

The background of the slide is a vibrant, abstract representation of a cosmic scene. It features a dark blue and purple space filled with numerous small, colorful stars and galaxies. In the foreground, there are large, dark, rocky structures that resemble ancient stone pillars or a monumental architectural complex, possibly a megalithic site. The overall atmosphere is mysterious and awe-inspiring, suggesting the vastness and complexity of the universe.

# Cosmic Origins

Lecture Course Minor Astronomy  
University of Groningen  
November 2019-January 2020

# Practical Matters

Agenda:              Monday              19:00-21:00              Heymanszaal  
                                 Friday                      15:00-17:00              Kapteynborg, Zernike campus  
                                    5419.0008

Lectures:            - 12 lectures/hoorcolleges              Monday: 8  
                                    Friday: 4  
                                 - 4 tutorial/werkcolleges              Friday: 4

Lecturer:            Rien van de Weygaert

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[weygaert@astro.rug.nl](mailto:weygaert@astro.rug.nl)

Lecture website: [http://www.astro.rug.nl/~weygaert/cosmic\\_origins2019.html](http://www.astro.rug.nl/~weygaert/cosmic_origins2019.html)

# Exam

- |                                 |     |
|---------------------------------|-----|
| 1. Written exam (Jan. 21, 2020) | 65% |
| 2. Tutorial Group assignments   | 35% |

# Topics/Agenda I.

- **Lecture 1, November 12**

Introduction

Cosmology, the Search for the Origin of our World  
the Fundamental Questions of our Existence

- **Lecture 2, November 16**

Cosmology Timeline

- **Lecture 3, November 19**

Gods and Myths: Genesis of our World

- **Lecture 4, November 23, tutorial**

Tutorial: the Fundamental Cosmological Questions: society responds ...

- **Lecture 5, November 26,**

Cosmology: the philosophy of our world

- **Lecture 6, November 30**

Order in the Cosmos:  
how the Babylonians and Greeks rationalized the heavens

# Topics/Agenda II.

- **Lecture 7, December 3**

  - the Cosmos Mechanized: Hellenistic Cosmology

- **Lecture 8, December 7**

  - the Cosmos Mechanized:  
a case study: the Antikythera Mechanism

  - Tutorial: a Cosmic Debate between Worldviews

- **Lecture 9, December 10**

  - the Scientific Revolution: the Mechanization of Nature

- **Lecture 10, December 14**

  - Tutorial: the Fundamental Cosmological Questions: society responds II ...

- **Lecture 11, December 17**

  - the Dynamical Universe  
Einstein, Gravity and the Dynamics of our Universe

- **Lecture 12, December 21**

  - the Big Bang

# Topics/Agenda III.

- **Lecture 13, January 7**

Kant to Hubble:  
on Island Universes and the Size of our World

the Universe expands !

- **Lecture 14 January 11**

Tutorial: a Cosmic Debate between Worldviews II

- **Lecture 15, January 14**

the Hot Big Bang:  
journey to the very first moments of our Cosmos ...

- **Lecture 16, January 18**

the Cosmic Web  
the emergence of complexity in the Universe

# Literature

- Lecture Notes (ppt slides etc.)
- Cosmos,  
an illustrated history of astronomy and cosmology  
John North, 2<sup>nd</sup> ed., 2008, Univ. Chicago Press (paperback)
- Cosmology, the Science of the Universe  
E. Harrison, 2<sup>nd</sup> ed., 2000, Cambridge Univ. Press
- Conceptions of Cosmos:  
From Myths to the Accelerating Universe: A History of Cosmology  
H. Kragh, 2013, Oxford Univ. Press
- the History and Practice of Ancient Astronomy  
J. Evans, 1998, Oxford Univ. Press
- Ancient Cosmologies  
ed. C. Blacker, M. Loewe, 1975, George Allen & Unwin Ltd.