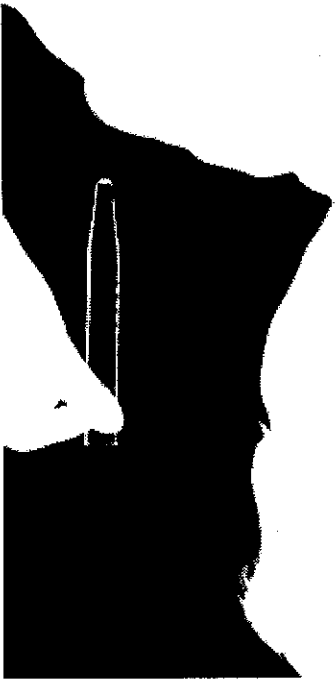


tesp 83  
oliver putz

# the relationship of **religion and science**



the class

<b>Title</b>	TESP 83 – The Relationship of Religion and Science
<b>Professor</b>	Oliver Putz
<b>Quarter</b>	Fall 2015
<b>Times</b>	TTh 12:10 PM – 1:50 PM
<b>Room</b>	Kennedy Hall 308
<b>Office Hour</b>	W 1:00-2:00 PM or by appointment at Kenna Hall 323E
<b>Phone</b>	(408) 554-4035
<b>E-Mail</b>	oputz@scu.edu

### COURSE DESCRIPTION

Public perception of the relationship between religion and science is one of an irreconcilable opposition. Accordingly, one has to choose sides in what has long been perceived as a cultural war with faith on one side and reason on the other. In this course, we will assess this curious intersection more carefully. We will consider challenges to this common "myth" and explore the possibility of a fruitful dialogue instead of an insurmountable conflict. To that end, the course will first establish underlying metaphysical presuppositions and methodological perspectives found in both, religion (specifically theology) and the natural sciences, before investigating how the two can indeed relate. We will examine how specific scientific theories (e.g., theory of evolution) and data can be related to theological doctrines (e.g., doctrine of creation). The course will also seek to assess the ethical dimensions of this conversation, especially when it comes to issues of modern technology and its challenges.

Students seeking RTC 2 credit must have completed RTC 1.

### COURSE LEARNING GOALS AND OBJECTIVES

According to Santa Clara University's Core Curriculum guidelines, level-2 courses in Religion, Theology, and Culture should support "Complexity, Critical Thinking, and Religious Reflection." By the end of the class students will be able to

- analyze complex and diverse religious phenomena (e.g., theological systems and other cultural expressions of religious beliefs).
- integrate and compare several different disciplinary approaches to a coherent set of religious phenomena.
- clarify and express beliefs in light of their critical inquiry into the religious dimensions of human existence.

For this class these objectives translate into the following specific objectives:

By the end of the course students will be able to

- assess contemporary religious proposals on how to relate religion and science.
- bring religious insights and scientific theories into a meaningful dialogue.
- articulate their beliefs in light of a meaningful and constructive analysis of the relationship of religion and science.

### course requirements

### READINGS

The texts for this class will be available on our Canvas course website, from where they should be downloaded. Students are expected to study the texts in detail! Always be prepared to offer a **brief summary** of the text and **ask at least three specific questions** regarding the position laid out therein. You should be able to **state clearly** the underlying **question** of the text and the **thesis** the text tries to argue. **All readings are relevant for the midterm and final exam!** All readings should be brought to class on the day assigned. Please bring hard copies; lap top computers, tablets, or smart phones are not permitted in class.

- a. Introduction: The introduction should give the background to your study. It is here that you present to the reader the problem and the resulting question that you will address in your essay. The introduction should end on a clear one-sentence statement of intent and should be formulated accordingly. For example: "The aim of the present paper is to show that..." or "I will argue that..." (0.5-1 page)
- b. Scientific findings: In this section you will lay out the scientific theories and data relevant to the particular intersection of religion and science. For example, if you write on the intersection of evolutionary biology and creation theology, this is where you present the relevant information on evolutionary biology. (~2.5 pages)
- c. Religious views: Here, you will present theological doctrines forwarded by a particular religious scholar or tradition. In the example given for the previous section this would imply theological positions on creation. (~2.5 pages)
- d. Potential relationship between the two: Describe here a proposal offered by one of the scholars we studied on how religious and scientific views relate to one another. For example, in an essay on evolution and creation analyze Karl Rahner's proposal of active self-transcendence. (~2.5 pages)
- e. Reflection of the relationship: Present here your thoughts on the proposed relationship you reviewed in section d in light of your thesis statement given in section a. It is here that you present your own point of view on whether or not the proposal you discuss is convincing or

