



Course syllabus

Board of Education Science

School of Computer Science, Physics and Mathematics

2MD35U Matematik och lärande i förskoleklass och skolår 1-3, 16-30 hp - ingår i lärarlyftet, 15 högskolepoäng

2MD35U Mathematics teaching and learning in preschool class and compulsory school years 1-3 (16-30), 15 credits

Main field of study

Mathematics

Subject Group

Mathematics

Level of classification

First Level

Progression

G2F

Date of Ratification

Approved by School of Computer Science, Physics and Mathematics 2011-12-02
The course syllabus is valid from spring semester 2012

Prerequisites

Teacher's certificate or equivalent.

Objectives

After the course, students should:

- demonstrate an ability to analyze the mathematics content and methods
- be able to choose appropriate methods to perform calculations
- be able to describe the subject of mathematics not only as a stereotypical thinking with rules, but that imagination and creativity are key ingredients to see the structure, development and problem solving methods
- demonstrate good subject knowledge on the material covered in mathematics education in the preschool class and the school's early years
- demonstrate knowledge of current theories of how children's early math skills are developed
- demonstrate familiarity with the theories of mathematics as a language
- be able to show how both their own and their students' problem solving skills are developed
- be able to construct mathematical problems that are taken from the students'

immediate environment

- be able to deal with mathematical elements which are included in the preschool class and the school's early years with regard to children's varying requirements from a didactic point of view
- demonstrate an ability to work with the students' understanding of various mathematical concepts
- demonstrate the ability to analyze and evaluate the mathematical content and

forms of teaching.

Content

Knowledge of the basic mathematics of the early school years deepened and inserted into the educational context. Mathematical concepts concrete and their historical development are highlighted.

- Arithmetic: The natural numbers. Positioning System. The four operations of arithmetic. Basic fraction.
- Geometry: Space and time perception. Basic geometric concepts.
- Prealgebra. Pattern.

Child's encounter with mathematics: The role of language. Social and cultural aspects of learning and teaching of mathematics. Children's development related to learning of mathematics. Attitudes towards mathematics and mathematics teaching. Problem solving - Analyzing evolutionary strategies.

Pedagogical and methodological tools in mathematics education for preschool and compulsory school years: Policy document. Analysis of teaching materials. Methods and procedures. Calculators and computers in mathematics teaching. Diagnosis, evaluation and assessment skills.

Type of Instruction

The teaching is carried out in the form of lectures, group discussions, seminars, individual and/or group assignment and field studies. Course work requires participation and commitment.

The students will document and present their own reading and learning orally and in writing. The student must also demonstrate their mastery of that sum, looks and related context and from a scientific approach reflects on the course content.

Compulsory attendance is required or occurs during all or part of the course and this is apparent from the respective schedules or study guide.

Examination

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

Assessment varies according to course content. Oral and written presentations, individually and in groups as well as seminar occur.

Course Evaluation

Course participants can provide feedback during the course.

Course evaluation is done at the end of the course according to guidelines at DFM, Linnaeus University. The compiled course evaluation are filed at DFM.

Required Reading and Additional Study Material

Required Reading

Bergius, B., Emanuelsson, G. & Emanuelsson, L. (red) Matematik - ett grundämne. Nämnaren Tema, NCM. Göteborgs universitet, 2011. Pages 304

Kilborn, W. & Löving, M. (2003). Huvudräkning. En inkörsport till matematiken. Lund: Studentlitteratur. Pages 165

Skolinspektionen, Kvalitetsgranskning Rapport 2009:5 . Undervisningen i matematik –utbildningens innehåll och ändamålsenlighet

Skolverket, 2011, Läroplan för grundskolan, förskoleklassen och fritidshemmet, Lgr 11

- Current curricula in mathematics from the National Agency for Education
- Scientific articles
- Practice Materials