Ciência sem Fronteiras

Lund University, Sweden has been selected by the Brazilian Government to participate in Ciência sem Fronteiras - the Science without Borders programme.

As Scandinavia’s top-ranked, full scale university and the number one choice for international students studying in Sweden, we offer Science without Borders scholarship recipients the opportunity to experience global class environments and to be exposed to cutting-edge research, all within an international environment where 90% of the population speak fluent English.

We look forward to welcoming you to Sweden!

LUND UNIVERSITY, SWEDEN

Founded in 1666, Lund University is one of northern Europe’s oldest, broadest and finest universities. We provide education and research in engineering, science, law, social sciences, economics and management, medicine, humanities, theology, fine art, music and drama. Lund University is consistently ranked as one of the world’s top 100 universities. The main campus is in the city of Lund – a charming, medieval city (population 100,000) located in southern Sweden - only 40 minutes by train to Copenhagen in Denmark.

TOP REASONS TO STUDY AT LUND UNIVERSITY

• Consistently ranked as one of the world’s top 100 universities, we are Sweden’s top-ranked, full-scale university

• The #1 choice for international students studying in Sweden and considered to be the best student city in Sweden

• Sweden is ranked as the 2nd best country in the world when it comes to providing higher education

• Ericsson, Tetra Pak, Sony Mobile, Gambro and Alfa Laval are among the large, well-known companies located in Lund with which the University cooperates. Lund and the wider Copenhagen-Malmö region is one of Europe’s most creative hubs for science, innovation and culture.

• English is widely spoken in Sweden (90% of Swedes are fluent) and Swedes have the highest proficiency in English as a second language in the world

• Lund University is located in southern Sweden, which has a milder winter climate and beautiful beaches close by.

• Lund is only 40 minutes by train from the international airport in Copenhagen in Denmark, making it a great base for travel throughout Europe during holidays.

• Lund is home to over 30 world-leading research environments and is the location for 2 of Europe’s largest research facilities currently being built; ESS and MAX IV.

• Lund is an international meeting place with students from across the globe. Gain new cultural perspectives and develop your Swedish and international network, which will be highly valued by employers.

• Founded in 1666 – one of the oldest and broadest universities in northern Europe
Lund University is pleased to offer approved Science without Borders undergraduate scholarship recipients the opportunity to study the following course packets (taught in English) over a period of two semesters (10 months of study).

**SCIENCE**
- Physical Chemistry
- Organic and Inorganic Chemistry
- Analytical Chemistry
- Geomatics and Geographical Information Systems (GIS)
- Physical Geography and Ecosystems Science, Climate Change
- Bedrock Geology
- Pure Mathematics 1
- Pure Mathematics 2
- Mathematical Statistics
- Physics - General
- Particle Physics
- Materials Physics
- Photonics - Physics
- Theoretical Physics
- Synchrotron Radiation Based Science
- Astrophysics
- Microbiology
- Medical Biology
- Molecular Biology
- Bioinformatics
- Molecular Genetics and Biotechnology
- Conservation Biology
- Animal Ecology
- Plant Ecology
- Aquatic Ecology

**ENGINEERING & DESIGN**
- Advanced Architectural Design and Urban Shelter
- Urban Shelter and Architectural Conservation
- Urban Shelter and Architectural Competition
- Sustainable Urban Landscape and Urban Shelter
- Sustainable Urban Design
- Biomedical Engineering
- Control Engineering
- Computer Science
- Communication Systems
- Signal Processing
- Information Theory and Security
- Computation and Simulation

**HEALTH, CREATIVE INDUSTRIES, ENVIRONMENT**
- Public Health
- Biomedicine
- Environmental Studies and Sustainability Science
- Fine Arts
- Music – Composition
- Music - Interpretation

**BASIC ELIGIBILITY REQUIREMENTS**
Brazilian students must have completed at least 60% of the studies planned for their degree programme at the time for the planned beginning of the scholarship period.

English proficiency must be demonstrated with one of the following, unless otherwise specified:
- TOEFL internet based test: Score of 20 (scale 0-30) in written test, total score of 90
- TOEFL paper-based score: Score of 4.5 (scale 1-6) in written test, total score of 575
- IELTS score of 6.5 (with no section less than 5.5)

Students should also meet any specific eligibility requirements as required by the individual programme (e.g. specific subjects previously studied).

**APPLICATION PROCESS**
Applicants apply for the Ciência sem Fronteiras scholarship through CAPES. Approved scholarship recipients then apply to Lund University online. Instructions are provided here: [http://www.studyinsweden.se/How-To-Apply/Ciencia-sem-Fronteiras/](http://www.studyinsweden.se/How-To-Apply/Ciencia-sem-Fronteiras/)

**DISCLAIMER**
While care has been taken to provide accurate information in this brochure, changes may occur. Please check our website [www.lunduniversity.lu.se/swb](http://www.lunduniversity.lu.se/swb) for updates or contact swb@er.lu.se.
Physical Chemistry

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Chemistry

Programme overview:

Students develop advanced laboratory skills, profound theoretical comprehension of fundamental mechanisms and a good understanding of practical applications. Special emphasis is given to an unbroken line of understanding, from quantum mechanical description of atoms and molecules to complex supramolecular structures, as well as their industrial and biological applications.

