

NGNAT, Sciences, 180 credits

Naturvetenskapligt kandidatprogram, 180 högskolepoäng

First-cycle programme not requiring previous university studies / Program utan akademiska förkunskapskrav och med slutlig examen på grundnivå

Decision

The syllabus was approved by The Board of Faculty of Science on 2017-09-05 (U 2017/281) 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.

Specialisations

Code	Swedish name	English name	Credits
ASTR	Astronomy and Astrophysics	Astronomi och astrofysik	180 credits
BIOL	Biology	Biologi	180 credits
KEMI	Chemistry	Kemi	180 credits
KEMO	Chemistry/Molecular Biology	Kemi/Molekylärbiologi	180 credits
KEYF	Chemistry/Physics	Kemi/Fysik	180 credits
MIHS	Environmental Health	Miljö- och hälsoskydd	180 credits
MIVE	Environmental Science	Miljövetenskap	180 credits
GEOB	Geology	Geologi	180 credits
MATE	Mathematics	Matematik	180 credits
ENMA	Mathematics	Matematik (undervisning på engelska)	180 credits
MEBG	Meteorology and Biogeophysics	Meteorologi och biogeofysik	180 credits
MOBI	Molecular Biology	Molekylärbiologi	180 credits
INES	Physical Geography and Ecosystem Science	Naturgeografi och ekosystemvetenskap	180 credits
ENFY	Physics	Fysik (undervisning på engelska)	180 credits
FYSI	Physics	Fysik	180 credits
FONE	Science with Photons and Neutrons	Naturvetenskap med fotoner och neutroner	180 credits

Code	Swedish name	English name	Credits
TEOF	Theoretical Physics	Teoretisk fysik	180 credits

Programme description

The programme for a degree of Bachelor of Science comprises 180 credits and leads to a degree of Bachelor of Science specialising in one of the main fields of biology, chemistry, environmental science, geology, mathematics, molecular biology, physics, and physical geography and ecosystem science.

The programme is based on scholarship and is closely linked to research conducted at the Lund University Faculty of Science. The activities 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 activities 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.

The programme shall develop:

- the ability of students to make independent and critical assessments,
- the ability of students to identify, formulate and solve problems autonomously, and
- the preparedness of students to deal with changes in working life.

In addition to knowledge and skills in their field of study, students shall develop the ability to:

- gather and interpret information at a scholarly level,
- stay abreast of the development of knowledge, and
- communicate their knowledge to others, including those who lack specialist knowledge in the field.

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.

Appendices 1–8 *Achievement of learning outcomes for a degree of Bachelor of Science with a major in () at the Faculty of Science* describe the disciplinary foundations and links to research of the main fields.

Goals

Knowledge and understanding

For a Degree of Bachelor the student shall:

- demonstrate knowledge and understanding in the main field of study, including knowledge of the disciplinary foundation of the field, knowledge of applicable methodologies in the field, specialised study in some aspect of the field as well as awareness of current research issues.

Competence and skills

For a Degree of Bachelor the student shall:

- demonstrate the ability to search for, gather, evaluate and critically interpret the relevant information for a formulated problem and also discuss phenomena, issues and situations critically
- demonstrate the ability to identify, formulate and solve problems autonomously and to complete tasks within predetermined time frames
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences, and
- demonstrate the skills required to work autonomously in the main field of study.

Judgement and approach

For a Degree of Bachelor the student shall:

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues
- demonstrate insight into the role of knowledge in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the need for further knowledge and ongoing learning.

Independent project (degree project)

A requirement for the award of a degree of Bachelor is completion by the student of an independent project (degree project) for at least 15 credits in the main field of study.

Course information

The programme comprises 3 years (180 credits) for a degree of Bachelor. Studies begin with a unified block of basic courses within the selected specialisation. Following this, students can select courses from a range of specialising or broadening profile courses. The programme is completed with an independent project (degree project) of 15 credits. There are recommended study paths for each main field, but students may also design parts of their programme by selecting a certain number of elective courses if they wish. Courses from other faculties may also be included. The degree requirements are specified in Appendix 1 *Achievement of learning outcomes for a degree of Bachelor of Science with a major in () at the Faculty of Science*.

