Linnæus University

Course syllabus

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

1NT012 Naturvetenskap och Teknik B för de tidigare skolåren, 15 högskolepoäng

Natural Sciences and Technology B in Early School Years, 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 2009-08-11

Revised 2011-10-31. Literature list and content is revised.

The course syllabus is valid from spring semester 2012

Prerequisites
This course is open to students who have completed 1NT011, Natural Science and Technology A for the early school years, 15 ECTS credits, or equivalent.

Objectives

This specialization 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 analyze 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 utilize 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 emphasize 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

- utilize skills regarding presentation- and communication techniques
- independently and in collaboration with other be able to plan, conduct, evaluate and develop teaching

Content

- knowledge of species
- ecology
- evolution
- the structures and reactions of chemicals
- undulation
- electricity and magnetism
- everyday technical constructions
- project linked to practice.

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

Type of Instruction

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

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).
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.

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.

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

Students who do not pass the regular work field training as offered a second chance. A field trip is scheduled together with the students. Some expenses are paid for by the student.

Required Reading and Additional Study Material

Required reading

Hewitt Paul G., Suchocki, John & Hewitt, Leslie A. (2009). *Conceptual Physical Science Explorations*, 2 International Ed., ISBN10:0321561074

Nordlab (WWW)

Andersson, B,*Elevers tänkande och skolans naturvetenskap*,(www.skolverket.se).

DFM,*Stencils*,Linnæus University, current year. Pages approx 200.

Helldén Gustav, Jonsson Gunnar, Karlefors Inger, Vikström Anna (2010): *Vägar till naturvetenskapens värld - ämneskunskap i didaktisk belysning*: Liber Pages: 217 (217)

Pleijel Håkan(2003): Ekologiboken, Göteborgs universitet, Inst. För växt- och miljövetenskaper. Pages 120 (120) Kan hämtas på webb-adress http://www.dpes.gu.se/samverkan/publikationer

National policy documents for the schools and other material which is provided and recommended by the teacher will be added. Pages approx 200.

Reference Literature

Flora of your own choice, a book about birds
and a book about fungi.
Jakobsson, G.,*Vardagskemi*, Studentlitteratur 2003.Pages 206.