### CRITICAL ESSAY (30% OF FINAL GRADE)

You will write a 7-10 page critical essay (typed, double-spaced, not counting references) on one of five topics listed below. The essay should adhere to the following structure:

The midterm and final exams will be taken in class on the dates indicated in the syllabus. Each test will consist of short-format essay and objective questions. In preparation for the tests students are expected to comprehensively review all assigned readings, lectures, and discussions up to the date of the exam. In order to take a makeup exam, students will have to demonstrate in advance that a significant life-event prevents them from attending class or if they have a documented emergency. The following are not acceptable excuses: scheduled flights or trips, scheduled non-emergency doctor appointments, job interviews, picking up relatives at the airport, chaffeurring a friend somewhere, etc.

### MIDTERM AND FINAL EXAMS (30% OF FINAL GRADE EACH)

Throughout the quarter you will submit 4 brief responses to the assigned readings on days indicated in the syllabus (due September 29, October 13, November 5 and 19). The brief responses consist of three questions and a brief comment on the assigned texts and are to be handed in at the beginning of class. Please keep a copy to use in class.

### BRIEF RESPONSES TO READINGS (20% OF FINAL GRADE)

Attendance at all class meetings is mandatory. Please make sure you are on time to class. More than two unexcused absences and/or repeated tardiness will result in a lower final grade (0.5 points per absence or late appearance). If you miss more than 25% of the class you will not be able to pass the class and will have to retake it or another RTC 2 requirement class. Exceptions to these rules apply only in cases such as defined by Title IX or other relevant laws.

The quality and success of this class depends largely on student participation. Obviously this means that it is in your own and your classmates' interest to come to class prepared (all required readings done and questions or comments prepared) and open to constructive dialogue. I will evaluate your regular participation throughout the course at the end of the quarter. You can earn up to ten points for

### CLASS PARTICIPATION (20% OF FINAL GRADE)

not, what its strength and weaknesses are, and in how far the approach affects your own

beliefs. (≈2.5 pages)

f. Bibliography: List the literature you have referenced in the paper's footnotes.

Headline each section accordingly and, if necessary or otherwise helpful, use sub-headlines within each section. Writing should be in Standard English and must demonstrate a good, formal, clear writing style. The format of the paper must follow the Turabian Style Sheet. Pages should be numbered and contain the student's name in a footer. I will **not** accept electronic submission of the outline or the final paper!

You can choose your paper topic from one of these five broad themes:

1. Relating Religion and Science

2. Galileo, Darwin, and Other Historical Issues

3. Biology and Theology

4. Physics and Theology

5. Ethical Questions in Religion and Science

Your paper should have at least 10 and no more than 30 references. The only permissible literature is peer-reviewed texts (e.g., journal articles, published books, etc.). Gray literature (e.g., patents, technical reports from government agencies or scientific research groups, working papers from research groups or committees, and white papers) can also be used. Popular media, such as websites, newspaper articles, TV shows, etc., do not count as academically sound resources. They can be occasionally used to raise a question or make a point about public perception of issues, but not to substantiate an argument! Popular references do not count towards the needed 10 to 30 academic references of your paper.

An outline of the paper is due on **Thursday, October 29**. It should be page-numbered and have your name in the footer. You outline should feature (i) a clear one-sentence question statement, (ii) a clear one-sentence thesis statement, (iii) the main points of your argument (as far as you can assess prior to completing your research and writing), (iv) your possible conclusion, and (v) a bibliography of at least five academic references.

Please add a note on your paper title page if you want your paper back. I will neither add marginal notes and comments nor write an evaluation unless you are planning on collecting your essay after the quarter.

The Critical Essay is due on **Thursday, November 12**.