Grades and assessment:

The rules for grading and assessment are described in the course syllabi approved by the Faculty Board.

See attachment *NGNAT - Programme Structure and course requirements for Bachelor Programme in Science with major in Physical Geography and Ecosystem Science.pdf*, *NGNAT - Programme Structure and course requirements for Bachelor programme in Science with major in Mathematics.pdf* and *NGNAT - Programme Structure and courses requirements for Bachelor programme in Science with major in Physics.pdf*

Degree

Degree titles

Degree of Bachelor of Science

Main field of study: Biology

Main field of study: Chemistry

Main field of study: Environmental Science

Main field of study: Geology

Main field of study: Mathematics

Main field of study: Molecular Biology

Main field of study: Physical Geography and Ecosystem Science

Main field of study: Physics

Naturvetenskaplig kandidatexamen

Huvudområde: Biologi

Huvudområde: Fysik

Huvudområde: Geologi

Huvudområde: Kemi

Huvudområde: Matematik

Huvudområde: Miljövetenskap

Huvudområde: Molekylärbiologi

Huvudområde: Naturgeografi och ekosystemvetenskap

The following requirements must generally be met for students to commence the degree project of 15 credits: at least 75 successfully completed credits in the relevant main field. In addition to the general requirements, students may also be required to have completed specific courses, both within and outside the main field. The specific requirements are stated in the relevant course syllabus for the degree project.

Rules applying to degrees in certain main fields:

Environmental science: environmental science is a cross-disciplinary field and includes courses from the social sciences as well as science. Accordingly, the main field of environmental science may include courses in engineering, social sciences or science specialising in environmental science. The course syllabus states whether or not the course is included in the main field.

Geology: courses in geoscience may not be included in the degree as courses outside the main field of geology.

Mathematics: in addition to mathematics, the main field includes mathematical statistics and numerical analysis. The degree project can address a topic in any of the three disciplines of the field or in the overarching discipline of mathematical modelling.

Molecular biology: the main field of molecular biology includes courses in biochemistry, biology focusing on molecular biology or chemical biology and certain courses in bioinformatics or biomedicine (as specified in the course requirements).

Entry requirements and selection method

Astronomy and Astrophysics

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Chemistry 1, Mathematics 4, Physics 2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Biology**Entry requirements**

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Chemistry 2, Mathematics 4, Physics 1b/1a1+1a2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Chemistry**Entry requirements**

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Physics 2, Chemistry 2 and Mathematics 4.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Chemistry/Molecular Biology**Entry requirements**

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Physics 2, Chemistry 2 and Mathematics 4.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Chemistry/Physics**Entry requirements**

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Physics 2, Chemistry 2 and Mathematics 4.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Environmental Health

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Chemistry 2, Mathematics 4, Physics 1b/1a1+1a2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Environmental Science

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Chemistry 2, Mathematics 4, Physics 1b/1a1+1a2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Geology

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 1, Chemistry 1, Mathematics 4, Physics 1a/1b1+1b2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Mathematics

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Mathematics 4 or Mathematics D.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Mathematics

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Mathematics 4 or Mathematics D.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Meteorology and Biogeophysics

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Chemistry 1, Mathematics 4, Physics 2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Molecular Biology

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Chemistry 2, Mathematics 4, Physics 1b/1a1+1a2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Physical Geography and Ecosystem Science

Entry requirements

General requirements and studies equivalent to Swedish Upper Secondary School courses Biology 1/Biology level 1, Physics 1a or 1b1+1b2/Physics level 1b or level 1a2, Chemistry 1/Chemistry level 1 and Mathematics 4 (or older course Mathematics D)/Mathematics further level 2, OR Mathematics 4 (or older course Mathematics D)/Mathematics further level 2 together with two of the courses Biology 2/Biology level 2, Physics 2/Physics level 2 and Chemistry 2/Chemistry level 2

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Physics

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Chemistry 1, Mathematics 4, Physics 2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Physics

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Chemistry 1, Mathematics 4, Physics 2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Science with Photons and Neutrons

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Physics 2, Chemistry 2 and Mathematics 4.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

Theoretical Physics

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Chemistry 1, Mathematics 4, Physics 2.

