

Introduction to Astronomy (C003016)

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

Credits 6.0 Study time 180 h Contact hrs 52.5 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	Dutch	seminar: coached	20.0 h
		exercises	
		practicum	2.5 h
		lecture	30.0 h

Lecturers in academic year 2018-2019

De Rijcke, Sven	WE05	lecturer-in-charge
Caluwaerts, Steven	WE05	co-lecturer

Offered in the following programmes in 2018-2019

	crdts	offering
Bachelor of Arts in Archaeology	6	A
Bachelor of Arts in Philosophy	6	A
Bachelor of Science in Physics and Astronomy	6	A
Bachelor of Science in Mathematics	6	A
Preparatory Course Master of Science in Physics and Astronomy	6	A

Teaching languages

Dutch

Keywords

General astronomy

Position of the course

The purpose of the course is to provide a general overview of contemporary astronomy. This course is a prerequisite for more advanced courses.

Contents

Astronomy as a part of our culture. History of astronomy. The constellations. Coordinates on the sky. Diurnal and annual motion. Time. Telescopes. Detectors. The most important emission line spectra. Radiation laws. Elementary photometry. The solar system. Planet atmospheres. The sun: hydrodynamical equilibrium, radiative equilibrium, energy production. Binary stars. White dwarfs. Neutron stars. Introductory stellar evolution. Stellar structure as a function of initial mass. H-R diagram. Star clusters and the distance scale.

Initial competences

The course is intended for students with little or no knowledge of astronomy, but who are able to follow a scientific argument and have basic skills in calculus.

Final competences

- 1 The student has a scientifically sound, albeit general, knowledge of the universe, including quantitative aspects.
- 2 He/she is able to perform order of magnitude calculations and has sufficient knowledge of astronomical instruments to be able to understand their purpose and parameters.
- 3 He/she understands the complementarity of astronomical observations in different parts of the electromagnetic spectrum, and understands the implications thereof on the astronomical methodology of knowledge acquisition.
- 4 The student has developed a critical and scientific attitude.

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, practicum, seminar: coached exercises

Extra information on the teaching methods

Exercises: tutorials. In addition, there is a practical exercise at the telescope.

Learning materials and price

Mandatory textbook: see references. Price: 60 €.

References

Fundamental Astronomy, H. Karttunen, P.Kroger, H. Oja, M. Poutanen, K.J. Donner, ISBN 978-3-540-34134-7, Springer

Course content-related study coaching

Both the lecturer and his assistant are available for additional coaching if necessary.

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions, open book examination

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

Written examination with open questions, open book examination

Examination methods in case of permanent evaluation

Report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

Theory: written.

Exercises: written, open book.

For the students with no Physics and Astronomy training, a differentiated exam will be prepared that tests their understanding of the relevant physical principles rather than their technical and mathematical skills.

Calculation of the examination mark

Theory: end-of-term evaluation. (8 points)

Exercises: permanent and end-of-term evaluation. (12 points)

The practical exercise at the telescope (5 points out of 12 points) is mandatory. The student cannot pass the course without it, unless other explicit arrangements have been made on an individual basis, before starting the course.

Important: generally, the finishing of the practical exercise will also take some time in the second semester. If that causes practical problems, the student must notify the lecturer in order to make special arrangements.