



## Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

1MD112 Matematik genom digitala och estetiska lärprocesser i förskolan, 7,5 högskolepoäng

1MD112 Mathematics through digital and aesthetic learning in preschool, 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 2011-11-25  
The course syllabus is valid from autumn semester 2012

### **Prerequisites**

Teacher certificate and one course (7.5 credits) regarding mathematics in preschool (within the teacher education or single subject course) For example 1MD304, 1MD111, OX7161, GU7131 or equivalent.

## Objectives

After completing the course the student should:

- be able to interpret different forms of representations when working with mathematics in preschool
- be able to describe orally and in writing the notions of "aesthetic learning" "multimodality" and "didactical design" in relation to mathematics in preschool
- be able to plan, carry out and evaluate situations of learning mathematics in preschool from a multimodal perspective
- be able to plan, carry out and evaluate situations of learning mathematics in preschool where digital tools are used
- from the perspective of aesthetic learning be able to observe, evaluate and analyze children's learning in mathematics and draw conclusions about your own acting.

## Content

### Course content

- Didactical design
- Aesthetic learning process
- Multimodality
- Digital tools for learning in pre-school

Field studies are an important part of the course. Didactic theory of the course is linked to the preschool activities through the field studies. Problems arising from the field studies are central elements in the didactic theory.

### Type of Instruction

Teaching consists of lectures, group discussions and mandatory seminars. When given 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), Pass (G) or Pass with Distinction (VG).

The course is examined through active participation in seminars and laboratory work and presentation, and through written and oral presentations of individual and group assignments. Part of the examination consists of practical exercises (field studies) that the student will implement and present.

For grade pass (G), the expected learning outcome has to be achieved. Regardless of what kind of examination form that's used it is always the individual student's performance that is assessed and graded. More information about examination forms can be found in the study guide.

After each regular examination session follows at least one new examination in near connection to the time the results of the regular examination given.

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 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

HeidbergSolem, I. & LieReikerås, EK. *Det matematiska barnet*, Natur och Kultur, 2004. 345 pages. ISBN: 91-27-72294-5

Löfgren, B. & Ebbelind, A. *Mattemusik : en metod för ämnesintegrerat lärande*. UR – förlag, 2010. 119 pages. ISBN: 978-91-25-09025-7

Rystedt, E. & Trygg, L. *Laborativ matematikundervisning – vad vet vi?* NCM. 2010 73 pages. ISBN: 978-91-85143-16-0

Selander, S. & Kress, G. R., *Design för lärande: ett multimodalt perspektiv*. Norstedt, 2010. 173 pages. ISBN: 978-91-1-302295-6

Sheridan, S. & Pramling-Samuelsson, I. & Johansson, E. (red) *Barns tidiga lärande. En tvärsnittsstudie om förskolan som miljö för barns lärande*. Göteborgs studies in educational sciences 284. (selected parts) <http://gupea.ub.gu.se/handle/2077/20404>

Skolverket, styrdokument för förskolan (Lpfö 98) och förskoleklassen (Lgr 11).  
[www.skolverket.se](http://www.skolverket.se)

Selection of Scientific papers app. 200 pages.

### **Reference Literature**

Björklund, C. *En, två, många: om barns tidiga matematiska tänkande*. Liber, 2009.  
ISBN: 978-91-47-01557-3

Björklund, C, *Bland bollar och klossar: matematik för de yngsta i förskolan*.  
Studentlitteratur, 2008 ISBN: 978-91-44-05057-7

Clements, Douglas H., Sarama, Julie & DiBiase, Ann-Marie (red.), *Engaging young children in mathematics: standards for early childhood mathematics education*,  
Lawrence Erlbaum Associates, Mahwah, N.J. 2004. ISBN: 0-8058-4210-1