

Syllabus

for course at advanced level

Galaxies

Galaxer

7.5 Higher Education

Credits

7.5 ECTS credits

Course code:	AS7022
Valid from:	Autumn 2019
Date of approval:	2019-01-14
Department	Department of Astronomy
Main field:	Astronomy
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University 2019-01-14.

Prerequisites and special admittance requirements

Admission to the course requires knowledge corresponding to a Bachelor's degree in astronomy, physics, or similar. In addition, knowledge corresponding to the courses Introduction to astronomy, 7.5 credits (AS5005), Astrophysical spectra, 7.5 credits (AS5004) and Stellar structure and evolution, 7.5 credits (AS5002) is needed. Also required is knowledge equivalent to Swedish upper secondary school course English 6.

Course structure

Examination code	Name	Higher Education Credits
HELA	Galaxies	7.5

Course content

The course focuses on extragalactic astronomy with an emphasis on developing an understanding of the astrophysical processes related to the different properties which are displayed by different types of galaxies. The lectures and exercise sessions address the properties of different types of galaxies but mainly focus on the physical processes that are especially important for the evolution of galaxies: star formation, dynamical processes inside and between galaxies, chemical enrichment and mixing of the interstellar medium, radiative processes and dust, as well as active galactic nuclei. The course has a strong connection to active research and uses mandatory seminars during which the students discuss recent research literature.

Learning outcomes

Upon completion of the course, students are expected to be able to:

- describe different types of galaxies as well as which astrophysical processes are responsible for their different observable properties,
- qualitatively describe star formation in galaxies, galactic dynamics, chemical composition of galaxies, as well as their electromagnetic spectrum,
- execute calculations related to star formation and the initial mass function in galaxies, galactic dynamics, chemical composition of galaxies, as well as their electromagnetic spectrum,
- show understanding for how galaxies are affected, quantitatively and qualitatively, as they evolve and interact with each other,
- show good insight in and understanding for modern extragalactic research, as well as be able to discuss this in seminars.

Education

Instruction consists of lectures, group instruction, exercises and seminars. Participation in seminars and any associated integrated instruction is compulsory. In the event of special circumstances, the examiner may, after consultation with the teacher concerned, grant a student exemption from the obligation to participate in certain compulsory instruction.

Instruction will be in English.

Forms of examination

a. The course is examined as follows: Knowledge assessment takes the form of written examination and active participation in seminars. If the instruction is in English, the examination may also be conducted in English.

b. Grades will be set according to a seven-point scale related to the learning objectives of the course:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Fail, some additional work required

F = Fail, much additional work required

c. The grading criteria will be distributed at the beginning of the course.

d. In order to pass the course, students must receive a passing grade and participate in all mandatory instruction.

e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has received a passing grade on an examination may not retake the examination to attain a higher grade. A student who has failed the same examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the department board. The course includes at least two examination opportunities per year when the course is given. At least one examination opportunity will be offered during a year when the course is not given.

f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination session.

Interim

Students may request that the examination be conducted in accordance with this course plan even after it has ceased to be valid. However, this may not take place more than three times over a two year period after course instruction has ended. Requests must be made to the departmental board. The provision also applies in the case of revisions to the course plan.

Limitations

The course may not be included in examinations in combination with the course Galaxies (AS7007) or equivalent.

Misc

The course is part of the Master programme in astronomy but can also be read as a separate course.

Required reading

The course literature is decided by the department board and published on the Department of astronomy's website at least two months before the start of the course.