Programme structure:

- KEMM07 Surface and Colloid Chemistry – Advanced Course (15 ECTS credits)
- KEMM27 Chemist’s Modelling Tools (15 ECTS credits)
- KEMM17 Magnetic Resonance. Spectroscopy and Imaging (7.5 ECTS credits)
- KEMM18 Statistical Thermodynamics (7.5 ECTS credits)
- KEMM37 Scattering Methods (7.5 ECTS credits)
- KEMM28 Molecular Quantum Mechanics (7.5 ECTS credits)

Special features of the programme:

This programme will give you a broad and fundamental knowledge in the field of physical chemistry, with an emphasis on the fields of surface and colloid chemistry, nanochemistry, and soft condensed matter.

Admission requirements:

Completed courses comprising at least 90 ECTS credits in natural science, including at least 30 ECTS credits of physical chemistry, alternatively at least 60 ECTS credits of physics, and at least 15 ECTS credits of mathematics. Students that have only 15 credits of physical chemistry have the possibility to take a complementary course (KEMB08) during the first half of the autumn semester.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:

Christina.Persson@kemi.lu.se

Organic and Inorganic Chemistry

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Chemistry

Programme overview:

The aim of the courses in this programme is to generate deeper knowledge in organic and inorganic chemistry, including theory and experimental methods for the study of reaction mechanisms and synthetic strategy. The courses include extensive experimental parts where special emphasis is laid on acquiring independence in literature search, synthesis planning, product analysis and the scientific evaluation of the results. The programme also includes a course in analytical chemistry which provides advanced theoretical insight into commonly occurring modern separation techniques.

Programme structure:

- KEMM32 Bioinorganic Chemistry ( 7.5 ECTS credits)
- KEMM22 Coordination Chemistry ( 7.5 ECTS credits)
- KEMM06 Analytical Chemistry – Advanced Course (15 ECTS credits)
- KEMM01 Organic Chemistry – Advanced Course ( 15 ECTS credits)
- KEMM12 Organometallic Chemistry (15 ECTS credits)

It may be possible to choose KEMM27 Chemist’s Modelling Tools (15 ECTS credits) instead of KEMM06 Analytical Chemistry. Please check with the department.

Special features of the programme:

Prominent research groups at the Centre for Analysis and Synthesis in the fields of organic, organometallic and analytical chemistry are deeply involved in the courses.

Admission requirements:

Completed courses comprising at least 90 ECTS credits in natural science, including at least 15 ECTS credits of general chemistry, 15 ECTS credits of inorganic chemistry, 22.5 ECTS credits of organic chemistry, 15 ECTS credits of physical chemistry, 15 ECTS credits of analytical chemistry and 15 ECTS credits of mathematics.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details: Christina.Persson@kemi.lu.se
Analytical Chemistry

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Chemistry

Programme overview:

The aim of the courses in this programme is to generate deeper knowledge in analytical chemistry with advanced theoretical insight into commonly occurring modern separation techniques, stationary and dynamic electrochemical methods, electrochemical impedance spectroscopy, and potential step methods. The courses include extensive experimental parts on active use of these methods and provide knowledge and skills needed for professional planning, performing, reporting and evaluating chemical analyses.

Programme structure:

- KEMM32 Bioinorganic Chemistry (7.5 ECTS credits)
- KEMM22 Coordination Chemistry (7.5 ECTS credits)
- KEMM06 Analytical Chemistry – Advanced Course (15 ECTS credits)
- KEMM36 Electroanalytical Chemistry (15 ECTS credits)
- KEMM56 Applied Analytical Chemistry (15 ECTS credits)

Special features of the programme:

Prominent research groups at the Department of Chemistry in the fields of bioinorganic, analytical and electroanalytical chemistry are deeply involved in the courses.

Admission requirements:

Completed courses comprising at least 90 ECTS credits in natural science, including at 15 ECTS credits general chemistry, 15 ECTS credits inorganic chemistry, 7.5 ECTS credits organic chemistry, 15 ECTS credits physical chemistry and 15 ECTS credits analytical chemistry and 15 ECTS credits of mathematics.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:

Christina.Persson@kemi.lu.se

Geomatics and Geographical Information Systems (GIS)

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Physical Geography & Ecosystem Science

Programme overview:

This programme provides courses in the field of land survey including Geographical Information Systems (GIS), spatial analysis, geo-statistics, collection of spatial data, data storage and remote sensing. The programme gives a base for students who want to work in areas of environmental monitoring, urban- and landscape planning, as examples.

Programme structure:

- NGEA11 Geographical Information Systems, an introduction (15 ECTS credits) - first part of the semester
- NGEA12 Geographical Information Systems, advanced course (15 ECTS credits) - second part of the semester
- NGEN11 Spatial Analysis (7.5 ECTS credits) – first part of the semester, in parallel with NGEN12
- NGEN12 Geographical Databases (7.5 ECTS credits) – first part of the semester, in parallel with NGEN11
- NGEN08 Satellite Remote Sensing (15 ECTS credits) – second part of the semester. The course consists of two parts: Remote sensing theory and image processing and Environmental, society orientated and research applications.

Special features of the programme:

The year will give you an extensive introduction in Geographical Information Systems and spatial analysis. GIS is today widely used in a wide range of private and public organisations. All organisations and companies working with any kind of geographical data (from banks and insurance companies to oil and forestry companies) are using GIS in their daily work.

Admission requirements:

Completed courses of at least 180 ETCS credits in natural sciences or engineering.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:

ulrik.martensson@nateko.lu.se
Physical Geography and Ecosystems
Science, Climate Change
- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Physical Geography & Ecosystem Science

Programme overview:
The programme will offer you courses on an advanced level covering the subjects of ecosystem functioning and the effects of climate change. The main topics of this programme are issues of climate change and its effects on the environment, vegetation dynamics, ecosystem modelling and hydrology and/or remote sensing as a tool in environmental monitoring. Computer simulations are introduced and used as a tool to understand and analyse the complex functioning of different ecosystems. The programme gives advanced knowledge that will be valuable in a variety of professional roles, such as work with climate and water issues, nature conservation planning from local to international authorities, ecosystem modelling or/and development of analytical methods. The programme will also provide an excellent starting platform for research studies (PhD).

