Linnæus University

Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

4MD335 Examensarbete på magisternivå - Matematikdidaktik, 15 högskolepoäng

4MD335 Degree Project on the level of one year Master – Didactics of Mathematics, 15 credits

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
Second Level

Progression
A1N

Date of Ratification
Approved 2009-08-11
Revised 2010-11-26 by School of Computer Science, Physics and Mathematics.
Revision made for English translation of the syllabus, prerequisites, literature list and course evaluation.
The course syllabus is valid from spring semester 2011

Prerequisites
Basic eligibility for second level studies of at least 180 hp, whereof 90 hp concern mathematics or mathematics education.

Objectives

Having completed the course the students should be able to:

- identify and formulate research questions relevant for mathematics education
- select, argue for and apply relevant scientific methods in relation to defined research questions and theoretical perspective
- critically and independently collect, systematize and reflect on national as well as international research and developmental work
- draw conclusions about teaching and other educational activities, by examining research findings from theoretical perspectives and selected research questions
- handle ethical aspects and considerations in scientific works
- independently search for, collect, evaluate and critically explore information

- in orally and written forms present and, on scientific grounds, discuss research and developmental work
- critically analyze and examine works of a scientific nature.

Content
During the course the students will do a study on a limited area of concern, relevant to the learning and teaching of mathematics.
The following topics are covered:

- The formulation of research questions
- Scientific theories and methods, relevant for the selected area of concern.
- Collecting, processing and analyzing material.
- Information management.
- Research ethics.
- Writing of a research report.
- Active participation in seminars.
- Presentation and opposition of scientific work.

Type of Instruction
Lectures, supervision, self-studies and seminars. Teaching and supervision may also be conducted through an online teaching platform.

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

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.
Written report, written PM /essay plan, oral presentation and defense of thesis, oral opposition on another thesis.
In cases where several students have made a joint work, the individual efforts need to be distinguished and is individually assessed.

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.

Other
Upon request, a Swedish University degree will be issued upon successful completion of the full demands for that degree.

On request, a Swedish University course certificate will be awarded upon successful completion of the course.

Required Reading and Additional Study Material
Required reading
Strömquist, S, *Skrivboken. Skrivprocess, skrivråd och skrivstrategier*. Malmö: Gleerups, 2000: 195-227. Pages 32 (32).
Svenska skrivregler utgivna av Svenska språknämnden. Liber, 2000. Pages 220 (220).
Bryman, A, *Samhällsvetenskapliga metoder*. Malmö: Liber ekonomi, 2000. Pages 498 (498).
Johansson, B., Svedner, P-O, *Examensarbetet i lärarutbildningen*. Uppsala: Kunskapsföretaget, 2001. Pages 136 (136).
Schoenfeld Alan H, *Purposes and Methods of Research in Mathematics Education*,

Notices of the AMS, Vol. 47, Nr 6, 641-649, 2000. Pages 8 (8).
Compendium och handouts, DFM. Linnæus University, current year. Pages app 50.

Reference Literature

Suter Larry E. & Frechtling Joy, *Guiding Principles for Mathematics and Science Education Research Methods: Report of a Workshop*, NSF, 2000. Pages 30.
Jarrick, A. & Josephson, O, *Från tanke till text. En språkhandbok för uppsatsskrivande studenter*. Lund: Studentlitteratur,1996. Pages 129.
Patel, R. & Davidsson, B, *Forskningsmetodikens grunder*. Lund: Studentlitteratur, 2003. Pages 124.
Patton, M. Q, *Qualitative Research & Evaluation Methods (3.ed.)*. Thousand Oaks, California: Sage Publications Inc, 2002. Pages 598.
Kvale, S, *Den kvalitativa forskningsintervjun*. Lund: Studentlitteratur,1997. Pages 306.
Merriam, S. B, *Fallstudien som forskningsmetod*. Lund: Studentlitteratur, 1994. Pages 228.