GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2016-2017

Astrophysics from Space (C002851)

Course size (nominal values; actual values may depend on programme)

Credits	4.0	Study time	110 h	Contact hrs	17.5 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	English	lecture	17.5 h

Lecturers in academic year 2018-2019

Baes, Maarten	WE05	lecturer-in-charge
Waelkens, Christoffel	KUL	co-lecturer

Offered in the following programmes in 2018-2019	crdts	offering
Master of Science in Space Studies	4	A

Teaching languages

English

Keywords

Astrophysics, space studies, satellites

Position of the course

Astrophysics is one of the cornerstones of the scientific programmes of the various space organizations. This course presents the various astrophysics space programs, the most important astrophysics space missions and the scientific highlights from space astrophysics in the different wavelength regions.

Contents

- Introduction
- Optical astronomy: overview and missions
- Optical astronomy: scientific highlights (extragalactic distance scale, Hubble Deep Field, supermassive black holes, stellar evolution)
- Infrared astronomy: overview and missions
- Infrared astronomy: scientific highlights (starburst galaxies, CMB, star and planet formation)
- Radio astronomy from space
- High energy astronomy: overview and missions
- High energy astronomy: scientific highlights (X-ray background radiation, galaxy clusters, X-ray binaries, gamma ray bursts)

Initial competences

Space science and exploration (C002845)

Final competences

1 Know the most important players in space and the astrophysics part of their science program.
2 Discuss the necessity, advantages and disadvantages of astrophysics from space in the various wavelength regions.
3 Describe the main innovations and properties of the most important astrophysics space missions.
4 Discuss the scientific highlights of astrophysics from space in the frame of the different space missions.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture

Learning materials and price

English syllabus (free)
Presentations are available online

References

- Astrophysical Techniques - ISBN 0750309466
- High-energy Astrophysics - ISBN 9780691140292
- Electronic Imaging in Astronomy - ISBN 9783540765820
- The Universe in Gamma Rays - ISBN 9783540678748
- The Universe in X-Rays - ISBN 9783540344117
- 400 Years of Astronomical Telescopes - ISBN 9789048122325

Course content-related study coaching

The material is thoroughly explained during the lectures. The lecturers are available for additional coaching.

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Written examination, oral examination

Examination methods in case of periodic evaluation during the second examination period

Written examination, oral examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Oral exam with written preparation

Calculation of the examination mark

Oral exam with written preparation: 100%