah J. Efron, *Judaism and Science: A Historical Introduction*. Westport CT: Greenwood, 2007.

ISBN-13: 978-0313330537 or ISBN-10: 0313330530.

Norbert Samuelson, *Jewish Faith and Modern Science: On the Death and Rebirth of Jewish Philosophy*.

New York: Roman and Littlefield, 2009. ISBN-13: 978-0742558922 or ISBN-10: 0742558924.

## WEB RESOURCES

Jonathan Sachs, et.al., "How Has Jewish Thought Influenced Science," *Moment*

<http://www.momentmag.com/jewish-thought-influenced-science/>



## Module

# Neuroscience & Theological Anthropology

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Philosophy: Mind/Brain Problem

Religious Studies

Metaphysics: Epistemology

Pastoral Care

Systematic Theology: Anthropology

1 week's assignment for 3 hours of class meeting

## NEUROSCIENCE & THEOLOGICAL ANTHROPOLOGY

This unit clarifies a misleading impression growing in the cognitive sciences as a byproduct to recent advances in neuroscience. The byproduct is a tendency to reduce conscious operations to preconscious or subconscious determinants. Director of the Cognitive Neuroimaging Unit in Saclay, France, Stanislas Dehaene, for example, startles us by declaring that in everyday activity we fail to realize just how much of our activity is guided by "an unconscious automatic pilot...We constantly overestimate the power of our consciousness in making decisions--but, in truth, our capacity for conscious control is limited" (Dehaene, 2014, 47). It is true, to be sure, that our neurocircuitry is responsible for this automatic pilot, but we need not jump to the unwarranted conclusion that this automaticity is exhaustively responsible for every cognitive process. It is premature to

overemphasize the brain's automatic pilot, allowing the higher levels of consciousness to drift to the margins if not off stage. It is more accurate to say: human cognition relies on our automatic pilot to clear a mental workspace wherein symbolic discourse and abstract reasoning can engage in activity the brain could not, by itself, have thought of.

This discussion within neuroscience and cognitional theory has implications for tenets within theological anthropology such as free will, the relation of the body to the soul, and resurrection of the body.

### DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of deterministic claims associated with neuroscience;
2. ability to describe issues at stake;
3. awareness of theological commitments regarding body and soul.

### REQUIRED READING

RCRS: *The Routledge Companion to Religion and*

*Science*, eds., James W. Haag, Gregory R. Peterson, and Michael L. Spezio. London: Routledge, 2012. ISBN 978-0-415-49244-7 (hbk) or 978-0-203-80351-6 (ebk).

**This comprehensive volume is valuable for almost all modules.**

RCRS 26 Michael L. Spezio, "The Cognitive Sciences and Religious Experience"

RCRS 27 Richard K. Payne, "Cognitive Science and Classical Buddhist Philosophy of Mind"

Peters, Ted, "Models of the Soul: Comparing Concepts,"

[http://tedstimelytake.com/wp-content/uploads/2013/01/models\\_of\\_the\\_soul.pdf](http://tedstimelytake.com/wp-content/uploads/2013/01/models_of_the_soul.pdf) .

Weissenbacher, Alan C., "Ten Principles for Interpreting Neuroscientific Pronouncements

Regarding Human Nature," *Dialog* 54:1 (Spring 2015) 41-51.

### RECOMMENDED READING

Deacon, Terrence W., 2012. *Incomplete Nature: How Mind Emerged from Matter*. New York: W.W. Norton.

Dehaene, Stanislas, *Consciousness and the Brain: Deciphering How the Brain Codes Our Thoughts*. New York: Viking, 2014.

RCRS 29 Stephen, Kaplan, "Hinduism and the Cognitive Sciences"

Murphy, Nancey, *Bodies and Souls, or Spirited Bodies*. Cambridge UK:

Cambridge University Press, 2006. ISBN 978-0-521-67676-2 pb.

