

SYLLABUS

Astrophysics and Cosmology 7.5 credits F0027T

Astrofysik och kosmologi

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2021-02-17**

Astrophysics and Cosmology 7.5 credits F0027T

Astrofysik och kosmologi

First cycle, F0027T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Fysik	Physics

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and F0004T Physics 1, Calculus M0029M, Linear Algebra and Calculus M0030M or equivalent.

Selection

The selection is based on 1-165 credits.

Course Aim

The course gives an overview of modern astrophysics and cosmology. Astrophysics deals with such phenomena in universe that can be explained by basic physics principles, and cosmology has to do with the overall structure of universe. The latest discoveries by space- and earth-based detectors, as well as the measuring techniques, will be covered. The course is a good basis for graduate diploma work.

Contents

The structure and development of the whole universe, galaxies, stars and solar systems are the central themes of the course. Experimental methods, detectors and various space missions are described. Special weight is given to so-called astroparticle physics, i.e. the coupling between the structure of universe and the properties of elementary particles in particular, when discussing the early Universe. Many new, and not so well understood, phenomena will be discussed, such as dark matter, quasars, gamma-ray bursts, neutron stars, the missing solar neutrinos, the cosmic background radiation and MACHOs. Among the homework assignments, one will be the writing of an essay and another a small "research" project.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.
Lectures.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.
Homework assignment.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0002	Assignments	G U 3 4 5	7.5	Mandatory	A13	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Head Faculty Programme Director Niklas Lehto 2021-02-17

Syllabus established

The syllabus was established by the Department of Applied Physics and Mechanical Engineering 2007-02-28, and remains valid from autumn 2007.