



## Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

1MD38U Elever i behov av särskilda utbildningsinsatser i matematik, 7,5 högskolepoäng

1MD38U Pupils in need of special training measures in mathematics, 7.5 credits

### **Main field of study**

Mathematics

### **Subject Group**

Mathematics

### **Level of classification**

First Level

### **Progression**

G1F

### **Date of Ratification**

Approved by School of Computer Science, Physics and Mathematics 2012-06-26  
The course syllabus is valid from autumn semester 2012

### **Prerequisites**

Teacher qualification with a minimum of 15 credits in mathematics education or equivalent.

## Objectives

After completing the course the student should:

- be able to explain the importance of the educational organization and the social context for pupils' development of mathematical ability
- describe different reasons for difficulties in mathematics
- analyze and reflect the content of current research on difficulties in mathematics
- identify students' knowledge in mathematics through mapping
- identify the essential elements to good mathematical understanding
- plan, implement and evaluate teaching of mathematics for students in need of special training measures in mathematics.

## Content

The course deals with teaching of pupils in need of special training measures in mathematics. This refers to both pupils in mathematics difficulties and pupils with

aptitude in the subject matter.

The course covers the following topics:

- the importance of different aspects of learning of mathematics
- different models to explain difficulties in mathematics
- the connection between reading and writing difficulties and learning mathematics
- the influence of the ways and means of working on the learning situation in mathematics
- orientation on current research in mathematics difficulties and aptitude for mathematics
- an overview and evaluations of mathematics knowledge.

### Type of Instruction

The teaching is carried out in the form of lectures, seminars and methodology with laboratory work. The students work both individually and in groups with exercise that is based on textbooks, course plans and the course participants' own teaching and/or experiences.

Attendance at all forms of teaching is mandatory. Parts of the course content is done in close connection with field studies which requires access to a class.

The course can be offered as a distance course. When the course is offered as a distance course special forms of distribution are used appropriate for the method of teaching.

### Examination

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

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 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**

Boaler, Jo. (2011). *Elefanten i klassrummet*. Stockholm: Liber.

Lunde, Olav. (2011). *När siffrorna skapar kaos - matematiksvårigheter ur ett specialpedagogiskt perspektiv*. Stockholm: Liber.

Magne, Olof. (1998). *Att lyckas med matematik i grundskolan*. Lund: Studentlitteratur.

McIntosh, Alistair. (2008). *Förstå och använd tal - en handbok*, NCM, Göteborgs universitet.

Pettersson, Eva. (2011) *Studiesituationen för elever med särskilda matematiska*

förmågor. Tillgänglig på <http://www.avhandlingar.se/avhandling/88cf79e0c1/>

Scientific papers

Chosen literature

### **Reference Literature**

Butterworth, Brian & Yeo, Dorian. (2010). Dyskalkyli - Att hjälpa elever med specifika matematiksvårigheter. Stockholm: Natur och kultur.

Klingberg, Torkel. (2011). Den lärande hjärnan - om barns minne och utveckling. Stockholm: Natur och kultur.

Löwing, Madeleine. (2006). Matematikundervisningens dilemman - Hur lärare kan hantera lärandets komplexitet. Lund: Studentlitteratur.

Pettersson, Eva. (2011) Studiesituationen för elever med särskilda matematiska förmågor. Available at <http://www.avhandlingar.se/avhandling/88cf79e0c1/>

Sjöberg, Gunnar. (2006). Om det inte är dyskalkyli - vad är det då? Available at [umu.diva-portal.org/smash/get/diva2:144488/FULLTEXT01](http://umu.diva-portal.org/smash/get/diva2:144488/FULLTEXT01)

Sterner, Görel & Lundberg, Ingvar. (2009). Dyskalkyli - finns det?. NCM, Göteborgs universitet.

Sterner, Görel & Lundberg, Ingvar. (2002) Läs- och skrivsvårigheter och lärande i matematik. NCM, Göteborgs universitet. NCM-rapport 2002:2. 201 pages.