Linnæus University

Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

1MD302 Elevers lärande och begreppsutveckling i matematik, 15 högskolepoäng

1MD302 The Pupil's Learning and Concept Development in Mathematics, 15 credits

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
First Level

Progression
G1N

Date of Ratification
Approved 2009-09-08
Revised 2010-06-10 by School of Computer Science, Physics and Mathematics.
Revision made of literature list and course evaluation.
The course syllabus is valid from spring semester 2011

Prerequisites
General entry requirements and Mathematics 2a / 2b / 2c, Physics 1b1 / 1a or Mathematics B, Physics A (Field-specific entry requirements 7/A7).

Objectives

Having completed the course the student is expected to be able to

- analyse observed situations based on the curriculum, course syllabus, grade criteria, and national tests, as well as draw conclusions based on their own actions as teachers
- demonstrate an ability to utilise written arithmetic operations and analyse pupils' calculation skills
- demonstrate an ability to deal with important elements in mathematics based on the pupils' general understanding
- present an ability to plan and evaluate mathematical elements in a classroom
- demonstrate an ability to diagnose a mathematical element and analyse the result
- present the pupils' concept development and demonstrate an ability to utilise this

knowledge in didactical contexts
- present the concept of numbers from a historical perspective.

Content

- pupils' concept development in mathematics
- mathematics as a language: conversations – interviews – reasoning
- interpretations of pupil solutions
- strategies for the choice of and orientation in work methods
- promotion of pupils' interests for mathematics
- pupils' understanding – from the concrete to the abstract
- knowledge assessment: curriculum, course syllabus, grade criteria, and national tests
- the concept of numbers from a historical perspective
- analysis of calculation skills: tables, algorithms, mental arithmetic, and the calculator
- social and cultural aspects on learning and teaching mathematics.

Type of Instruction

Teaching consists of lectures, seminars and methodology sessions. The student's active participation is an important part of the teaching, individually and in groups, which requires attendance at seminars, methodology sessions and presentations.
This course is also offered as a distance tuition course.

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.

The course is examined through active participation at seminars, methodology sessions and presentations, as well as through a written exam and written and verbal presentations of individual tasks and group assignments.

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.

Required Reading and Additional Study Material

Required reading

Emanuelsson, G m fl (red)*Matematik – ett kommunikationsämne*. Nämnaren Tema, NCM. Göteborgs universitet, 1996. 150 pages (selection)

Emanuelsson, G m fl (red.)
Tidskriften *Nämnaren* NCM. Göteborgs universitet. Present year.

Kilborn W & Löwing L.*Baskunskaper I matematik*. Studentlitteratur, 2002. 250 pages (selection).

Lusten att lära –med fokus på matematik, Skolverket rapport nr 221, 2003. www.skolverket.se. 45 pages.

PRIM-gruppen. *Analysschema i matematik för tidiga skolår*, Skolverket, 2003. 62

pages.

Compendium, DFM. Linnæus University, current year. App. 400 pages.