### RESEARCH PAPER

A	=	96-100%	C	=	66-69%
A-	=	90-95%	C-	=	60-65%
B+	=	86-89%	D+	=	56-59%
B	=	80-85%	D	=	50-55%
B-	=	76-79%	D-	=	46-49%
C+	=	70-75%	F	=	45 or less

### course policies

#### CLASSROOM ETIQUETTE

Our classroom is a cell phone-free environment! This means that cell phones have to be turned off during class and class breaks. If you want to place a call, check your messages, text with friends, or surf the net during class breaks, please do so outside the classroom. I would encourage you, however, during breaks to converse with your classmates instead! Unless impossible, I will be in the classroom during the class break and available for conversations – be they on the course material or any other interesting things we want to talk about. Should you expect an important call (e.g., due to

family related medical emergency), set your phones to the silent mode and, if necessary, exit the

room quietly to take the call. Please let me know in advance if this should be the case.

Food and drink are not permitted in the classroom! Please make sure you come to class sufficiently

nourished and hydrated. Participating in the class conversation with full mouths is challenging and

not good form.

Finally, conduct yourself with the necessary academic professionalism. Treat your colleagues with

respect regardless of their opinions, argue your point of view rigorously, yet not dismissive of other

ideas, and without question abstain from ridiculing any of your classmates!

## **ACADEMIC INTEGRITY**

Academic integrity is an absolute requirement: "Engaging in any form of academic dishonesty, such

as plagiarism (representing the work or ideas of others as one's own without giving proper

acknowledgment), cheating (e.g., copying the work of another person, falsifying laboratory data,

sabotaging the work of others), and other acts generally understood to be dishonest by faculty or

students in an academic context subjects a student to disciplinary action." (Santa Clara University

Academic Integrity Protocol, [http://www.scu.edu/studentlife/resources/upload/Academic-Integrity-](http://www.scu.edu/studentlife/resources/upload/Academic-Integrity-Protocol-Document.pdf)

Protocol-Document.pdf) Such disciplinary actions may include failing the class.

Please review the section on Academic Integrity in the Undergraduate Bulletin 2013-14, pages 412-

414. Also, review the following websites for information on academic integrity:

<http://law.scu.edu/bulletin/academic-integrity-policy/>; <http://www.plagiarism.org>;

<http://owl.english.purdue.edu/owl/resource/589/1/>

## **DISABILITIES STATEMENT**

If you have a disability for which accommodations may be required in this class, please contact

Disabilities Resources, Benson 216, [www.scu.edu/disabilities](http://www.scu.edu/disabilities) as soon as possible to discuss your

needs and register for accommodations with the University. If you have already arranged

accommodations through Disabilities Resources, please discuss them with me during my office

hours. Students who have medical needs related to pregnancy or parenting may be eligible for

accommodations.

While I am happy to assist you, I am unable to provide accommodations until I have received

verification from Disabilities Resources. Disabilities Resources must be contacted in advance to

schedule to arrange any necessary accommodations. The Disabilities Resources office would be

grateful for advance notice of at least two weeks. For more information you may contact Disabilities

## **TITLE IX STATEMENT**

Santa Clara University upholds a zero tolerance policy for discrimination, harassment and sexual

misconduct. If you (or someone you know) have experienced discrimination or harassment, including

sexual assault, domestic and dating violence or stalking, we encourage you to tell someone

promptly. For more information, please go to [www.scu.edu/studentlife](http://www.scu.edu/studentlife) and click on the link for the

University's Gender-Based Discrimination and Sexual Misconduct Policy or contact the University's

EEO and Title IX Coordinator, Belinda Guthrie at 408-554-3043 or by email at [bguthrie@scu.edu](mailto:bguthrie@scu.edu).

Reports may be submitted online through [www.scu.edu/osl/report](http://www.scu.edu/osl/report) or anonymously through

Ethicspoint: [www.ethicspoint.com](http://www.ethicspoint.com).

While I want you to feel comfortable coming to me with issues you may be struggling with or

concerns you may be having, please be aware that there are some reporting requirements that are

part of my position at Santa Clara University. For example, if you inform me of an issue of

harassment, sexual violence, or discrimination, I will keep the information as private as I can, but I

am required to bring it to the attention of the institution's EEO and Title IX Coordinator. If you inform

me that you are struggling with an issue that may be resulting in, or caused by, traumatic or unusual

stress, I will likely inform the campus Student Care Team (SCU CARE).

