

NAMAT, Master Programme in Mathematics, 120 credits

Masterprogram i matematik, 120 högskolepoäng

Second-cycle programme requiring previous university studies / Program med akademiska förkunskapskrav och med slutlig examen på avancerad nivå

Decision

The syllabus was approved by Study programmes board, Faculty of Science on 2007-10-24 (N 2007-52) and was last revised on 2026-05-28 by The Education Board of Faculty of Science (U 2026/337). The revised syllabus comes into effect 2026-10-15 and is valid from the autumn semester 2027.

Programme description

The programme for a degree of Master of Science specialising in Mathematics comprises 120 credits and leads to a degree of Master of Science (120 credits) with a major in Mathematics.

The programme is based on scholarship and is closely linked to research conducted at the Lund University Faculty of Science. The operations at the faculty uphold academic credibility and good research practice and are arranged to ensure that high standards are attained in courses and study programmes. Furthermore, the operations promote sustainable development, equality between women and men and understanding of other countries and international circumstances. These aspects are integrated in the degree outcomes of the programme.

Second-cycle courses and study programmes in the main field of Mathematics are fundamentally based on the knowledge acquired by students during first-cycle courses and study programmes.

Second-cycle courses and study programmes in the main field of Mathematics involve the acquisition of specialist knowledge, competence and skills in relation to first-cycle courses and study programmes, and in addition to the requirements for first-cycle courses and study programmes shall:

- further develop the ability of students to integrate and make autonomous use of their knowledge,
- develop the students' ability to deal with complex phenomena, issues and situations, and
- develop the students' potential for professional activities that demand considerable autonomy, or for research and development work.

The programme applies a learning perspective, in which students take an active role in the learning process, and consciously and continuously reflect on their learning and development towards the degree outcomes.

Goals

Knowledge and understanding

For a Degree of Master (120 credits) the student shall:

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Degree of Master (120 credits) the student shall:

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work
- demonstrate the ability in speech and writing both nationally and internationally to clearly report and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach

For a Degree of Master (120 credits) the student shall:

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Independent project (degree project)

A requirement for the award of a degree of Master (120 credits) is completion by the student of an independent project (degree project) for at least 30 credits in the main field of study. The degree project may comprise less than 30 credits, however no less than 15 credits, if the student has already completed an independent project in the second cycle for at least 15 credits in the main field of study or the equivalent from a programme of study outside Sweden.

Course information

The programme comprises 2 years for a degree of Master (120 credits). The appendix *Programme Structure and course requirements for Master Programme in Mathematics* at the Faculty of Science describes the courses included.

A Degree of Master (120 credits) is awarded after the student has completed the courses required. In addition, the prior award of a Degree of Bachelor of at least 180 credits or a corresponding qualification from abroad is required. To acquire the fundamentally based advanced knowledge and understanding, competence and skills as well as judgement and approach required to meet the learning outcomes for a degree of Master of Science (120 credits) with a major in Mathematics, new knowledge building upon the underlying Bachelor's degree is necessary.

See attachment NAMAT - Programme Structure and course requirements for Master Programme in Mathematics, 120 credits.pdf

Degree

Degree titles

Degree of Master of Science (120 credits)

Main field of study: Mathematics

Main field of study: Mathematics with specialization in Numerical Analysis

Naturvetenskaplig masterexamen

Huvudområde: Matematik

Huvudområde: Matematik med fördjupning i numerisk analys

Entry requirements and selection method

Entry requirements

Bachelor's degree of at least 180 credits or the equivalent, including at least 90 credits in mathematics, or at least 60 credits in mathematics and at least 30 credits in numerical analysis and computational science. The latter alternative applies to applicants who intend to pursue a Master's degree in mathematics, specialising in numerical analysis.

Proficiency in English equivalent to English 6/B from Swedish upper-secondary school.

Selection method

Based on grades awarded for previous academic courses, particularly qualifying courses, as well as a statement of purpose for the application that clarifies the applicant's objective with the programme Selection Method (from the applicant's "Summary sheet").

Transition rules

The Faculty Board may decide on the discontinuation of a programme or main field and may also decide, in association with this, on transitional provisions for students who have started these programmes.

Other information

Rules pertaining to grades and examination are stated in the course syllabi approved by the Faculty Board.