Programme structure:
- NGEN01 Climate Change and its Impacts on the Environment (15 ECTS credits) – first part of the semester
- NGEN03 Global Ecosystem Dynamics (15 ECTS credits) – second part of the semester
- NGEN02 Ecosystem Modelling (15 ECTS credits) – first part of the semester
- NGEN10 Ecosystem Hydrology (15 ECTS credits) – second part of the semester

It may be possible to choose NGEN08 Satellite Remote Sensing (15 ECTS credits) instead of NGEN10 Ecosystem Hydrology. Please check with the department.

Special features of the programme:
The selected courses for this one year programme will give you an insight within the functioning of ecosystem processes and you will gain a deep knowledge within global ecosystem dynamics, climate change and its impacts of the environment at various regions and scales. You will obtain useful tools within programming and simulation techniques that will increase your analytical abilities to solve complex environmental issues. Hence, you will have a sound base for development or research activities within various important environmental issues for the future.

Admission requirements:
Completed courses of at least of 180 ETCS credits in natural sciences. English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
ulrik.martensson@nateko.lu.se

Bedrock Geology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Geology

Programme overview:
This programme covers several important aspects of geology - from minerals, rocks and rock-forming processes, to the history of Earth and the evolution of life. It aims to provide students with a wide range of geological knowledge, exposure to areas at the cutting edge of research, and a thorough understanding of the practical applications of geology.

Programme structure:
- GEOM05 Magmatic Petrology, Geochemistry and Geochronology (15 ECTS credits)
- GEOM07 Sedimentary Geology and Basin Analysis (15 ECTS credits)
- GEOM06 Metamorphic Petrology and Structural Geology (15 ECTS credits)
- GEOM04 Evolution of the Biosphere, Palaeoecology and Palaeontology (15 ECTS credits)

Refer to http://www.geol.lu.se/gu/Eng/master_path.htm for more information.

Special features of the programme:
All students undertake their lectures and practical sessions in well-equipped lecture halls and teaching laboratories within the department building. Fieldwork is an essential part of the practical work and there are excursions, ranging from one-day trips to one week trips. These are held at a variety of locations and are a major feature of the course package. Students obtain transferable and subject specific skills that are necessary for academic research or entry into various employment opportunities in private companies or governmental structures.

Admission requirements:
120 ECTS credits in Geology or Earth Sciences with specialisation in geology, including introductory courses in Igneous and Metamorphic Petrology, Sedimentology and Palaeontology.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
Per.Ahlberg@geol.lu.se
Pure Mathematics 1

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Mathematics

Programme overview:
The purpose of this programme is to give students theoretical knowledge of mathematics at an advanced level. The courses provide a solid mathematical background in pursuing further studies in pure and applied mathematics, statistics, computer science, and other areas.

Programme structure:
- MATM16 Topology (7.5 ECTS credits)
- MATM13 Differential Geometry (7.5 ECTS credits)
- MATP15 Linear Functional Analysis (7.5 ECTS credits)
- MATP25 Specialised Course on Linear Functional Analysis (7.5 ECTS credits)*
- MATP29 Specialised Course on Integration Theory (7.5 ECTS credits)**
- MATM11 Algebraic Structures (15 ECTS credits)
- MATM19 Integration Theory (7.5 ECTS credits)
- MATM15 Number Theory (7.5 ECTS credits)

Note the following course specific admission requirements:
- * MATP25: at least 67.5 ECTS credits in pure mathematics comprising MATP15 Linear Functional Analysis.
- ** MATP29: at least 67.5 ECTS credits in pure mathematics comprising MATM19 Integration Theory.

Contact details:
Anna-Maria.Persson@math.lu.se

Pure Mathematics 2

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Mathematics

Programme overview:
The purpose of this programme is to give students theoretical knowledge of mathematics at an advanced level. The courses provide a solid mathematical background in pursuing further studies in pure and applied mathematics, statistics, computer science, and other areas.

Programme structure:
- MATP15 Linear Functional Analysis (7.5 ECTS credits)
- MATP25 Specialised Course on Linear Functional Analysis (7.5 ECTS credits)*
- MATM19 Integration Theory (7.5 ECTS credits)
- MATM12 Analytic functions (15 ECTS credits)
- MATM16 Topology (7.5 ECTS credits)
- MATM11 Algebraic Structures (15 ECTS credits)
- MATP29 Specialised Course on Integration Theory (7.5 ECTS credits)**

Additional course specific admission requirements:
- * MATP25: at least 67.5 ECTS credits in pure mathematics comprising MATP15 Linear Functional Analysis.
- ** MATP29: at least 67.5 ECTS credits in pure mathematics comprising MATM19 Integration Theory.

Contact details:
Anna-Maria.Persson@math.lu.se
Mathematical Statistics

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Mathematics

Programme overview:

The following programme consists of eight 7.5 ECTS credit courses. Students that read the courses in the recommended order below will automatically fulfill all course requirements. Students can also choose from additional courses, provided that they meet the requirements for the courses.

