Syllabus
for course at advanced level
Stellar Structure and Evolution
Stjärnornas struktur och utveckling

Course code: AS7010
Valid from: Autumn 2007
Date of approval: 2006-09-27
Department: Department of Astronomy
Subject: Physics
Specialisation: A1N - Second cycle, has only first-cycle course/s as entry requirements

7.5 Higher Education Credits
7.5 ECTS credits

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 the first two years of a Bachelor's degree in physics, or similar, is required. In addition, at least 15 HECs in quantum physics corresponding to the first two parts of gk, 20p FY3150, 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

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Course content
The course includes the following topics: observational properties of stars, equations of state of gases, hydrostatic equilibrium, energy transfer, the relation between mass and luminosity, nuclear burning and nucleosynthesis, protostars and late stages of stellar evolution.

Learning outcomes
It is expected that the student after taking the course will be able to: describe observational properties of stars - describe the physical principles that govern the structure of stars - describe stages of evolution of stars - describe the nucleosynthesis and its dependence on stellar mass.

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.
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 grade on written reports for laboratory exercises. 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.

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 ”Stjärnornas struktur och utveckling gk, 5p” (AI1260), 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.