Linnæus University

Course syllabus

Faculty Board of Science and Engineering
School of Computer Science, Physics and Mathematics

2FY809 Kosmologi med relativitetsteori, 7,5 högskolepoäng
Cosmology and Relativity, 7.5 credits

Main field of study
Physics

Subject Group
Physics

Level of classification
First Level

Progression
G2F

Date of Ratification
Approved by Organisational Committee 2009-12-01

The course syllabus is valid from autumn semester 2010

Prerequisites
Physics 45hec, Mathematics 45hec.

Expected learning outcomes
Having completed the course the student is expected to:

- understand and be able to account for the structure of universe,its components and their evolution
- understand and be able to account for the Big Bang model and its experimental and theoretical background
- have basic knowledge of special and general relativity and its applications.

Content

- Cosmology: cosmography, stars and galaxies, observational cosmology and measurements, the cosmological principle,Robertson-Walker metric, the expansion and development of universe, background radiation, nucleosynthesis
- Relativity: Lorentz transformation, four vectors, metric, curved space, principle of equivalence, Schwarzschild metric, black holes, light bending, Einstein field equations.

Type of Instruction
Teaching consists of lectures and seminars.

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).
On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

Assessment of the student's performance is made through written examination and/or assignments which are presented orally and/or in written form. The assessment method is decided at the start of the course.
Students who do not pass the regular examination are given the opportunity to do a reset examination shortly after the
regular examination.

Course Evaluation

A written course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The course evaluation will be filed at the department.

Other

On request, a Swedish University course certificate will be awarded upon successful completion of the course.

Upon request, a Swedish University degree will be issued upon successful completion of the full demands for that degree.

Required Reading and Additional Study Material

Required reading

Rowan-Robinson, *Cosmology*, Oxford, 2004. Pages 150.
General relativity (compendium), phys. dept. Pages 40.
Contemporary articles, phys. dept. Pages 10.