

# Student Report Topics: Cosmic Origins



# Student Report

## *Requirements report Cosmic Origins:*

- 1) The essays will have to be written in groups of 2 persons
- 2) length: 20-25 pages
- 3) Language: English  
(Dutch upon request)
- 4) Includes figures and reference list
- 5) Procedure:
  - chose topic from list following pages,
  - or define alternative topic yourself
  - contact lecturer (email) on your choice
  - upon approval you can set to work
- 6) Text should be a critical discussion/review of existing literature  
(always include references to literature used !)
- 7) Deadline: March 1, 2017

# Student Report Topics: Cosmology & Civilizations

*Describe the (mythical) cosmology of one of the following civilizations/cultures:*

- **Aboriginals**
- **Neolithic Near-East  
(Catal Huyuk)**
- **Neolithic Europe  
(Stonehenge)**
- **Celts**
- **Ancient Egyptians**
- **Ancient Sumerians**
- **Ancient Babylonians**
- **Ancient Persians**
- **Ancient Greeks (mythical)**
- **Ancient Chinese**
- **Norse (Germanic, Icelandic)**
- **Maya**
- **Aztec**
- **Inca**
- **Navajo**
- **Cree  
(& North-American Indians  
of the plain)**
- **Northwest Coast Indian**
- **Inuit**
- **Siberian tribes**
- **Polynesian**

# Student Report Topics: Cosmology & Religion

*Describe the answers to cosmological questions in the theology of:*

- Hinduism
- Jainism
- Zoroastrianism  
(Zarathustra & ancient Persia)
- Manicheism & Mani
- Buddhism & Buddha
- Taoism
- Confucianism & Chinese Cosmology
- Judaism
- Christianity (Western)
- Byzantine (Eastern-Orthodox) Christianity
- Islam
- Sufi Islam

# Student Report Topics: Cosmology & Philosophers

*Describe the cosmological worldview of one of the following philosophers/philosophies:*

- Thales
- Anaximander
- Pythagoras
- Democritus
- Epicurus
- Plato
- Aristoteles
- Lucretius
- Ptolemaeus
- Fakhr ad-Din ar-Razi
- Giordano Bruno
- Rene Descartes
- Baruch Spinoza
- Christiaan Huygens
- Immanuel Kant

# Student Report Topics: Cosmology & Art

*Describe cosmological issues adressed in/by*

- Edgar Allen Poe (poem Eureka)
- Tolkien (Legendarium)
- Flying Spaghetti Monster

# Student Report Topics: Cosmology & Scientists

*Describe the contributions to our cosmological worldview by one of the following scientists:*

- Aristoteles
- Aristarchus
- Ptolemaeus
- Nasir al-Din al-Tusi
- Copernicus
- Johannes Kepler  
(Mysterium Cosmographicum)
- Galileo Galilei
- Christiaan Huygens
- Isaac Newton/Newtonian  
Cosmology
- William Herschel
- Jacobus Kapteyn
- Albert Einstein
- Vesto Slipher
- Edwin Hubble
- Alexander Friedman
- Georges Lemaitre
- George Gamow
- Fred Hoyle
- Yakov Zeldovich

# Student Report Topics: Physical Cosmology

## *Topics in physical cosmology*

- From Kant to Shapley and Hubble
  - discuss the ideas on the identity of nebulae, and their establishment as galaxies
- From Slipher to Lemaitre and Hubble:
  - describe the discovery of the expanding Universe, both the observational development as well as theoretical interpretations
- Hoyle versus Gamow  
Steady State universe vs. Big Bang Universe  
Describe the rationale behind both worldviews, and the observational tests that finally clinched the verdict
- Einstein's Blunder  
Describe the history of the cosmological constant  $\Lambda$ , from Einstein's introduction to its discovery in 1998/2003 and Nobel prize in 2011.



# Student Report Topics: Physical Cosmology

## *Topics in physical cosmology*

- **Echo from the Big Bang**
  - describe how the discovery of the Cosmic Microwave Background has provided the ultimate proof of the Big Bang, and ultimately lead to the era of precision cosmology
- **Fate of the Universe**
  - describe the future evolution of the Universe, within the context of the present Lambda-dominated cosmology. Includes the issue of a dwindling horizon, and “the end of Cosmology”
- **Multiverse**
  - according to inflationary universe models, there might be a large number of universes outside of our own. Give a discussion of these cosmological models.