If you would like to reach out directly to the Student Care Team for assistance, you can contact

them at [www.scu.edu/osl/report](http://www.scu.edu/osl/report). If you would like to talk to the Office of EEO and Title IX directly,


they can be reached at 408-554-3043 or by email at [bjguthrie@sccu.edu](mailto:bjguthrie@sccu.edu). Reports may be submitted online through [www.sccu.edu/osl/report](http://www.sccu.edu/osl/report) or anonymously through Ethicspoint: [www.ethicspoint.com](http://www.ethicspoint.com). Additionally, you can report incidents or complaints to the Office of Student Life (OSL), Campus Safety Services, and local law enforcement. For confidential support, contact the Counseling and Psychological Services office (CAPS), the YWCAYMCA, or a member of the clergy (for example, a priest or minister). Finally, please be aware that if, for some reason, our interaction involves a disruptive behavior, a concern about your safety or the safety of others, or potential violation of University policy, I will inform the Office of Student Life. The purpose of this is to keep OSL apprised of incidents of concern, and to ensure that students can receive or stay connected to the academic support and student wellness services they need.




## COURSE SCHEDULE

### I. INTRODUCTION

The first part of the class will offer a brief introduction into the somewhat strained relationship between religion and science as it is commonly perceived. We will trace back the problem historically and identify some of the underlying questions that need to be addressed in order to newly evaluate the relationship of the two ways of exploring reality.

#### 1. Tuesday, September 22: Introduction to Class


 The first day of class will give an introduction into the structure as well as the main objectives of the class. We will talk about the goals, objectives, and requirements of the class.





-  Class organization.
-  Student requirements.
-  Syllabus.


### II. ANALYSIS OF THE INTERLOCUTORS

Before we can address the issue of their relationship, we will have to examine what religion and science are. In particular, we will explore whether we are dealing with two disciplines and, if so, what their specific metaphysical and methodological presuppositions are. What exactly is science, what religion? And how are they done? Are they diametrically opposed or do they perhaps share structural similarities? To answer these questions we will turn to the philosophy of religion and to the philosophy of science.

#### 2. Thursday, September 24: What is Science?

 The unit will establish the metaphysical foundations of the natural sciences. Scientists assume the universe to be intelligible and that empirical inquiry into natural phenomena gives us objective knowledge of reality. The underlying assumption is that scientific theories have ontological correlates in nature and apply universally.

-  The metaphysical foundations of the natural sciences.
-  The distinction between epistemological and ontological aspects of the scientific endeavor.
-  The difference between "explanation" and "understanding."
-  The difference between deductive and inductive reasoning.

 Alfred North Whitehead, "The Origins of Modern Science," in *Science and the Quest for Reality*, edited by A.I. Tauber (New York: New York University Press, 1997), 53-69.

- The difference between "authority" and "power."
  - methodological starting point.
  - Specific teachings of a religious tradition (e.g., Catholic Magisterial teaching) as a
  - Special revelation as a methodological starting point.
  - Experience as a methodological starting point.
  - Types of theological methods.
- ☰
- Theology?"?)? How does theology view experiences and reflect upon them?

! This unit addresses the methodological underpinnings of the theological project. How is theology progressing from the starting points we established in the previous unit ("What is

5. Tuesday, October 6: Theological Method

- Brennan R. Hill, Paul Knitter, and William Madges, *Faith, Religion and Theology: A Contemporary Introduction*, revised and expanded edition (New London: Twenty-Third Publications, 1997), 285-311.
  - Experiences and their interpretations vis-à-vis personal and general revelation.
  - Faith as ultimate concern.
  - Theology as a science.
  - *Fides quaerens intellectum*.
- ☰

! Here we will ask how theology differs from religion. The unit will seek to establish the metaphysical foundations of theology. By doing so, it will try to establish theology as the science of faith. In other words, theology is an epistemological undertaking and in this sense differs significantly from religion insofar as the latter can involve ontological perspectives.

4. Thursday, October 1: Theology – The Science of Faith

Brief Response 1 due today!

