



Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

2MD53U Matematik för lärare i årskurs 4-6, Nivå 16-30
högskolepoäng, ingår i lärarlyftet, 15 högskolepoäng

2MD53U Mathematics for teachers in grades 4-6, Level 16-30
credits, 15 credits

Main field of study

Mathematics

Subject Group

Mathematics

Level of classification

First Level

Progression

G2F

Date of Ratification

Approved by School of Computer Science, Physics and Mathematics 2012-03-09
The course syllabus is valid from autumn semester 2012

Prerequisites

Teacher certificate which gives qualifications for teaching in grades 4-6, and 15 credits mathematics or equivalent.

Objectives

Having completed sub course To Evaluate Proficiency in Mathematics the students should:

- be able to perceive the different dimensions and forms of proficiency in mathematics
- be able to use basic theories of proficiency evaluation to examine and reflect upon questions concerning the work of teachers when making evaluations in mathematics
- be able to plan and conduct independently the evaluation of pupils' competence in mathematics as well as defend and motivate the evaluations
- be able to use adequate subject language to analyse and appraise proficiency evaluation in mathematics
- be able to identify factors that influence an impartial and equitable evaluation
- be able to use pupils' self assessment to develop their mathematical competence.

Having completed the sub course Mathematics and Teaching the student is expected to:

- master basic elements in the fields arithmetic, algebra and geometry
- demonstrate an ability to analyse and critically deal with mathematical contents in the classroom.

Content

The specialisation comprises two sub courses. For more information see each course syllabus.

Module 1 To Evaluate Proficiency in Mathematics 7.5 credits

The course focuses on the evaluation of proficiency in mathematics. During the course the role of the school in the pupils' learning of mathematics is discussed. Furthermore the question of which mathematical proficiency it is possible to measure as well as how that may be achieved is considered. The course covers the following items:

- proficiency and learning in mathematics
- basic theories concerning measuring and evaluating both generally and in mathematics
- the construction of tasks
- different evaluation strategies
- feedback from evaluations and evaluation as an aid in developing pupils' mathematical abilities.

Module 2 Mathematics and Teaching 7.5 credits

The course contents:

- mathematical and didactical approaches to numbers and the four rules of arithmetic, geometry and algebra
- the logical structure of mathematics and construction of mathematical theory.

Type of Instruction

Teaching is conducted in the form of lectures, field studies and seminars, individual and group work. The teaching is to a large extent based on the students' active participation individually and in groups, which demands attendance at seminars, lectures and presentations. Theory and practice are interwoven in the course. To a certain extent the content of the course is treated in close connection to the field studies. When given as a distance course special forms of distribution are used appropriate for the method of teaching.

Two of the meetings are conducted at Linköping University.

Examination

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

A translation of the grade to the ECTS scale may be obtained upon request. The request for a translation should be made before the final grade for the course is awarded. The students are examined partly through their active participation in seminars and presentations and partly through written and oral presentations of individual and group assignments. Assessment is continuous throughout the course together with individual assignments. Part of the assessment is of the field work assignments the students conduct and present.

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

Sub course 1

Andersson, Andreas, Begreppskartor - ett verktyg för bättre förståelse, Nämnaren 2/2002, www.ncm.gu.se – sök under Artikelregister. Pages 3.

Asplund, Maria, Att tala och skriva matematik -Redskap för bedömning, NCM, Nämnaren 4/2008. www.ncm.gu.se - Pages 5.

Black, Paul och Williams, Dylan, Inside the Black Box,ngfl.northumberland.gov.uk/keystage3ictstrategy/Assessment/blackbox.pdf - Pages 14.

Boesen, Jesper, Bedömarreliabilitet.: Med fokus på aspektbedömningen i det nationella B-kursprovet i matematik våren 2002(Umeå universitet Pm nr 195). www8.umu.se/edmeas/publikationer/pdf/Pm%20nr%20195.pdf - pages 63.

Engström, Arne; Engvall, Margareta; Samuelsson, Joakim, Att leda den tidiga matematikundervisningen. Skapande vetande, Linköpings universitet (2007). Pages 125.

Grevholm, Barbro, Kognitiva verktyg för lärande i matematik- tankekartor och begreppskartor, (Tangenten 1/2005). www.caspar.no/tangenten/innhald051.html - Pages 8.

McIntosh, Alistair, Förstå och använda tal- en handbok. NCM, Göteborgs universitet (2008). Pages 240.

Palm, Torulf; Bergqvist, Ewa; Eriksson, Ingela; Hellström, Timo; Häggström, Carl-Magnus, En tolkning av målen med den svenska gymnasimatematiken och tolkningens konsekvenser för uppgiftskonstruktion. Umeå universitet Pm nr 199,(2004). www8.umu.se/edmeas/publikationer/pdf/Pm%20nr%20199.pdf - pages 55.

PRIM-gruppen, Bedömning av kunskap- för lärande och undervisning i matematik, ISBN:978-91-7656-670-1. 104 pages.

Selghed, Bengt, Betygen i skolan - kunskapssyn, bedömningsprinciper och lärarpraxis. Stockholm: Liber, latest edition. Pages 201.

Selghed, Bengt, Ännu icke godkänd. Malmö högskola, senaste upplaga. Pages 230

Skolverket, Analysschema i matematik för relevant åldersgrupp, www.skolverket.se/sb/d/260/a/14694 - Pages 45/60.

Skolverket, Att bedöma eller döma. Malmö: Liber distribution (2002). Pages 162.

Skolverket, Att visa vad man kan - en samling artiklar om ämnesproven i år 5, www.skolverket.se – sök under "Publikationer". Pages 212.

Skolverket, Läroplaner och kursplaner för aktuell åldersgrupp. www.skolverket.se

Articles and stencils DFM, Linnæus University. Pages app. 100.

Reference Literature Sub course1

Helenius, Ola, Kompetenser och matematik(om danska KOM - rapporten), Nämnaren 3/2006, ncm.gu.se/pdf/namnaren/1115_06_3.pdf - Pages 5.

Löwing, Madeleine, Matematikundervisningens dilemma –hur lärare kan hantera lärandets komplexitet. Lund: Studentlitteratur (2006). Pages 246.

Myndigheten för skolutveckling, Baskunnande i matematik,(2003). www.skolverket.se – sök under ”Publikationer - Pages 110.

Nyström, P, Rätt mätt på prov. Om validering av bedömningar i skolan. Umeå: Pedagogiska institutionen, Umeå universitet, (2004). Pages 54.

Sub course 2

DFM, Stenciler, Linnæus University, current year. Pages ca 300.

Sollervall, H, Tal och de fyra räknesätten, Studentlitteratur, 2007. Pages 172 (172).