Department of Astronomy

Stockholm University

Syllabus

for course at advanced level

Planetary Systems
Planetsystem

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	AS7018
Valid from:	Autumn 2016
Date of approval:	2011-10-10
Changed:	2016-01-18
Department	Department of Astronomy
Main field:	Astronomy
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 2010-05-17 and was revised 2016-01-18.

Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to the first two years of studies within the bachelor programme in physics, as well as at least 15 hp in quantum mechanics, equivalent to Quantum Mechanics I, 7.5 hp (FK5011) and Quantum Mechanics II, 7.5 hp (FK5012). English B or equivalent

Course structure

Examination code	Name	Higher Education Credits
HELA	Planetary Systems	7.5

Course content

The course deals with structure of the solar system, the dynamics of planetary systems (Kepler's laws, the restricted three body problem), orbital elements, the Sun's effect on orbiting bodies, the interiors, surfaces and atmospheres of planets, the solar wind, meteorites and minor planets, comets, exo-planets, as well as an overview of planet formation theory.

Learning outcomes

Upon completion of the course, students are expected to be able to
- describe the structure of the solar system and the basic properties of its planets and their moons.
- determine the orbital parameters of planets and moons and the most important forces which determine these
- estimate the greenhouse effect in a planetary atmosphere and describe other atmospheric phenomena
- describe the classification of meteorites as well as the taxonomy of the minor planets.
- describe the general properties of exo-planets and how these are determined.
- provide a general description of the commonly accepted theories for planet formation.

Education

Instruction consists of lectures, exercises and practical laboratory work. Participation in exercises, laboratory work 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.

Forms of examination

a. The course is examined as follow: Knowledge assessment takes the form of a written exam. 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, a minimum grade of E is required together with:
• participation in exercises
• a pass on the written report for the practical laboratory work.
e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. As 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 examinations 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 syllabus even after it has ceased to be valid. However, this may not take place more than three times over a two year period after the course instruction has ended. Requests must be made to the departmental board. The provision also applies in the case of revisions to the course syllabus (and revisions of the course literature).

Misc

The course can be read as part of the bachelor or 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.