OHN = *On Human Nature*, eds., Michel Tibayrenc and Francisco J. Ayala.  
Amsterdam: Elsevier, 2017. ISBN 978-0-12-420190-3.

**This comprehensive volume is valuable for Science classes.**

OHN 8 T.M. Preuss, "The Human Brain: Evolution and Distinctive Features"

OHN 14 S.N. Austad and C.E. Finch, "Human Life History Evolution: New Perspectives on Body and Brain Growth"

OHN 20 S. Hameroff, "The Quantum Origin of Life: How the Brain Evolved to Feel Good"

OHN 21 M. Reimers and B. Oakley, "Empathy, Theory of Mind, Cognition, Morality, and Altruism"

OHN 32 T.W. Deacon, "Human Variability and the Origins and Evolution of Language"

OHN 34 R. McDermott, "Culture, Brain, and Behavior: The Implications of Neural Plasticity and Development on Social Contexts and Political Structures"

## ADDITIONAL RESOURCES

CTNS Website: [ctns.org](http://ctns.org)

Ted Peters' Website: [TedsTimelyTake.com](http://TedsTimelyTake.com)

Biologos: <http://biologos.org/blogs/chris-stump-equipping-educators/series/this-week-in-creation>



## Module Physics & Divine Action

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Religious Studies

Physics

Metaphysics

Systematic Theology: Creation

1 week's assignment for 3 hours of class meeting

### PHYSICS AND THE LITTLE WORLD THAT'S EVERYWHERE

As classical physics becomes supplemented with quantum physics, the deterministic causal nexus of Isaac Newton becomes supplemented with the indeterminate possibilities of the quantum domain. Because atoms are everywhere, this could signal an openness and indeterminateness in the physical world that theologians recognize as God's creation.

This module gives special attention to God's action in nature's world at the subatomic level. Robert John Russell calls it NIODA, non-interventionist objective, divine action.

What is NIODA? Here's the background. From 1987 through 2002 at the invitation of Pope John Paul II, the Vatican Observatory (VO) in cooperation with the Center for Theology and the Natural Sciences (CTNS) at the Graduate

Theological Union in Berkeley, California, addressed these and many other questions in theology, philosophy, and science. International panels selected by the VO-CTNS research project drew from a global pool of leading natural scientists, philosophers, theologians, and ethicists. Occasionally the discussion oriented itself around the pros and cons of one central hypothesis: Non-Interventionist Objective Divine Action (NIODA) which claimed that God acts objectively at the sub-atomic level--and because atoms are everywhere so also is divine action everywhere--without breaking any laws of nature. This accounts for both general and special providence in a manner that makes theology and physics consonant. By debating this hypothesis, a large number of issues raised in the dialogue shared by Science and Theology come to the fore.

### DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of the contrast between classical mechanics and quantum mechanics;
2. ability to describe issues at stake;
3. grasp of the proposal for NIODA..

### REQUIRED READING

CAO *Creation from Alpha to Omega*. Robert John Russell. Minneapolis: Fortress Press, 2008.  
ISBN 978-0-8006-6273-8 (pbk). Chapters 4,5,6.

### RECOMMENDED READING

Peters, Ted, and Carl Peterson, "The Higgs Boson" in *Theology and Science*.  
<http://www.tandfonline.com/doi/pdf/10.1080/14746700.2013.809948#.UpVWD-7TkII>

Russell, Robert John, Nancy Murphy, William R. Stoeger, S.J., eds., *Scientific Perspectives on Divine Action: Twenty Years of Challenge and Progress*. Vatican City State and Berkeley: Vatican Observatory and CTNS, 2008.  
ISBN 978-88-209-7961-4 (pbk).

OHRs *The Oxford Handbook of Religion and Science*, ed. by Philip Clayton and Zachary Simpson. Oxford and New York: Oxford University Press, 2006.  
ISBN 0-19-9279278-6. Hardbound 2006 or Paperback 2008 okay.

**This comprehensive volume is valuable for almost all modules.**

OHRs 34 Russell, "Quantum Physics..."