- Karl Popper, "Science: Conjectures and Refutations," [Edited version] in *Introductory Readings in the Philosophy of Science*, edited by E.D. Klemke, R. Hollinger, and A.D. Kline, revised Edition (Buffalo: Prometheus Books, 1988), 19-27.
  - Thomas Kuhn, "The Route to Normal Science," in *The Structure of Scientific Revolutions*, 3<sup>rd</sup> edition (Chicago: University of Chicago Press, 1996), 10-22.
  - Paul Feyerabend, "How to Defend Society Against Science," in *Introductory Readings in the Philosophy of Science*, edited by E.D. Klemke, R. Hollinger, and A.D. Kline, revised Edition (Buffalo: Prometheus Books, 1988), 34-44.
- ☰
- The status of "objective knowledge" in light of human historicity and methodological implications.
  - The limits of the scientific enterprise.
  - Normal science.
  - Paradigms and paradigm shifts.
  - Anything goes.

! Can scientific theories be distinguished from non-scientific or pseudo-scientific theories? Philosopher of science Karl Popper asked this question at beginning of the 20<sup>th</sup> century and offers an intriguingly simple solution to the problem of a potential demarcation. As Ellis and Silk's recent opinion piece in the scientific journal *Nature* suggests, Popper's principle of falsifiability is still held dear by many scientists today. But Popper's proposal did not stay unchallenged. Thomas Kuhn offers an historical analysis of how science advances and proposes the idea of paradigm shifts, while Paul Feyerabend finds an overly reductionistic view of reality dangerous and insists that anything goes.

3. Tuesday, September 29: The Scientific Method

- The differences between dogmatic and fundamental theology (or, in American terms, between systematic and philosophical theology).
- Paul Tillich, "The Problem of Theological Method II" *Journal of Religion* 27, no. 1 (1947), 16-26.

### III. WAYS OF RELATING RELIGION AND SCIENCE

After having looked at what characterizes both enterprises we will now move to a closer look at how religion and science have been related to each other. Here, typologies proposed by thinkers like Ian Barbour, John Haught, or Ted Peters have proven quite helpful, which is why we will use them as a starting place for our conversation.

#### 6. Thursday, October 8: Relating Religion and Science I: Conflict & Independence

One way the relationship between religion and science can be seen is as an eternal, irresolvable conflict. Such a position requires certain metaphysical assumptions, which in themselves might be questionable. Alternatively, one way to avoid conflict is to keep the two realms entirely separate. This type of relationship is characterized by the assumption that religion and science are neither contradictory nor reconcilable, but rather two entirely separate intellectual endeavors divided by question and method.

- Scientific materialism.
- Biblical literalism.
- Science and scientific imperialism.
- Contrasting methods.
- Differing languages.
- NOMA principle.
- Ecclesiastical authoritarianism.
- Ian G. Barbour, *Religion and Science: Historical and Contemporary Issues* (San Francisco: HarperSanFrancisco, 1997), 77-89.
- John Haught, *Science and Religion: From Conflict to Conversation* (New York: Paulist Press, 1995), 9-17.
- Ted Peters, "Science and Theology: Toward Consonance," in *Science and Theology: The New Consonance*, edited by T. Peters (Boulder: Westview Press, 1998), 13-18.

#### 7. Tuesday, October 13: Relating Religion and Science II: Dialogue & Integration

Barbour, Haught, and Peters envision yet another, more productive way religion and science can interact. As they see it, a dialogue between equal conversation partners is desirable – and possible. In this section we will explore what such a dialogue would look like. For some, like Thomas Aquinas or Ian Barbour, the aim of relating religion and science is not merely a fruitful dialogue, but an integration of both into one worldview grounded in a comprehensive metaphysics. We shall explore this idea in today's class.

- Limit questions.
- Methodological parallels.
- Nature-centered spirituality.
- Natural theology.
- Theology of nature.
- Systematic synthesis.
- Ian G. Barbour, *Religion and Science: Historical and Contemporary Issues* (San Francisco: HarperSanFrancisco, 1997), 90-105.
- John Haught, *Science and Religion: From Conflict to Conversation* (New York: Paulist Press, 1995), 17-25.



- Ted Peters, "Science and Theology: Toward Consonance," in *Science and Theology: The New Consonance*, edited by T. Peters (Boulder: Westview Press, 1998), 18-21.

