Linnæus University

# Course syllabus

Board of Education Science
School of Computer Science, Physics and Mathematics

## 2PP726 Matematikutveckling med ett specialpedagogiskt perspektiv, 10 högskolepoäng

## Mathematical development with a special educational perspectiv, 10 credits

**Main field of study**
Mathematics

**Subject Group**
Mathematics

**Level of classification**
First Level

**Progression**
G2F

**Date of Ratification**
Approved by the Board of the School of Computer Science, Physics and Mathematics 2012-03-30

The course syllabus is valid from autumn semester 2012

**Prerequisites**
2PP210 Perspectives on Special education (10 credits), and 4PP231 Recognize and investigate disability in students' learning environments (5 credits), or equivalent.
or
2PP210 Perspectives on Special education (10 credits), and 4PP100 Special support in language development I (5 credits), or equivalent.

## Objectives

In this course the student will develop knowledge about the identification, assessment and analysis of mathematical knowledge to identify and explain the various reasons for difficulties in mathematics. In relation to this, the student should be able to suggest methods and practices at individual, group and organizational level to promote all students' mathematical development. During the course the student will demonstrate an approach consistent with existing ethical rules and policy documents. The student should be able to formulate and implement special education teacher's tasks in relation to research in mathematics education, and on the basis of current research explain and relate the mathematics education positions in relation to the special education teacher's assignment. After completing the course, students should be able to:

- show ability to identify , assess and analyze mathematical knowledge
- use efficient diagnostic tools in mathematics
- suggest methods and approaches for promoting students' mathematical

development at individual, group and organizational level and formulate them in a program.
- identify and discuss problems relating to various causes for difficulties in mathematics.

## Content
The course covers the following topics:

- basic mathematical skills
- children's development of numbers perception and concepts of mathematics
- the implications of math difficulties and support at individual, group and organization level
- reading and writing difficulties and learning of mathematics
- analysis and review of various diagnostic tools and materials
- survey, assessment of math skills and action programs in mathematics
- how ways and working forms impacts the students' learning.

## Type of Instruction
Teaching consists of lectures and seminars. Teaching is based substantially on the students' active participation, individually and in groups, which requires attendance at seminars and presentations. Some of the teaching is done via distance learning tools. The course includes field study data which requires access to students.

## Examination
The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).
For a passing grade, the expected learning outcome has to be achieved. The course is examined through seminars and presentations, and through written and oral presentations of individual and group assignments. Whatever form of examination, it is the individual student's performance that is judged and graded. On request, students may have their credits translated to ECTS-marks.

## Course Evaluation
after completion of the course, a course evaluation is compiled and written feedback to the students who attended the course is presented, together with actions taken for the students the next time the course is offered.

## Other
Any additional costs associated with tasks or suchlike. is at the expense of the individual student.

## Required Reading and Additional Study Material
**Required reading**
Boaler, Jo, *Elefanten i klassrummet - att hjälpa elever till ett lustfyllt lärande i matematik.* Liber, 2011, 228 pages

Johnsen Höines, Marit, *Matematik som språk – verksamhetsteoretiska perspektiv*. Liber,2006. 207 pages.

Hodgen, Jeremy, Wiliam, Dylan, *Mathematics inside the black box, bedömning för lärande i matematikklassrummet*, Stocholms universitets förlag,41 pages

Lundberg, Ingvar & Sterner, Görel, *Dyskalkyli – finns det?* , Aktuell forskning om svårigheter att förstå och använda tal, NCM, Göteborgs universitet, 2009. 125 pages.

McIntosh, Alistair, *Förstå och använda tal – en handbok*, NCM, 2008. 244 (244) pages.

Sollervall, Håkan, *Tal och de fyra räknesätten*, Studentlitteratur, 2007. 50 pages.

Sterner, Görel, Lundberg, Ingvar *Läs och skrivsvårigheter och lärande i matematik*, NCM-rapport 2002:2. 210 pages.

*Undervisningen i matematik – utbildningens innehåll och ändamålsenlighet*, Skolinspektionen rapport 2009:5, 2009, www.skolinspektionen.se 27 pages.

Articles, current year, ca 50 pages.

**Reference Literature**

Skolverket, *Mer än matematik – om språkliga dimensioner i matematikuppgifter*, Myndigheten för skolutveckling, 2008. 46 (46) pages.

Löwing, Madeleine, *Matematikundervisningens dilemma – hur lärare kan hantera lärandets komplexitet*, Studentlitteratur, 2006.246 pages.

Malmer, Gudrun, *Bra matematik för alla, nödvändig för elever med inlärningsvårigheter*.