Selection method

Betyg 66% HP 34% med HP som skiljekriterium 2017

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 degree programmes.

Other information

Selection for specialisations taught in English

Pursuant to a decision by the Swedish Higher Education Authority on 21 December 2015, supported by Chapter 7 Section 15 of the Higher Education Ordinance, Lund University may use grades only as a selection criterion in the early admission round with an application deadline on 15 January for the specialisations of the Bachelor's programme in Science taught in English. In the national admission round with an application deadline on 15 April, places will be allocated in accordance with Chapter 7 Section 13 of the Higher Education Ordinance (1993:100). Fifty per cent of the places on the programmes will be allocated in the early admission round (15 January) and fifty in the national admission round. The Higher Education Authority decision applies to the admissions from the autumn semester 2016 up to and including the autumn semester 2020.



Programme Structure and course requirements for Bachelor Programme in Science with major in Physical Geography and Ecosystem Science

The programme comprises three years of full-time studies (180 credits) and leads to a Degree of Bachelor of Science with major in Physical Geography and Ecosystem Science.

Compulsory courses

Compulsory courses of 120 credits.

NGEA01	Physical Geography: Introduction to the Global Environment, 15 credits
NGEA03	Physical Geography: Remote Sensing for Landscape Studies, 15 credits
NGEA04	Physical Geography: Ecosystems Analysis, 15 credits
NGEA07	Theory and Methods of Physical Geography, 15 credits
NGEA09	Physical Geography: Land Surface Processes and Landscape Dynamics, 15 credits
NGEA31	Physical Geography: Geographical Information Systems - Basic Course, 15 credits
NGEA22	Physical Geography: Hydrology, 15 credits
NGEA21	Physical Geography: the Climate System, 15 credits

Optional courses

Optional courses of 45 credits.

NGEA32	Physical Geography: Geographical Information Systems – Advanced Course, 15 credits
NGEA52	Physical Geography: Practical Work, 15 credits

Degree Project

Degree project of 15 credits.

NGEK11	Physical Geography and Ecosystem Analysis: Bachelor's Degree Project, 15 credits
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FACULTY OF SCIENCE

Appendix 1 for programme syllabus
NGNAT Sciences, 180 credits

Reg. No.
U 2026/337

Date 2026-05-28

Centre for Mathematical Sciences

Programme Structure and course requirements for Bachelor programme in Science with major in Mathematics

The programme comprises three years of full-time studies (180 credits) and leads to a Degree of Bachelor of Science with major in Mathematics.

Compulsory Courses

Compulsory courses include the following (total of 75 credits):

MATA31, Mathematics: Analysis in One Variable, 15 credits
 MATA32, Mathematics: Algebra and Vector Geometry, 7.5 credits
 NUMA01, Numerical Analysis: Computational Programming with Python, 7.5 credits
 MATB31, Mathematics: Analysis in Several Variables, 7.5 credits
 MATB32, Mathematics: Linear Algebra, 7.5 credits
 MATB33, Mathematics: Introduction to Higher Analysis, 7.5 credits
 MASA03, Mathematical Statistics: Basic Course, 15 credits

Elective courses

Elective courses of total of 30 credits:

MATB34, Mathematics: Linear Analysis, 7.5 credits
 MATB35, Mathematics: Discrete Mathematics, 7.5 credits
 MATC21, Mathematics: Complex Analysis 1, 7.5 credits
 MATC22, Mathematics: Ordinary Differential Equations 1, 7.5 credits
 MATC31, Mathematics: Algebraic Structures, 7.5 credits
 MATC35, Mathematics: Number Theory, 7.5 credits
 MATM35, Mathematics: Number Theory, 7.5 credits
 MASC01, Mathematical Statistics: Probability Theory, 7.5

MASC12, Mathematical Statistics: Statistical Inference Theory, 7.5 credits
MASC13, Mathematical Statistics: Markov Processes, 7.5 credits
MASC14, Mathematical Statistics: Stationary Stochastic Processes, 7.5 credits
MASC15, Mathematical Statistics: Design of Experiments, 7.5 credits
NUMA41, Numerical Analysis: Basic Course, 7.5 credits
NUMB11, Numerical Analysis: Numerical Linear Algebra, 7.5 credits

Optional courses

Optional courses of 60 credits, of which at least 30 credits must be outside the main field of studies in Mathematics. Additional courses in mathematics, mathematical Statistics, and numerical analysis are recommended.