**Brief Response 2 due today!**

**IV. HISTORICAL ISSUES IN RELIGION AND SCIENCE**

Before we look at the status quo of the contemporary research in religion and science we will investigate the history of the relationship between the two fields. Is it really true that they were at odds with each other, diametrically opposed and hopelessly irreconcilable? Did the rift between them occur with the Scientific Revolution? These are some of the questions that will guide the fourth part of this class:

**8. Thursday, October 15: The Galileo Case**

- ! We begin with the Galileo case. Legend has it that Galileo broke with Aristotelian physics and was punished severely for it by the Inquisition. We will explore whether Galileo truly abandoned what came before and disagreed with his critics on what made good science.
- ☰ Galileo and the Catholic Inquisition.
- Loss of Aristotelian physics.
- ☹ William E. Carroll, "Galileo and the Inquisition," *Journal of Religion and Society* 1 (1999), 1-19.

**9. Tuesday, October 20: Charles Darwin's Theory of the Evolution of Species and its Reception**

- ! In this section we take a look at the reception of Charles Darwin's theory of evolution by means of natural selection. Was Victorian England really outraged because the theory contradicted the Genesis account of human creation? Did theologians really fight Darwinism on all fronts, as common opinion has it?
- ☰ Darwin and Natural Selection.
- Reception of Darwin.
- ☹ John Hedley Brooke, "Darwin and Victorian Christianity," in *The Cambridge Companion to Darwin*, 2<sup>nd</sup> edition, edited by Jonathan Hodge and Gregory Radick (Cambridge: Cambridge University Press, 2009), 197-218.

**10. Thursday, October 22: Of New Atheists and Anti-Evolutionary Biblical Literalists**

- ! The conflict between religion and science, which developed at the closing of the nineteenth century, came to its fullest in the twentieth century. It is this conflict Ian Barbour characterizes in his first category of interaction. Today we will take a closer look at "New Atheism" on the one hand, and at biblical literalism on the other.
- ☰ God as scientific hypothesis.
- Science as the only way to the truth.
- Reading the Scriptures literally.
- The Bible as the only reliable truth.
- ☹ Richard Dawkins, *The God Delusion* (Boston: Mariner Books, 2006), excerpts.
- Ken Ham, *The Lie: Evolution*, 25<sup>th</sup> Anniversary Edition (Green Forest: Master Books, 2012), excerpts.

**11. Tuesday, October 27: Midterm Exam**

- ! In preparation for today's Midterm Exam, a comprehensive review of all lectures and readings is necessary!

- Soul-making
- Creativity defense.
- Theodicy
- Natural selection and suffering.
- Parasites.
- Omnibenevolence.
- Omniscience.
- Omnipotence.

infinite, whence then is evil? This will be the guiding question for this section. possesses the power to prevent such suffering, and loves each and every organism fibrosis alike. For the believer, a difficult question arises: If God knows of all suffering, changing genetic information, thereby producing new adaptive qualities and cancer or cystic hope but more often terrible suffering. Nature experiments dispassionately, randomly of natural selection, where the weak fall prey to the strong, where mutations offer occasional notion of an omniscient, omnipotent, and omnibenevolent God? Evolution works by means How can the immense suffering we find in nature be reconciled with the Judeo-Christian

### 13. Thursday, November 3: Suffering in Nature and the God of Love

#### Outline for Critical Essay due today!

- Kile Jones, "Falsifiability and Traction in Theories of Divine Action," *Zygon* 45, no. 3: 575-589 (2010).
- Traction.
- Noninterventionist Objective Divine Action (NODA).
- General divine action.
- Counterfactual principle.

theological proposals regarding divine action in light of the natural sciences. God act *through* the laws of nature? We will address these questions and discuss some so, would this not make God dwindle and eventually disappear? On the other hand, could explanation be explained in the near future once science has advanced far enough? And if laws of nature? If so, could not what is perceived as a miracle for lack of scientific operate on clear underlying laws. Is divine action only possible where God suspends the particular is the question of how a fully transcendent God could act in a world that seems to One problem for many concerned about the intersection of theology and science in

### 12. Thursday, October 29: Divine Action and the Laws of Nature

In this final part of the class we will look at current issues in religion and science and how they are being addressed by researchers in the field. Here now, the focus lies on specific questions that arise in the intersection of religion with physics, biology, and technology. For example, we will ask how Big Bang cosmology and creation theology can be related productively to one another. Similarly, we will investigate whether it is possible to construct a theology of becoming that equally takes seriously traditional creation theology as well as modern evolutionary biology. Finally, we will take a look at the ethical implications of some recent technological achievements through a lens of moral theology.

