Linnæus University

Jnr: 2020/3972-3.1.2.2

Course syllabus

Faculty of Technology
Department of Mathematics

1MD123 Matematikdidaktik för åk. 7-9 och gymnasiet III, 7,5 högskolepoäng

Mathematics Education for Lower Secondary and Upper Secondary School III, 7.5 credits

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved 2012-12-10
Revised 2020-12-01 by Faculty of Technology. Assessment methods are revised.
The course syllabus is valid from autumn semester 2021

Prerequisites
1MD121 Mathematics Education for lower secondary and upper secondary school I, 7.5 credits or equivalent.

Objectives

After completion of the course, students should be able to:

- demonstrate knowledge of the relationship between skills, mathematics content and working arrangements in lower secondary and upper secondary school mathematics teaching and apply this knowledge to meet and develop students' mathematical abilities
- demonstrate advanced knowledge to interpret goals and grading criteria in lower secondary and upper secondary school mathematics and their implications for teaching and assessment of student performance
- demonstrate the ability to plan, implement and evaluate mathematics teaching
- demonstrate knowledge of the role of language in mathematics, for conceptualization, communication and classroom norms
- analyze student solutions, teaching materials and tests, especially the national tests
- apply formative and summative assessment, grading, documenting students' skills for different purposes.

Content

The following will be analyzed and discussed in the course: the link between skills, mathematics content and working in grades 7-9 and upper secondary mathematics education in relation to the direct work in the classroom with a focus on applying this knowledge to meet and develop students' mathematical abilities. Progression of policy documents in mathematics, focusing on the objectives, content and grading criteria as well as their implications for the teaching and assessment of student performance will be addressed in the course. Variation of work methods, work and content to support student learning related to planning, implementing and evaluating mathematics education. Standards, communication and role of language in conceptual development will be analyzed through concrete class room situations. The grading practice impact on teaching practice and vice versa, is paramount. Analysis of student solutions, study materials and exams, especially national tests will be discussed in the course. The course covers general different assessment situations, student performance, reviews, consequences. Moreover, the differences between assessment and grading will be elucidated.

Type of Instruction

Teaching consists of lectures, group exercises and mandatory seminars. Part of the course may be online.

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, methodology sessions, and presentations, as well as through oral and written presentations of individual and group assignments, and or through written examination.

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

Course Evaluation

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: Module 1 in 2MAÄ02 and 2MAÄ08, 7.5 credits

Required Reading and Additional Study Material

Reading list

Gustavsson, A ., Måhl, P. & Sundblad, B. (2014) Betyssättning en handbok. Liber. ISBN: 9789147099498

Hansen, Hans Christian; Skott, Jeppe & Jess, Kristine. (2009). Matematik för lärare Ypsilon band 1 och band 2, Gleerups förlag. ISBN13: 9789140668134 och ISBN13:9789140667861

Hansen, Hans Christian; Skott, Jeppe; Jess, Kristine & Sverker Lundin. (2010). Matematik för lärare, Delta Didaktik, ISBN: 9789140671462

Kilborn, Wiggo & Löving, Madeleine. Baskunskaper i matematik. Lund,

Studentlitteratur.ISBN13: 9789144022178

Nordgren, K., Odenstad, C., & Samuelsson (red.). (2012 or latest edition) Betyg i teori och praktik. Gleerups. ISBN: 9789140692641

PRIM-gruppen, Bedömning av kunskap- för lärande och undervisning i matematik, ISBN:9789176566701.

Skolverket. Kursplan och betygskriterier för ämnet matematik. Stockholm: Skolverket. www.skolverket.se

Skolverket. (2011) Gymnasieskola 2011. Stockholm: Skolverket. ISBN: 978-91-38325-80-3. (www.skolverket.se/publikationer?id=2597)

Skolverket. (2011) Kunskapsbedömning i skolan - praxis, begrepp, problem och möjligheter. Stockholm: Skolverket. ISBN: 978-91-86529-54-3. (www.skolverket.se/publikationer?id=2660)

Scientific papers

Reference Literature

Björklund Boistrup, L. (2010). Assessment Discourses in Mathematics Classrooms

National Research Council (2001). Adding it up: Helping Children learn mathematics. In Jeremy Kilpatrick, Jane Swafford, & Bradford Findell (Eds.). Mathematics Learning Study Committee, Center for Education, Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press. (ca 100 pages), ISBN13: 9780309069953