



## Course syllabus

Faculty of Technology

Department of Mathematical Education

1MD141 Matematikdidaktik 1 för 4-6 - Tal-rum- och begrepp, 7,5 högskolepoäng

Mathematics Education 1 years 4-6 - Numbers-spatial perception and concepts of mathematics, 7.5 credits

### **Main field of study**

Mathematics

### **Subject Group**

Mathematics

### **Level of classification**

First Level

### **Progression**

GIN

### **Date of Ratification**

Approved 2012-12-10

Revised 2013-08-19 by Faculty of Technology. Literature list and course evaluation are revised.

The course syllabus is valid from spring semester 2014

### **Prerequisites**

General entry requirements and English B, Mathematics B, Natural Science A, Civics A. or: Mathematics 2a/2b/2c, Natural Science 1b/1a1+1a2, Civics 1b/1a1 + 1a2

## Objectives

After completing this module the students will be able to:

- demonstrate advanced knowledge of and correctly use basic school mathematics with a focus on arithmetic (natural numbers, integers, rational numbers), numbers and spatial perception, number use, and concepts of mathematics
- apply knowledge of arithmetic (natural numbers, integers, rational numbers), numbers and spatial perception, number use, and concepts in mathematics in didactic activities with a focus on year 4-6
- be able to describe how students in pre-school up to year 3 develop their number perception and be able to build on this knowledge in year 4-6
- explain how mathematics in year 4-6 is the underlying mathematics of 7-9 with respect to the modules elements
- to account for various factors on students' desire and ability to learn mathematics
- explain and apply different forms of representation and working methods in mathematics presented in this module
- explain overall character of the development of mathematics and the history of ideas for this modules math elements.

## Content

The module addresses the student's own math skills in arithmetic, with a focus on number perception and number usage and concepts and building of concepts in mathematics combined with didactic perspective relevant to activities in year 4-6. The mathematical content discussed in relation to the abilities that form the basis of the primary school curriculum in mathematics. These abilities linked to mathematics content and the whole is highlighted by focusing on different approaches and strategies to support numbers and concept development. It also deals with factors affecting mathematics teaching in school and giving the desire and opportunity to learn mathematics. Mathematics subject characteristics and historical development are highlighted in a comprehensive, school-oriented perspective with a focus on mathematical constructs and ideas. Mathematics education as a research field is illustrated by studies of research articles relevant to primary school mathematics.

## Type of Instruction

The course is conducted through lectures, seminars, methodology sessions and practical sessions. Field study days may be included. Teaching always requires mandatory attendance.

Distance teaching is possible. When given as a distance course special forms of distribution are used appropriate for the method of teaching.

To attend this course you need a field study class or group of pupils.

## Examination

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

The course is assessed partial through active participation in seminars, method meeting and presentations, partial through written and oral presentations of individual and group assignments, and partial through written examination/home exam. Some of examinations are practical elements (field studies) that the student implements and presents. To receive a passing grade (G) the objectives has to be achieved.

Students who do not pass the regular examination will be offered a second examination within six weeks during the regular semester periods.

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 course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed by the coordinating department.

## Credit Overlap

The course overlaps 1MD131 with 7,5 credits, 1MD130 with 7,5 credits module 1, 1MD140 with 7,5 credits module 1.

## Required Reading and Additional Study Material

### Literature

Ahlberg , Ann & Wallby, Karin. Matematik från början (latest edition). Göteborg: Nationellt centrum för matematikutbildning, Univ.

Anderberg, Bengt & Källgården, Eva-Stina . Matematik i skolan: didaktik, metodik och praktik (latest edition). Stockholm: Bengt Anderberg läromedel

Malmer, Gudrun. Bra matematik för alla: nödvändig för elever med inlärningsvårigheter (latest edition). Lund: Studentlitteratur

Myndigheten för Skolutveckling. Mer än matematik- om språkliga dimensioner i

matematikuppgifter. (46 p). [www.skolverket.se/publikationer?id=1891](http://www.skolverket.se/publikationer?id=1891)

Sollervall, Håkan. Tal: och de fyra räknesätten (latest edition). Lund: Studentlitteratur

Skolverket. Läroplan för grundskolan, förskoleklassen och fritidshemmet 2011  
[www.skolverket.se/publikationer?id=2575](http://www.skolverket.se/publikationer?id=2575)

Dahl, Kristin & Nordqvist, Sven. Matte med mening (latest edition). Stockholm:  
Alfabeta bokförlag

Compendium and scientific articles, app 100 p.