

Syllabus

for course at advanced level

Cosmology
Kosmologi

**7.5 Higher Education
Credits**
7.5 ECTS credits

Course code:	AS7009
Valid from:	Autumn 2008
Date of approval:	2006-09-27
Changed:	2008-10-13
Department	Department of Astronomy
Subject	Physics
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 2006-09-27, and was revised 2008-10-13.

Prerequisites and special admittance requirements

To enter this course knowledge corresponding to the first to years of a Bachelor's degree in Physics, or similar, is required. 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 includes the world models of general relativity, the expansion of the Universe, thermodynamics and nucleosynthesis in the early Universe, dark matter and dark energy, methods for measuring cosmological parameters, structure formation, the cosmic microwave background and the inflation model.

Learning outcomes

It is expected that the student after taking the course will be able to: describe the theoretical background to modern cosmology, the main outlines in the history of the Universe as well as contemporary presentations of problems in cosmology - describe and execute calculations regarding the dynamics of the Universe, its energy components, the cosmic background radiation, nucleosynthesis and thermodynamics in the early Universe, the inflation model as well as the origin of large scale structure - describe and execute calculations regarding observational methods which can be used to determine properties of the Universe - show in-depth knowledge about modern research results and methods within a special area of cosmology and to express this orally and in written form.

Education

The education consists of lectures, practical laboratory work, and exercises. Participation in the practical laboratory work and group education associated with this 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 examination, seminars, hand-in exercises, and written and oral report 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 F_x = 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: participation in compulsory lectures. 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.

Limitations

The course may not be included in a degree together with the courses "Kosmologi gk, 5p" (AI1340), or the equivalents.

Misc

The course is a component of the Master's programme in Astronomy, but it 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.