Recommended programme structure:

- MASC03 Markov Processes (7.5 ECTS credits)
- MASC04 Stationary Stochastic Processes (7.5 ECTS credits)
- MASM14 The Mathematical Basis for Probability Theory (7.5 ECTS credits)
- MASM17 Time Series Analysis (7.5 ECTS credits)
- MASM11 Monte Carlo Methods for Stochastic Inference (7.5 ECTS credits)
- MASM26 Stationary and Non-Stationary Spectral Analysis (7.5 ECTS credits)
- MASM15 Statistical Modelling of Extreme Values (7.5 ECTS credits)
- MASM22 Linear and Logistic Regression (7.5 ECTS credits)

Admission requirements:

45 ECTS credits in mathematics and a basic course in mathematical statistics.

English proficiency: IELTS 6.5 or accepted equivalent

The following alternative courses may be possible to select depending on your previous studies. Please contact the department for further information.

- MASM18: Financial statistics (7.5 ECTS credits) – autumn semester. Requirements: A course in stationary stochastic processes and a course in time series analysis.
- MASM21: Survival analysis (7.5 ECTS credits) - autumn semester. Requirements: A basic course in mathematical statistics and MASC02 Inference theory, 7.5 ECTS or equivalent and 60 ECTS mathematics.
- MASM25: Spatial statistics with image analysis (7.5 ECTS credits) – autumn semester. Requirements: One of the courses Markov processes MASC03, Stationary Stochastic Processes MASC04 or equivalent.
- MASC01 Probability Theory (7.5 ECTS credits) – spring semester. Pre-requisites: 45 ECTS credits in mathematics and a basic course in mathematical statistics.
- MASC05: Design of Experiments (7.5 ECTS credits) – spring semester. Pre-requisites: 45 ECTS credits in

Please contact the department for further information regarding which alternatives or combinations may be available.

Contact details:

magnusw@maths.lth.se
Physics – General

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Physics

Programme overview:
If you have a general interest in Physics and would like to keep your options open, you can choose this package as an introduction to advanced studies in Physics (1st semester) and a possibility to specialise in one of the many fields of Physics in Lund (see our homepage www.physics.lu.se).

Programme structure:
- FYSN11 Experiments in Research and Society (7.5 ECTS credits)
- FYTN03 Computational Physics ( 7.5 ECTS credits)
- FYSN17 Quantum mechanics (7.5 ECTS credits)
- FYSN13 Electrodynamics (7.5 ECTS credits)
- FYSN14 Lasers (7.5 ECTS credits)
- FYST20 Spectroscopy and the Quantum Description of Matter (7.5 credits)
- FYST19 Physics and Chemistry of Surfaces (7.5 credits)
- FYST16 Modern Subatomic Physics (7.5 credits)

Students may be able to choose from a large range of course alternatives. Please check with the department. The department’s full course list can be found from: http://www.fysik.lu.se/english

Special features of the programme:
Lund is consistently ranked as the top university in Physical Science in Northern Europe. This programme will give you a great freedom to select your specialisation among the strong fields among Physics in Lund.

Admission requirements:
120 ECTS credits in Physics and Mathematics, including introductory course in quantum mechanics and introductory courses in the field of specialisation (nuclear, atomic/molecular, solid state or particle physics).

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details: Tomas.Brage@fysik.lu.se

Particle Physics

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Physics

Programme overview:
In the Particle Physics Division at the Physics Department, Lund University we are involved in two major experiments at the LHC; ATLAS and ALICE. The ATLAS experiment is devoted to looking for physics beyond the Standard Model, whereas the ALICE experiment is designed to look at a new state of matter called quark-gluon plasma. This programme is ideal as the beginning of an academic career in Particle Physics, but also opens a door to other careers in a diversified society.

Programme structure:
- FYSN17 Quantum Mechanics, 7.5 ECTS credits
- FYSN15 Experimental Tools, 7.5 ECTS credits
- FYTN04 Theoretical Particle Physics, 7.5 ECTS credits
- FYTN11 Cosmology and Astroparticle Physics, 7.5 ECTS credits
- FYST17 Modern Experimental Particle Physics, 7.5 ECTS credits
- FYTN08 General Relativity, 7.5 ECTS credits
- FYTN10 Introduction to Quantum Field Theory, 7.5 ECTS credits
- FYST16 Modern Subatomic Physics, 7.5 ECTS credits

It may be possible to choose the following alternatives. Please check with the department:
- FYSN13 Electromagnetism, 7.5 ECTS credits
- FYST18 Applied Subatomic Physics, 7.5 ECTS credits

Admission requirements:
120 ECTS credits in Physics and Mathematics, including introductory course in quantum mechanics and introductory courses in particle physics.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details: Tomas.Brage@fysik.lu.se
Materials Physics

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Physics

Programme overview:

Materials make up everything around us and their properties are critical to all applications. Almost every aspect of modern society is touched by technology made possible by advances in materials. The study of materials is based on the relationship between the properties of a material (which determine its functionality), its structure, and the way that the material is assembled. Materials science is inherently multidisciplinary and includes subjects from both basic sciences and engineering, and from Physics and Chemistry.

Programme structure:

- FYSN11 Physics Experiments in Research and Society, 7.5 ECTS credits
- FYSN15 Experimental Tools, 7.5 ECTS credits
- MAXM16 Experimental Methods and Instrumentation for Synchrotron Radiation, 7.5 ECTS credits
- FYST15 Semiconductor Physics, 7.5 ECTS credits
- FYST19 Physics and Chemistry of Surfaces, 7.5 ECTS credits
- FYST25 Solid State Theory, 7.5 ECTS credits
- FYST20 Spectroscopy and the Quantum Nature of Matter, 7.5 ECTS credits
- FYST21 Light-Matter Interaction, 7.5 ECTS credits

The following alternative courses may be possible to select. Please contact the department for further information.