## V. DIALOGUES IN RELIGION AND SCIENCE

- Philosophical and methodological foundations of the natural sciences.
- Philosophical and methodological foundations of religion/theology.
- Types of relationships between religion and science.
- Historical issues in religion and science.
- All readings up to this point.

- Omega point.
  - Active self-transcendence.
  - Mechanism of biological evolution.
  - Darwinian evolution.
  - Protology.
  - Biblical creation story.
- ☰
- integration is possible.
- and evolutionary biology and see whether some type of consonance or perhaps even will try another approach. We will take a look at the main claims of both creation theology the US that falls square into the conflict model of relating theology and science. Here, we creation theology to evolutionary biology. This is primarily the case due to a public debate in One of the perhaps biggest issues in theology and science today is the relationship of

16. Thursday, November 12: Biological Evolution and Theology

- ☰
- Strong Anthropic Principle.
  - Weak Anthropic Principle.
  - Fine-tuning.
  - Fundamental physical constants.
- ☒
- George F.R. Ellis, "The Theology of the Anthropic Principle," in *Quantum Cosmology and the Laws of Nature: Scientific Perspectives on Divine Action*, edited by Robert J. Russell, Nancy Murphy, and C.J. Isham (Vatican City State: Vatican Observatory; Berkeley: Center for Theology and the Natural Sciences, 1993), 367-405.

15. Tuesday, November 10: The Anthropic Principle and Creation Theology

- ☰
- Strong Anthropic Principle.
  - Weak Anthropic Principle.
  - Fine-tuning.
  - Fundamental physical constants.
- ☒
- William Stoeger, "God, Physics, and the Big Bang," in *The Cambridge Companion to Science and Religion*, edited by P. Harrison (New York: Cambridge University, 2010), 173-189.

Brief Response 3 due today!

☒

It is now generally believed that the universe began expanding from a singularity during the Planck era ( $t = 0$  to  $10^{-43}$  s after the Big Bang began) some 13.8 billion years ago. As of now, physics is unable to describe the universe during the Planck era, but the evidence that the universe started in such a singularity is overwhelming. How are theologians to respond to this insight? Can we say that God created the Big Bang? Is the idea of  $t = 0$  evidence for a *creatio ex nihilo*, a creation out of nothing?

14. Thursday, November 5: Big Bang Cosmology and *Creatio ex nihilo*

- Love defense.
- Oliver Putz, "Love Actually: A Theodicy Response to Suffering in Nature. In *Dialogue with Francisco Ayala*," *Theology and Science* 7, no. 4 (2009), 345-361.

Artificial intelligence and android robots are no longer only the stuff of science fiction novels. Even if computers and/or robots as of yet cannot match R2D2 and Hal, the fields of robotics and AI have advanced quite a bit. Yet, the question whether it will ever be able to construct a machine capable of consciousness and able to pass the Turing test convincingly is still an open one. If indeed such AI would be possible, what are the theological implications? Would a self-conscious machine be also conscious of the transcendent? Would it be in the divine image?