Degree Project

Degree Project of 15 credits can be conducted in Mathematics, Mathematical Statistics, or Numerical Analysis.

MATK11, Mathematics: Bachelor's Degree Project, 15 credits
MASK11, Mathematical Statistics: Bachelor's Degree Project, 15 credits
NUMK11, Numerical Analysis: B.A. Degree Project, 15 credits



FACULTY OF SCIENCE

Appendix 1 for programme syllabus
NGNAT Sciences, 180 credits

Reg. No.
U 2026/337

Date 2026-05-28

Department of Physics

Programme Structure and courses requirements for Bachelor programme in Science with major in Physics

The programme comprises three years of full-time studies (180 credits) and leads to a Degree of Bachelor of Science with major in Physics, and can be pursued through several specialisations, each with its associated study path.

Specialisations

- Physics
- Astronomy and Astrophysics
- Theoretical Physics
- Chemistry/Physics

Studies begin with a unified block of basic courses within the selected specialisation. Following this, students can select courses from a range of specialising or broadening profile courses. The programme is completed with an independent project (degree project) of 15 credits. There are recommended study paths for each main field, but students may also design parts of their programme by selecting a certain number of elective courses if they wish.

Compulsory Courses (for all specialisations)

Compulsory courses for all specialisations include the following (total of 112.5 credits):

FYSA30, Physics: Light and Matter, 7.5 credits
 MATA31, Mathematics: Analysis in One Variable, 15 credits
 MATA32, Mathematics: Algebra and Vector Geometry, 7.5 credits
 FYSA33, Physics: Electricity and Magnetism, 7.5 credits
 MATB32, Mathematics: Linear Algebra, 7.5 credits
 FYSA35, Physics: Mechanics, 7.5 credits
 NUMA03, Numerical Analysis: Programming Concepts with Python, 7.5 credits
 FYSB31, Physics: Waves and Fluids, 7.5 credits
 MATB36, Mathematics: Multivariable Calculus and Vector Analysis for Physicists, 7.5 credits
 FYSB32, Physics: Basic Quantum Mechanics, 7.5 credits
 FYSB33, Physics: Thermodynamics and Statistical, 7.5 credits
 FYSC30, Physics: Electromagnetism, 7.5 credits
 FYSC31, Physics: Atomic and Molecular Physics, 7.5 credits
 FYSC33, Physics: Solid State Physics, 7.5 credits

Additional compulsory courses for various specialisations

Physics, Theoretical Physics and Astronomy and Astrophysics

Compulsory courses

For these specialisations, the following courses are also compulsory (total of 15 credits):

At least two of the following courses:

- FYSC32, Physics: Nuclear Physics, 7.5 credits
- FYSC34, Physics: Particle Physics, Cosmology and Accelerators, 7.5 credits
- FYSC35, Physics: Analytical Mechanics and Special Relativity, 7.5 credits

Free elective courses

Free elective courses of 37.5 credits in total, of which at least 7.5 credits must be in physics or astronomy in preparation for the Bachelor's degree project. This elective course may be the third course in the list above.

Chemistry/Physics

Compulsory courses

For this specialisation, the following courses are also mandatory (total of 37.5 credits):

KEMA20, Chemistry: General Chemistry, 15 credits
KEMA41, Chemistry: Organic Chemistry - Basic Course, 7.5 credits
KEMA13, Chemistry: Biochemistry - Basic Course, 7.5 credits
FYSC32, Physics: Nuclear Physics, 7.5 credits

Free elective courses

Free elective courses of 15 credits in total.

Degree project for all specialisations

Degree project

All specialisations culminate in a Degree Project (thesis) worth 15 credits. This project is carried out under supervision within a research group at the Department of Physics. The Degree Project may also be conducted at other departments or companies.

FYSK04, Physics: Bachelor's Degree Project, 15 credits
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