- FYST29 Multispectral Imaging, 7.5 ECTS credits
- FYST40 Nanomaterials – Thermodynamics and Kinetics, 7.5 ECTS credits
- FYST33 Electron Transport in Nanostructures, 7.5 ECTS credits
- FYST35 Crystal Growth and Semiconductor Epitaxy, 7.5 ECTS credits
- FYST42 Scanning Probe Microscopy, 7.5 ECTS credits
- FYST39 Nanoelectronics, 7.5 ECTS credits

Admission requirements:

120 ECTS credits in Physics and Mathematics, including introductory course in quantum mechanics and introductory courses in Atomic, Molecular and Solid State Physics.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:

Tomas.Brage@fysik.lu.se

Photonics – Physics

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Physics

Programme overview:

Photonics is the science and technology of generating and controlling photons. The science of photonics includes the emission, transmission, amplification, manipulation, detection and utilisation of light.

Photonics is one of the most important key technologies for markets in the 21st century. The photonics industry plays a vital role in areas such as information and communication, lighting and manufacturing, security, space and defense, life science and health care.

Programme structure:

- FYST43 Optics and Optical Design, 7.5 ECTS credits
- FYSN14 Lasers, 7.5 ECTS credits
- FYST14 Atomic and Molecular Spectroscopy, 7.5 ECTS credits
- FYST29 Multispectral Imaging, 7.5 ECTS credits
- FYST41 Photonics and Optical Communication, 7.5 ECTS credits
- FYST32 Advanced Optics and Lasers, 7.5 ECTS credits
- FYST28 Laser-based Combustion Diagnostics, 7.5 ECTS credits
- FYST22 Medical Optics, 7.5 ECTS credits

It may be possible to choose FYST21 Light-Matter Interaction, (7.5 ECTS credits) instead of FYST28 Laser-based Combustion Diagnostics. Please check with the department directly.

Admission requirements:

120 ECTS credits in Physics and Mathematics, including introductory course in quantum mechanics and introductory courses in Atomic, Molecular and Solid State Physics.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:

Tomas.Brage@fysik.lu.se
**Theoretical Physics**

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Physics

**Programme overview:**
Do you want to understand the inner workings of nature from a theoretical viewpoint? At the Department of Astronomy and Theoretical Physics together with the Department of Physics in Lund we offer a broad programme covering a wide range of topics in theoretical and mathematical physics. You can choose from studying the smallest constituents of matter and their interactions within theoretical high energy physics via nuclear and solid state physics within mathematical physics, all the way to protein folding and plant growth within biophysics and computational biology. In all cases you will get a solid bases of theoretical knowledge needed to develop new models and to better understand how nature works.

**Programme structure:**
- FYTN03 Computational Physics, 7.5 ECTS credits
- FYSN17 Quantum Mechanics, 7.5 ECTS credits
- FYTN02 Statistical Mechanics, 7.5 ECTS credits
- FYTN04 Theoretical Particle Physics, 7.5 ECTS credits
- FYTN09 Classical Mechanics, 7.5 ECTS credits
- FYTN10 Introduction to Quantum Field Theory, 7.5 ECTS credits
- FYST25 Solid State Theory, 7.5 ECTS credits
- FYST13 Chaos, Science and Technology, 7.5 ECTS credits

It may be possible to choose from the following alternative course options. Please check with the department.
- FYTN05 Theoretical Biophysics, 7.5 ECTS credits
- FYST11 Theoretical Nuclear Physics, 7.5 ECTS credits
- FYSN13 Electromagnetism, 7.5 ECTS credits
- FYTN06 Artificial Neural Networks, 7.5 ECTS credits
- ASTM21 Statistical Tools in Physics and Astronomy, 7.5 ECTS credits
- FYSN17 Quantum Mechanics, 7.5 ECTS credits
- FYST17 Modern Experimental Particle Physics, 7.5 ECTS credits
- FYTN01 Mathematical Methods in Physics, 7.5 ECTS credits
- FYTN08 General Relativity, 7.5 ECTS credits
- FYST37 Advanced Quantum Mechanics, 7.5 ECTS credits

**Admission requirements:**
90 ECTS credits in Physics (including introductory course in quantum mechanics) and 45 ECTS credits of Mathematics. Some of the courses also require more specific knowledge corresponding to certain courses at Lund University: FYST11 and FYST37 requires FYSN17; FYTN10 requires FYSN17 and FYTN04 or FYST37; FYST25 requires FYSN13 and FYSN17.

English proficiency: IELTS 6.5 or accepted equivalent.

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**Synchrotron Radiation Science**

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Physics

**Programme overview:**
Synchrotron radiation sources like LNLS (Brazilian Synchrotron Light Laboratory, Campinas) and MAX IV laboratory (Lund) are facilitating cutting-edge research. Do you want to understand the science around them? Are you curious how to use the synchrotron light for experiments in biology, chemistry or physics? Do you want to learn more about the accelerators and how they work? Either your interest is in the application or in the production of the synchrotron light, you can first take a block of basic courses and then you can decide, depending on your background and interest, in which field you want to focus more.

