Linnæus University

Course syllabus

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

1NT013 Naturvetenskap och teknik C för tidigare skolåren, 15 högskolepoäng

Natural Science and Technology C intended for the lower level of the Compulsory school, 15 credits

Main field of study
Biology, Physics, Chemistry, Technology

Subject Group
Educational Sciences/Theoretical Subjects

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved by the Board of the School of Computer Science, Physics and Mathematics 2009-12-15

Revised 2010-11-26. Revision made for prerequisites and course evaluation.

The course syllabus is valid from autumn semester 2011

Prerequisites
Natural Science and Technology A for the primary school years 15 credits (1NT011), and Natural Science and Technology B for the primary school years, 15 credits (1NT012) or the equivalent.

Expected learning outcomes

This course is expected to develop students' learning profession, with special emphasis on knowledge and skills in Natural Science and Technology for teaching in the primary school years and early years of the compulsory school system.
Having completed the course the student is expected to:

- be able to analyse the view on and quality of knowledge expressed in the guiding documents
- know about theoretical and practical implementation of natural science and technology in society
- independently be able to utilise didactical approaches to natural science and technology in learning situations so that all children and pupils learn and develop
- be able to implement natural scientific and technological work methods
- be able to identify and emphasise natural scientific and technological phenomena from different subject approaches in order to promote a general understanding

- understand natural science and technology in relation to questions about environment and ethics, as well as from historical- and global perspectives
- be able to have knowledge about natural science and technology and the importance for each individual's participation in a democratic society
- independently be able to examine and assess the pupils' learning in natural science and technology
- know about the importance of equality in education and in presenting subjects in relation to teaching natural science and technology
- demonstrate further development of a scientific approach to knowledge and information through understanding how to search, critically assess, value and gather information, and be able to transmit this knowledge unto others
- utilise skills regarding presentation- and communication techniques
- independently and in collaboration with other be able to plan, conduct, evaluate and develop teaching.

Content

The course content is:

- microbiology
- genetics
- atom- and nuclear physics
- astronomy
- applied chemistry
- applied biology
- the development of technology
- subject-integrated thematic work
- alternative energy sources.

This sub course includes biology 3.75 hec, physics 3.75 hec, chemistry 3.75 hec, and technology 3.75 hec. Forms of documentation: Digital portfolio.
IKT: The courses utilise a web based conference system as a means of communication. Computer searches are also utilised to a great extent.
The scientific approach of the students is further developed through writing reports and presentations of projects. The orientation emphasises a social constructive work method .

Type of Instruction

Lectures, laboratory work/practical assignments, seminars, and field trips. All examinations, seminars, laboratory work
sessions are obligatory.

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.

Written and/or verbal tests and/or presentations of obligatory assignments. The main form of examination is decided at the start of the course.
Students who do not pass the regular examinations are offered a new chance in close connection to time of the regular examination.

Course Evaluation

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

Other

A field trip is scheduled together with the students. Some expenses are paid for by the

student.
Having completed the training the student will receive a degree certificate upon request from the Graduation Office at the Division of Student Affairs

Required Reading and Additional Study Material

Obligatory literature

Hewitt, P, Suchocki, J & Hewitt, L, *Physical Science Explorations*, 1st Ed., Addison Wesley, 2003. Pages 115 (780).
Campbell, N, Reece, J & Simon, E, *Essential Biology with Physiology*, Pearson, 2004. Pages 150 (650).
Sundin, B, *Den kupade handen – människan och tekniken*, Carlssons Bokförlag, 2001. Pages 321 (321).
Cathcart, Brian, *Flugan i katedralen*, Santérus Förlag, 2006. Pages 354 (354).
Nordlab (WWW)
Andersson, B, *Elevers tänkande och skolans naturvetenskap*, (www.skolverket.se)
DFM, *Handouts*, Linnæus University, current year. Pages approx 200.

Reference literature

Flora of your own choice, a book about birds and
a book about fungi