FACULTY OF SCIENCE

Appendix 1 for programme syllabus,
NAMAT Master Programme in
Mathematics, 120 credits

Reg. No.
U 2026/337

Date 2026-05-28

Centre for Mathematical Sciences

Programme Structure and course requirements for Master Programme in Mathematics, 120 credits

The programme comprises two years of full-time studies (120 credits) and leads to a degree of Master of Science specialising in Mathematics or a degree of Master of Science with major in Mathematics with specialisation in Numerical Analysis.

Mathematics

Alternative-compulsory courses

Courses comprising at least 45 credits shall be chosen among the following courses in mathematics at advanced level.

MATM30, Mathematics: Mathematical Foundations of Probability, 7.5 credits
MATM32, Mathematics: Complex Analysis 2, 7.5 credits
MATM33, Mathematics: Differential Geometry, 7.5 credits
MATM34, Mathematics: Infinite Groups, 7.5 credits
MATM36, Mathematics: Topology, 7.5 credits
MATM39, Mathematics: Integration Theory, 7.5 credits
MATM41, Mathematics: Galois Theory, 7.5 credits
MATM42, Mathematics: Ordinary Differential Equations 2, 7.5 credits
MATM43, Mathematics: Specialised Course in Differential Geometry, 7.5 credits
MATM44, Mathematics: Introduction to Algebraic Topology, 7.5 credits
MATM46, Mathematics: Representation Theory, 7.5 credits

MATM48, Mathematics: Fourier Analysis, 7.5 credits
 MATP31, Mathematics: Distribution Theory, 7.5 credits
 MATP32, Mathematics: Harmonic Analysis, 7.5 credits
 MATP33, Mathematics: Group- and Ring Theory, 7.5 credits
 MATP35, Mathematics: Linear Functional Analysis, 7.5 credits
 MATP36, Mathematics: Partial Differential Equations, 7.5 credits
 MATP39, Mathematics: Specialised Course in Integration Theory, 7.5 credits
 MATP45, Mathematics: Specialised Course in Linear Functional Analysis, 7.5 credits

Optional courses

Optional courses of 45 credits. At least 15 credits should be additional courses in mathematics, numerical analysis, and mathematical statistics. A maximum of 30 credits may be courses at the undergraduate level.

Degree Project

Degree project, 30 credits.

MATM03, Mathematics: Master's Degree Project, 30 credits

Mathematics with specialization in Numerical Analysis

Compulsory courses

Following courses comprising 15 credits are compulsory.

NUMN32, Numerical Analysis: Numerical Methods for Differential Equations, 7.5 credits
 NUMN27, Numerical Analysis: Seminar, 7.5 credits

Alternative-compulsory courses

Courses comprising of at least 30 credits shall be chosen among the following courses:

BERN01, Computational Science: Modelling in Computational Science, 7.5 credits
 BERN07, Computational Science: Uncertainty Quantification & Data-driven Modelling, 7.5 credits
 BERN09, Computational Science: Parallel Programming in Scientific Computing, 7.5 credits
 MATM32, Mathematics: Complex Analysis 2, 7.5 credits
 MATM38, Mathematics: Fourier Analysis, 7.5 credits
 MATM42, Mathematics: Ordinary Differential Equations 2, 7.5 credits

MATP35, Mathematics: Linear Functional Analysis, 7.5 credits

MATP36, Mathematics: Partial Differential Equations, 7.5 credits

MATP45, Mathematics: Specialised Course in Linear Functional Analysis, 7.5 credits

NUMN21, Numerical Analysis: Advanced Course in Numerical Algorithms with Python/SciPy, 7.5 credits

NUMN26, Numerical Analysis: Simulation Tools, 7.5 credits

NUMN28, Numerical Analysis: Numerical Simulations of Flow Problems, 7.5 credits

NUMN33, Numerical Analysis: Numerical Methods for Partial Differential Equations, 7.5 credits

Optional courses

Optional courses of 45 credits and of these, at least 15 credits should be additional courses in mathematics, numerical analysis, and mathematical statistics. A maximum of 30 credits may be courses at the undergraduate level.

Degree Project

Degree project, 30 credits.

NUMM03, Numerical Analysis: Master's Thesis, 30 credits