**Programme structure:**
- MAXM07 Introduction to Accelerators and FELs, 7.5 credits
- MAXM06 Introduction to Synchrotron Based Science, 7.5 credits
- MAXM16 Experimental Methods and Instrumentation for Synchrotron Radiation Research, 7.5 credits
- Elective: MAXM17 Project in Synchrotron Radiation Based Science, 7.5 credits
- FYST19 Physics and Chemistry of Surfaces, 7.5 ECTS credits
- FYST20 Spectroscopy and the Quantum Nature of Matter, 7.5 ECTS credits
- FYST21 Light-Matter Interaction
- FYST32 Advanced Optics and Lasers, 7.5 ECTS credits

It may be possible to choose from the following alternatives. Please check with the department.
- MAXM05 Accelerators and FELs, 7.5 credits
- BIOR31 Molecular Biotechnology 15 ECTS credits
- KEMM13 Biochemistry, 15 ECTS credits
- FYTN05 Theoretical Biophysics, 7.5 ECTS credits
- FYSN13 Electromagnetism, 7.5 ECTS credits
- FYSN14 Lasers, 7.5 ECTS credits
- FYST40 Nanomaterials – Thermodynamics and Kinetics, 7.5 ECTS credits
- FYSN13 Electrodynamics, 7.5 ECTS credits

**Admissions requirements:**
120 ECTS credits in Science (MAXM06, MAXM07, MAXM 16 & MAXM17). Prerequisites for other Physics, Chemistry and Biology courses will vary.

English proficiency: IELTS 6.5 or accepted equivalent.

**Contact details:**
Tomas.Brage@fysik.lu.se
Astrophysics

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Astronomy and Theoretical Physics

Programme overview:

Over two semesters, students are exposed to a broad range of astrophysics. The programme combines traditional lectures, written exams with laboratory exercises and problem-based learning in small groups. It puts special emphasis on modern astrophysics where we use current journal articles as learning materials.

Programme structure:

- ASTM13 Dynamical astronomy (7.5 ECTS credits)
- ASTM12 High-energy astrophysics (7.5 ECTS credits)
- ASTM14 Stellar structure and evolution (7.5 ECTS credits)
- ASTM21 Statistical tools in astrophysics (7.5 ECTS credits)
- ASTM18 Observational techniques and instrumentation (7.5 ECTS credits)
- ASTM22 Computational astrophysics (7.5 ECTS credits)
- ASTM19 Extragalactic astronomy (7.5 ECTS credits)
- ASTM15 Laboratory astrophysics (7.5 ECTS credits)

The following alternative courses may be possible to select. Please contact the department for further information.

- ASTM14 Stellar structure and evolution (7.5 ECTS credits)
- ASTM21 Statistical tools in astrophysics (7.5 ECTS credits)
- ASTM13 Dynamical astronomy (7.5 ECTS credits)
- ASTB01 Introduction to astrophysics (7.5 ECTS credits)
- ASTA34 Radiation processes and stellar atmospheres (7.5 ECTS credits)
- FYTN08 General relativity (7.5 ECTS credits)

Special features of the programme:

The courses are chosen with care in order to not only give you depth in your astronomy studies but also to train you in programming and numerical methods. We also train your analytical and problem-solving skills. We make use of small group teaching throughout all courses, for example students work in groups to solve problems (problem-based learning). Students learn and develop in an international setting with students from all over the world. All courses are taught by research-active professors.

Admission requirements:

120 ECTS credits in Physics and Mathematics, including introductory course in quantum mechanics and an introductory course in at least one of the following areas: nuclear, atomic/molecular, or particle physics. Introductory astronomy is not mandatory; in that case the student will follow an introductory course in astrophysics.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details: anders@astro.lu.se

Microbiology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:

This programme offers students a highly competitive education in modern microbiology. Molecular biology and genomics have transformed this topic and underlined the fundamental importance of microorganisms in most aspects of biology, from ecology to medicine.

Programme structure:

- BIOR18 Microbiology, 15 ECTS credits
- BIOR63 Molecular Microbiology, 15 ECTS credits
- BIOR47 Methods in Molecular Biology, 15 ECTS credits
- BIOR56 Antibiotics, 7.5 ECTS credits
- BIOS08 Microscopy: Bio-Imaging, 7.5 ECTS credits

Special features of the programme:

- Integration of experimental and applied microbiology
- Learning in an international and research-intensive environment
- Inquiry-based and research-based laboratory exercises

Admission requirements:

120 ECTS credits in Science including: Cell- and Molecular Biology 30 ECTS credits, Genetics 7.5 ECTS credits, Microbiology ECTS 7.5 credits, Biochemistry 15 ECTS credits, and Chemistry 20 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details: christina.ledje@biol.lu.se
Medical Biology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:
These courses give a solid foundation of molecular biologists in medically related research areas. Medical biology has played, and will continue to play, a central role in pharmaceutical and biotechnological development.

Programme structure:
- BIOR16 Immunology, 15 ECTS credits
- BIOR14 Pharmacology, 15 ECTS credits
- BIOR21 Toxicology, 15 ECTS credits
- BIOR40 Cellular and Molecular Immunology, 15 ECTS credits

Special features of the programme:
- Integration of theory with training of laboratory skills
- Insights into the drug development process, from research to clinical use
- Extensive training in oral and written communication provides a solid basis for the use of relevant terms and expressions within medical biology and related areas

Admission requirements:
120 ECTS credits in Science including: Cell- and Molecular Biology 30 ECTS credits, Genetics 7.5 ECTS credits, Microbiology 7.5 ECTS credits, Human Physiology 15 ECTS credits, Biochemistry 15 ECTS credits, and Chemistry 20 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
christina.ledje@biol.lu.se

Molecular Biology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:
These courses give you a broad knowledge in techniques and methodology used in modern Molecular Biology. Emphasis is placed on laboratory skills.

