Linnæus University

Jnr: 2015/1034–3.1.2

Course syllabus

Faculty of Technology
Department of Mathematical Education

1MD132 Matematikdidaktik 2 för F-3 - Geometri, algebra, sannolikhetslära och statistik, 7,5 högskolepoäng

Mathematics Education 2 for pre-school class and year 1-3 - Geometry, algebra, probability and statistics, 7.5 credits

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved 2013-08-19
Revised 2015-03-25 by Faculty of Technology. Objectives and literature lists are revised.
The course syllabus is valid from autumn semester 2015

Prerequisites
1MD131 Mathematics Education 1 for pre-school class and year 1-3 - Numbers-spatial perception and concepts of mathematics, 7.5 credits or equivalent.

Objectives

After completing this module the students will be able to:

- discuss and explain the role of the steering documents in mathematics education and through a so-called educational planning show how to work with it in mathematics education
- plan, implement, analyze and evaluate different forms of learning activities for primary school (pre-school up to year 3) linked to the framework of mathematical skills
- reflect on theories of learning to see the link between skills, mathematics content and methods in mathematics education in pre-school up to year 3 and apply this knowledge practically to meet and develop students' abilities and learning
- know and be able to describe stage relevant research from mathematics education which can be related to mathematics instruction in pre-school up to year 3
- based on the core content of the LGR11 for F3 demonstrate a thorough knowledge of and be able to use primary school mathematics with a focus on geometry and spatial perception, algebra, statistics, probability, regression and

change
- apply knowledge of primary school mathematics with a focus on geometry and spatial perception, algebra, statistics, probability, regression and change in didactic activities with a focus on preschool up to year 3
- describe how preschool mathematics is dealt with in relation to the modules elements and be able to build on this knowledge in preschool up to year 3
- explain how mathematics in the preschool up to year 3 is the underlying mathematics of 4-9 with respect to this modules element
- explain and apply different forms of representation and working methods in mathematics from this modules element
- explain overall character of the development of mathematics and the history of ideas for this modules math element.

Content

The course addresses the student's own math skills in geometry, algebra, probability and statistics, regression and change. This knowledge deepens and is used in combination with didactic perspectives relevant to preschool and year 1-3. The mathematical content discussed in relation to the abilities that form the basis of the compulsory school curriculum in mathematics. These abilities are linked to mathematics content and the it is highlighted by focusing on different approaches to support conceptual development and to highlight different problem solving strategies with particular focus on the role of language and the variety of forms of representation. The module also addresses factors influencing 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. The 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

This course cannot be part of a degree in combination with another course in which the content fully or partly correspond to the content of this course: The course overlaps 1MD142 with 7,5 credits, 1MD130 with 7,5 credits module 2, 1MD140 with 7,5 credits module 2.

Required Reading and Additional Study Material

Literature

Bråting, Kajsa, Sollervall, Håkan & Stadler, Erika. Geometri för lärare (latest edition). Lund: Studentlitteratur

Häggblom Lisen, Med matematiska förmågor som kompass, Lund Studentlitteratur

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

Skolverket. Läroplan för grundskolan, förskoleklassen och fritidshemmet 2011 www.skolverket.se/publikationer?id=2575

In addition compendiums and scientific articles approximate 100 pages.