OHRs 10 Wegter-McNelly; "Fundamental Physics and Religion"

OHRs 44 Ellis, "Physics, Complexity, and the Science-Religion Debate"

OHRs 35 Thomas Tracy, "Theologies of divine action"

OHRs 9 Bernard Carr, "Cosmology and Religion"



## Module

# Transhumanism: Theological Responses

Science Module for existing university or seminary level courses.

Drop in to a course syllabus (with modifications) in

Evolutionary Biology

Technology Studies

Future Studies

Religious Studies

Theological Anthropology

Systematic Theology: Eschatology

1 week's assignment for 3 hours of class meeting

## TRANSHUMANISM: THEOLOGICAL RESPONSES

Transhumanism, also known as H+, is a rapidly growing worldwide movement that synthesizes computer technology, nano-technology, genetics, the cognitive sciences, and futurism for the purposes of advancing evolution to a post-biological stage. The belief that all of evolutionary history has been oriented toward increased intelligence is a basic H+ assumption. And, because this generation has the wherewithal to amplify intelligence both in human brains and in machines, it is our moral responsibility to speed up the evolutionary process and leap forward. Armed with the most up-to-date scientific and technological knowledge, transhumanists intend to generate a *Singularity*, to cross a threshold after which a



new and higher level of intelligent being will take the reins of evolution and steer it forward.

The assumptions and goals of H+ have both troubled and excited religious futurists. To assume that evolution is directed toward increased intelligence cannot be confirmed by evolutionary biologists, and theological ethicists fear that H+ will undercut society's compassion for persons who are mentally challenged. Yet, some Mormons and some Buddhists are welcoming transhumanism with open arms, embracing its optimism for transformation and renewal. The subject of transhumanism provides an arena in which to wrestle with fundamental religious values and the startling possibilities of advancing science and technology.

### DLO (Desired Learning Outcomes)

Added to the set of DLOs for the entire course. The student should also demonstrate...

1. knowledge of current conversation regarding transhumanism and religion
2. ability to describe issues at stake;
3. at least a tentative moral stand regarding public policy regarding H+ technology.

### REQUIRED READING

Lincoln Cannon, "What is Mormon Transhumanism?" *Theology and Science* 13:2 (2015) 202-218.  
Michael Latorra, "What is Buddhist Transhumanism?" *Theology and Science* 13:2 (2015) 219-229.  
Brian Patrick Green, "Transhumanism and Roman Catholicism," *Theology and Science* 13:2 (May 2015) 187-201.  
Ted, Peters "Transhumanism and the Posthuman Future: Will Technological Progress Get us There?"  
*Transhumanism and Its Critics*, eds., Gregory R. Hansell and William Grassie.  
Philadelphia: Metanexus, 2011; Chapter 10.

RCRS: *The Routledge Companion to Religion and Science*, eds., James W. Haag, Gregory R. Peterson, and Michael L. Spezio. London: Routledge, 2012.  
ISBN 978-0-415-49244-7 (hbk) or 978-0-203-80351-6 (ebk).

**This comprehensive volume is valuable for almost all modules.**

- RCRS 48 Aubrey D.N.J. DeGrey, "Prospects of the biomedical postponement of aging"  
RCRS 51 Ann Milliken Pederson, "A Christian theological response to Aubrey DeGrey"  
RCRS 53 Robert M. Geraci, "Cyborgs, robots, and eternal avatars: Transhumanist salvation"  
RCRS 54 Noreen Herzfeld, "Human-directed evolution: A Christian perspective"

### RECOMMENDED READING

Cole-Turner, Ronald, ed., *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*. Washington DC: Georgetown University Press, 2011. ISBN 978-1-58901-780-1.  
Maher, Derek F., and Calvin Mercer, eds., *Religion and the Implications of Radical Life Extension*.  
New York: Palgrave, 2009. ISBN 978-0-230-60794-1.

NOTE: Some of these copyrighted materials for uploading into an educational setting are easily available at CTNS.