Linnæus University

Dnr: 2021/4618-3.1.1.3

# Programme syllabus

Faculty of Technology

## Matematikdidaktik, magisterprogram, 60 högskolepoäng
## Mathematics Education, Master programme, 60 credits

**Level**
Second Level

**Date of Ratification**
Approved by Faculty of Technology 2013-12-06

Revised 2021-12-10

The programme syllabus is valid from autumn semester 2022

**Prerequisites**
Basic eligibility for second level studies and

- Teachers certificate with specialization mathematics (including a Degree project of at least 7.5 credits) or equivalent.
- English course 6 or equivalent.

## Description of Programme
The Master's programme in mathematics education is intended for teachers in mathematics, those who work with learning and/or teaching in mathematics in other contexts (e.g.,teacher education) or those who who plan to go into such issues. The Master's programme in mathematics education aims to deepen the participants own knowledge regarding learning, teaching and assessment in mathematics. By this the participants will become qualified to manage projects regarding mathematics teaching in their schools and to develop mathematics teaching in their teacher teams. The aim is also to get the participants to become able to absorb additional knowledge in relation to future professional and/or graduate programs in mathematics education.

## Objectives
*Knowledge and understanding*
For a Degree of Master (One Year) students must demonstrate

- knowledge and understanding in their main field of study, including both a broad command of the field and deeper knowledge of certain parts of the field, together with insight into current research and development work; and
- deeper methodological knowledge in their main field of study.

*Skills and abilities*
For a Degree of Master (One Year) students must demonstrate

- an ability to integrate knowledge and to analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available;
- an ability to independently identify and formulate issues and to plan and, using appropriate methods, carry out advanced tasks within specified time limits;
- an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in dialogue with different groups, orally and in writing; and
- the skill required to participate in research and development work or to work in other advanced contexts.

*Judgement and approach*
For a Degree of Master (One Year) students must demonstrate

- an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work;
- insight into the potential and limitations of science, its role in society and people’s responsibility for how it is used; and
- an ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

*Programme specific objectives*
Upon completing the programme, the student should demonstrate:

- an in-depth understanding of mathematics education and how this area of ??knowledge has emerged
- basic knowledge of research in Educational Sciences, especially mathematics education
- ability to identify and address issues in mathematics education by selecting and using adequate theories and suitable empirical methods
- advanced ability to identify and analyze students' learning and attitudes towards mathematics and relate this to mathematics teaching
- basic ability to run projects in mathematics education on a Scientific basis and a good ability to communicate these projects
- ability to critically evaluate mathematics education research, both empirical and theoretical, as well as the ways in which research results are interpreted and used
- ability to identify and evaluate relevant, scientific based knowledge that can form the basis for future mathematics education projects in the professional role.

## Content

The programme has a programme director who is responsible for the overall administration of the programme, organization and quality improvement. There is a programme council consisting of the course coordinators, student representatives and representatives from the school. The program council is headed by the program director.

*Programme Overview*
The program consists of courses totaling 60 credits.
The programme's content and structure is designed for the students to develop deeper knowledge in mathematics education. Normally the studies are part-time. Teaching takes place in different forms and can be both campus and online.

*Programme Courses*

The courses included in the program is based on a certain progression why some of the courses must be in a strict order. This is evident by the course order that is presented prior to each academic year. If a student wish to take courses in the program as single subject courses he/she must take courses in the order listed in course order.
7,5 credits Introduction to Research in Mathematics Education
15 credits Theory, methodology and ethics in studies of mathematics education
7,5hp Interaction and communication in the mathematics classroom
7,5 credits Mathematics teachers' professional development
7,5 credits Mathematics teaching and curriculum - an International Perspective
15 credits Degree project at Master level - Mathematics Didactics

Current research on learning and teaching mathematics is linked to the participants' own experiences from teaching. In teaching the students' own questions and concerns are taken into account. The core questions in the educational programme are processed with varying forms of work, such as individual study, group study, teacher-led instruction, exercises and seminars. During this educational programme different methods of assessments are used. The extent of this is evident in the course syllabus. The Degree project is presented and defended at an open seminar. Students should also do at least one opposition of another Degree project.

*Work Experience*
Collaboration with the community (schools and teachers) are the starting point for and the objectives of the programme. Because the program is primarily aimed at practicing teachers, there is not need of teaching practice or internship. Since most of the students comes from different schools and work they are given the opportunity to experience other activities than their own. The programme will include writing a Degree project, which must be relevant to the teaching profession in mathematics. For students who are not professionally involved in mathematics education the Degree project must have an empirical connection to the teaching of the subject. Contacts to make this possible is obtained within the program.

*Studies Abroad*
Possibilities for studying abroad are in connection with the Degree project. One or more courses can also be credited against the corresponding international courses.

*Scope of the Programme*
Equality, diversity, ethics and internationalization are key aspects in the policy documents for schools and is thus both the content and the basis for the Master programme. All perspectives are in relation to learning, teaching and assessment in mathematics. In addition, ethical issues related to research composes a specific course content.

## Quality Development
Evaluation of the program takes place after the completion of each course by students and teachers. The results of course evaluations are available at the department. The feedback to students is done through presentation of previous course evaluation.

## Degree Certificate
After completing programme studies, corresponding to the requirements expressed in the Higher Education Ordinance Degree Ordinance as well as Linnaeus University Local Degree Ordinance, the student may apply for a degree.
Students who have completed the Mathematics education, Master programme may obtain the following
degree:

Filosofie magisterexamen
Huvudområde: Matematikdidaktik

Degree of Master (One-year)
Main field of study: Mathematics Education

The degree certificate is bilingual (in Swedish/English). The Degree Certificate is accompanied by a Diploma Supplement (in English).