Programme structure:
- KEMC03 Experimental Protein Chemistry, 15 ECTS credits
- BIOR26 Plant Biology, 15 ECTS credits
- BIOR16 Immunology, 15 ECTS credits
- BIOR61 Molecular Genetics, 15 ECTS credits

Special features of the programme:
- Theoretical and practical knowledge in molecular protein research and development
- Knowledge of methodology used in plant biological work and in research into physiological, molecular and cell biological issues.
- Training in methods used in Immunology for identification, quantification and localization of molecules and cells by the use of immunological methods.
- Understanding in Molecular Genetics as an experimental discipline, and to appreciate how knowledge in the field is based on experimental evidence.

Admission requirements:
120 ECTS credits in Science including: Cell- and Molecular Biology 30 ECTS credits, Genetics 7.5 ECTS credits, Microbiology 7.5 ECTS credits, Animal or Plant Physiology 15 ECTS credits, Biochemistry 15 ECTS credits, and Chemistry 20 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
christina.ledje@biol.lu.se
Bioinformatics

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:

Bioinformatics, the application of computational methods to biological and biomedical problems, is a new and rapidly growing field. These courses provide both theoretical and practical skills in the computational analysis of large biological data sets. Hands on exercises exemplify how computational methods can be applied to real-world investigations of problems of biomedical and biological relevance.

Programme structure:

- BINP11 Bioinformatics and Sequence Analysis, 7.5 ECTS credits
- BIOMP13 Programming in Perl, 7.5 ECTS credits
- KEPM15 Structural Bioinformatic, 15 ECTS credits
- BIOR59 Genetic Analysis I, 7.5 ECTS credits
- BIOR60 Genetic Analysis II, 7.5 ECTS credits
- BIMM16 Human Genetics, 7.5 ECTS credits
- BINP14 Large Scale Analysis of Entire Genomes, 7.5 ECTS credits

Special features of the programme:

The Bioinformatics programme combines advanced research with training of current techniques as well as the development of novel software tools.

Admission requirements:

120 ECTS credits in Science including: Cell Biology, Genetics, Molecular Biology and Biochemistry 60 ECTS credits and Statistics 7.5 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
lotta.persmark@biol.lu.se

Molecular Genetics and Biotechnology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:

These courses have a common basis in molecular genetics, which is the discipline that explains how the information in the genes is expressed and how it can give rise to various traits of an organism. Emphasis is also placed on subjects including genetic mechanisms underlying disease, mapping, and molecular genetic techniques.

Programme structure:

- BIOR49 Molecular Genetics in Eukaryotes, 15 ECTS credits
- BIOR63 Molecular Microbiology, 15 ECTS credits
- BIOR59 Genetic Analysis I, 7.5 ECTS credits
- BIOR60 Genetic Analysis II, 7.5 ECTS credits
- BIOR31 Molecular Biotechnology, 15 ECTS credits

Special features of the programme:

The courses in Molecular Genetics and Biotechnology are highly connected to research and will prepare you for post graduate studies within the field. You will also earn skills that prepare you for work in pharmaceutical-, biotechnology-, and food industry.

Admission requirements:

120 ECTS credits in Science including: Cell- and Molecular Biology 30 ECTS credits, Genetics 7.5 ECTS credits, Microbiology 7.5 ECTS credits, Biochemistry 15 ECTS credits, and Chemistry 20 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
christina.ledje@biol.lu.se
Conservation Biology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:
You will learn how to use modern ecology and genetics within management and restoration, as well as in the study of the loss of biological diversity.

Programme structure:
- BIOR69 Population and Community Ecology, 15 ECTS credits
- BIOR35 Evolutionary Animal Ecology, 15 ECTS credits
- BIOR37 Conservation Biology, 15 ECTS credits
- BIOR39 Biological Monitoring, 15 ECTS credits

Special features of the programme:
- Global and regional aspects of biodiversity and restoration ecology
- Population ecology as a tool in practical conservation biology
- Analytical methods in conservation biology
- Close connections to research in an international environment

Admission requirements:
120 ECTS credits in Biology including at least Cell Biology, Genetics and Microbiology 15 ECTS credits, Ecology 15 ECTS credits, Botany 10 ECTS credits and Zoology 10 ECTS credits, Statistics 7.5 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
lotta.persmark@biol.lu.se

Animal Ecology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:
In this programme you will learn ‘evolutionary thinking’ - how to analyse and understand evolutionary processes at the level of genes, individuals and populations. You will achieve skills in analysing and understanding how evolutionary and ecological processes form appearance, physiology and behaviour in animals. You will also learn how to study costs and benefits of different traits and how these are optimised to form reproductive and survival strategies.

Programme structure:
- BIOR69 Population and Community Ecology, 15 ECTS credits
- BIOR35 Evolutionary Animal Ecology, 15 ECTS credits
- BIOR25 Molecular Ecology and Evolution, 15 ECTS credits
- BIOR 51 Ornithology, 15 ECTS credits

Special features of the programme:
- Evolutionary theory applied to ecological problems
- Close connections to research in an international environment
- Integration of theoretical analyses with strong training of laboratory skills and experience in field work
- Testing of evolutionary hypotheses

Admission requirements:
120 ECTS credits in Science including at least Cell Biology, Genetics and Microbiology 15 ECTS credits, Ecology 15 ECTS credits, Zoology 15 ECTS credits and Statistics, 7.5 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
lotta.persmark@biol.lu.se
Plant Ecology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:
You will learn about the mechanisms that are involved in the evolution of new plant species and the factors that control plant diversity and the distribution of plant species. You will come to understand the way in which mating systems and population structure influence gene flow and genetic diversity in plants. You will learn how plants interact with other organisms and their ability to adapt to environmental change. At the same time, you will gain practical experience of ecological and systematic methodology.

