Department of Astronomy

Stockholm University

Syllabus

for course at advanced level

Galaxies
Galaxer

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	AS7007
Valid from:	Autumn 2007
Date of approval:	2006-09-27
Department	Department of Astronomy
Subject	Physics
Specialisation:	A1F - Second cycle, has second-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University 2006-09-27.

Prerequisites and special admittance requirements

To enter this course knowledge corresponding to a Bachelor's degree in physics, or similar, is required. In addition, basic knowledge about spectra, stellar physics, galaxies and cosmology corresponding to the courses Introduktion till galaxer och kosmologi, GN, 6hp (AS3001), Astrofysikaliska spektra, AN, 7,5hp (AS7006), Stjärnornas struktur och utveckling, AN, 7,5hp (AS7010), and Kosmologi, AN, 7,5hp (AS7009) is needed. Also required is knowledge equivalent to Swedish upper secondary school course English B, or equivalent to one of the following tests; Cambridge CPE and CAE: Pass, IELTS: 6.0 (with no part of the test below 5.0), TOEFL (paper based): 550 (with minimum grade 4 on the written test part), TOEFL (computer based): 213, TOEFL (internet based): 79.

Course structure

Examination code	Name	Higher Education Credits
TEN1	Exam	7.5

Course content

The course discusses extragalactic astronomy with emphasis on the origin and evolution of galaxies and with a strong connection to recent research results. The lectures concentrate on physical processes that are especially important for the formation and evolution of galaxies: star formation and the initial mass function, feedback from supernovae and stellar winds, dynamical processes within and between galaxies, chemical enrichment and mixing of the interstellar medium, active galactic nuclei, dust. The course to a large extent consists of seminars where the students discuss recent research literature. Each student then enters deeply into a specific subject that is chosen together with the teacher. This study is presented both in a written report and orally.

Learning outcomes

It is expected that the student after taking the course will be able to: describe and execute calculations regarding galaxy formation, the dynamics, chemical composition and the electromagnetic spectrum of galaxies - show understanding for how galaxies are affected, quantitatively and qualitatively, as Universe and its galaxies evolve and interact - show good insight in and understanding for modern extragalactic research, as well as discuss this at seminars - show deep understanding for modern research results and methods within a specific area, and to express this in written form and orally.

Education

The education consists of lectures, seminars and oral reports of a literature study. Participation in seminars and oral reports is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher.

Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge takes place through:: Written and/or oral examination, and/or hand-in exercises, written and oral presentation of literature study.

b. Grading is carried out according to a 7-point scale related to learning objectives: A = Excellent B = Very Good C = Good D = Satisfactory E = Sufficient Fx = Fail F = Fail c. Grading criteria for the course will be distributed at the start of the course. d. A minimum grade of E is required to pass the course, together with: a pass on laboratory work and reports associated with that, and active participation at all seminars and oral presentation. e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term “examination” here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

Interim

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

Misc

The course is a component of the Master's programme in Astronomy, but can also be taken as an individual course.

Required reading

Course literature is decided by the departmental board and is described in an appendix to the syllabus.