19. Tuesday, December 1: Computer Technology and Artificial Intelligence

Monday, November 23 – Friday, November 27: Thanksgiving Break

**Brief Response 4 due today!**

- Karl Rahner, *Foundations of Christian Faith: An Introduction to the Idea of Christianity*, trans. by William V. Dych (New York: Crossroads, 1978), 178-193.
  - Teilhard de Chardin, "Christianity and Evolution: Suggestions for a New Theology," in *Christianity and Evolution* (San Diego: Harvest Book, 1974), 173-186.
- Critical Essay due today!**
17. Tuesday, November 17: The Human Being in Religion and Science
- One of the central issues in the contemporary conversation between religion and science is anthropology, the study of the human being in all its forms. What is the human being, where does it come from, and where is it heading? Is humanity still evolving? If so, what is God's role in this ongoing evolution? Is the theological notion of the *tselem Elohim*, the image of God, in which according to at least Judeo-Christian doctrines of creation humanity is created, reconcilable with biological views on human evolution? These are the questions we will discuss today.
- Human uniqueness in theology and science.
  - Paleoanthropological insights and emergence of religion.
  - Nonhuman animals and the divine.
  - Joshua M. Moritz, "Evolution, the End of Human Uniqueness, and the Election of the *Imago Dei*," *Theology and Science* 9, no. 3 (2011), 307-339.

18. Thursday, November 19: Religion and the Ecological Crisis

One of the perhaps most important, certainly most pressing questions for scholars in religion and science today is that of how religions should respond to the ecological crisis and what science can gain from religious insights. This question became central almost 50 years ago, when historian Lynn White Jr. argued that the responsibility for the ecological crisis lies square on the shoulders of Judeo-Christian anthropology.

- Origin of science.
- Marriage of science and technology.
- Theological rationality.
- Apologetic response.
- Sacramental response.
- Eschatological response.

- Lynn White, Jr., "The Historical Roots of Our Ecological Crisis," *Science* 155, no. 3767: 1203-1207 (1967).
- John Haught, "Christianity and Ecology," in *This Sacred Earth: Religion, Nature, Environment*, edited by Roger S. Gottlieb (New York: Routledge, 1996), 270-285.

- AI.
- Robots:
- Image of God.
- Noreen Herzfeld, "Creating in our Own Image: Artificial Intelligence and the Image of God," *Zygon* 37, no. 2: 303-316 (2002).

20. Thursday, December 3: Summary and Review

- In our last meeting we will review the class and come to some conclusive remarks about the possibility of a dialogue between religion and science.
- None.

21. Tuesday, December 8: Final Exam

- In preparation for today's Final Exam, a comprehensive review of all lectures and readings since the Midterm Exam is necessary!
- Divine action and laws of nature.
- Physics and religion.
- Biology and religion.
- Technology and religion.
- All readings from the Midterm Exam to this point.

COURSE OVERVIEW

PART I: INTRODUCTION

1. Tuesday Sep 22: Introduction to Class

PART II: ANALYSIS OF THE INTERLOCUTORS

2. Thursday Sep 24: What is Science?  
3. Tuesday Sep 29: The Scientific Method, **Brief Response 1 due!**  
4. Thursday Oct 1: Theology – The Science of Faith  
5. Tuesday Oct 6: Theological Method

PART III: WAYS OF RELATING RELIGION AND SCIENCE

6. Thursday Oct 8: Relating Religion and Science I: Conflict & Independence  
7. Tuesday Oct 13: Relating Religion and Science II: Dialogue & Integration, **Brief Response 2 due!**

PART IV: HISTORICAL ISSUES IN RELIGION AND SCIENCE

8. Thursday Oct 15: The Galileo Case  
9. Tuesday Oct 20: Charles Darwin's Theory of the Evolution of Species and its Reception  
10. Thursday Oct 22: Of New Atheists and Anti-Evolutionary Biblical Literalists  
11. Tuesday Oct 27: Midterm Exam

PART V: DIALOGUES IN RELIGION AND SCIENCE

12. Thursday Oct 29: Divine Action and the Laws of Nature, **Outline for Critical Essay due!**  
13. Thursday Nov 3: Suffering in Nature and the God of Love  
14. Thursday Nov 5: Big Bang Cosmology and *Creatio ex nihilo*, **Brief Response 3 due!**  
15. Tuesday Nov 10: The Anthropoc Principle and Creation Theology  
16. Thursday Nov 12: Biological Evolution and Theology, **Critical Essay due!**  
17. Tuesday Nov 17: The Human Being in Religion and Science  
18. Thursday Nov 19: Religion and the Ecological Crisis, **Brief Response 3 due!**  
**Monday, November 23 – Friday, November 27: Thanksgiving Break**  
19. Tuesday Dec 1: Computer Technology and Artificial Intelligence  
20. Thursday Dec 3: Summary and Review  
21. Tuesday Dec 8: Final Exam