Programme structure:
- BIOR24 Soil Ecology, 15 ECTS credits
- BIOR74 Plant Ecology and Evolution, 15 ECTS credits
- BIOR37 Conservation Biology, 15 ECTS credits
- BIOR39 Biological Monitoring, 15 ECTS credits

Special features of the programme:
- Close connections to research in an international environment
- Integration of theoretical analyses with strong training of laboratory skills

Admission requirements:
120 ECTS credits in Biology including at least Cell Biology, Genetics and Microbiology 15 ECTS credits, Ecology 15 ECTS credits, Botany 15 ECTS credits and Statistics 7.5 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
christina.ledje@biol.lu.se

Aquatic Ecology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Biology

Programme overview:
The courses in Aquatic Ecology provides knowledge on current theories and models of aquatic ecosystems, the relation between watershed, atmosphere, lakes and streams, marine coastal waters and the ocean, interactions between humankind and aquatic ecosystems, and water management. Practical training in laboratory and field methodology is also emphasised.

Programme structure:
- BIOR65 Marine Ecology, 15 ECTS credits
- BIOR67 Fisheries Ecology, 15 ECTS credits
- BIOR68 Aquatic Ecology, 15 ECTS credits
- BIOR66 Water Management, 15 ECTS credits

Special features of the programme:
Close collaboration with research groups on the most recent scientific approaches to current issues in both basic and applied science.

Admission requirements:
120 ECTS credits in Science including at least Cell Biology, Genetics and Microbiology 15 ECTS credits, Ecology 15 ECTS credits, and Statistics 7.5 ECTS credits.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact details:
lotta.persmark@biol.lu.se
EXPERIENCE FOUR DISTINCT SEASONS

Summers are warm and pleasant, 20 to 25°C (68 to 77°F) and up to 17 hours of daylight.

Winters are cold but Lund has a much milder winter climate compared to the rest of Sweden, -5 to 3°C (23 to 37°F) and down to 7 hours of daylight.

Spring is fresh and lively, 3 to 16°C (37 to 61°F).

Autumn is crisp and beautiful 6 to 16°C (43 to 61°F).
Advanced Architectural Design and Urban Shelter

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

The School of Architecture at Lund University is internationally known and has a well established reputation. We believe that our location at a university is of fundamental importance in developing new knowledge within the field of architecture.

An architect in the world tomorrow must be able to move and work in a global society without the boundaries we know today. The School of Architecture in Lund is already international – there are students and teachers from the entire world.

Programme structure:

- Urban Shelter, 15 ECTS credits
- Urban Shelter, Theory, 7.5 ECTS credits
- Climate Smart Architecture and Urban Design, 7.5 ECTS credits
- Advanced Architectural Design II, 15 ECTS credits and
- Integrated Design: Structural Design – Architectural Design, 7.5 ECTS credits
- The Creative Tools of Architecture II, 7.5 ECTS credits

Admission requirements:

At least three years of study in architecture and an approved digital portfolio.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se

Urban Shelter and Architectural Conservation

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

The School of Architecture at Lund University is internationally known and has a well established reputation. We believe that our location at a university is of fundamental importance in developing new knowledge within the field of architecture.

An architect in the world tomorrow must be able to move and work in a global society without the boundaries we know today. The School of Architecture in Lund is already international – there are students and teachers from the entire world.

Programme structure:

- Urban Shelter, 15 ECTS credits
- Urban Shelter, Theory, 7.5 ECTS credits
- Climate Smart Architecture and Urban Design, 7.5 ECTS credits
- Modernistic Architecture – Renewal, 15 ECTS credits
- Modernistic Architecture – Renewal Theory, 7.5 ECTS credits
- Architecture in Material and Detail II, 7.5 ECTS credits

Admission requirements:

At least three years of study in architecture and an approved digital portfolio.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se
Urban Shelter and Architectural Competition

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

The School of Architecture at Lund University is internationally known and has a well established reputation. We believe that our location at a university is of fundamental importance in developing new knowledge within the field of architecture.

An architect in the world tomorrow must be able to move and work in a global society without the boundaries we know today. The School of Architecture in Lund is already international – there are students and teachers from the entire world.

Programme structure:

- Urban Shelter, 15 ECTS credits
- Urban Shelter, Theory, 7.5 ECTS credits
- Climate Smart Architecture and Urban Design, 7.5 ECTS credits
- Creative Competition, 15 ECTS credits
- Contemporary Design Processes, 7.5 ECTS credits
- Architecture as Temporal Landscapes, 7.5 ECTS credits

Admission requirements:

At least three years of study in architecture and an approved digital portfolio.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se

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Sustainable Urban Landscape and Urban Shelter

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

The School of Architecture at Lund University is internationally known and has a well established reputation. We believe that our location at a university is of fundamental importance in developing new knowledge within the field of architecture.

An architect in the world tomorrow must be able to move and work in a global society without the boundaries we know today. The School of Architecture in Lund is already international – there are students and teachers from the entire world.

Programme structure:

- Urban Shelter, 15 ECTS credits
- Urban Shelter, Theory, 7.5 ECTS credits
- Climate Smart Architecture and Urban Design, 7.5 ECTS credits
- Sustainable Urban Landscape, 15 ECTS credits
- Sustainable Urban Landscape, Theory and Method, 7.5 ECTS credits
- Landscape Architecture and Gardens, 7.5 ECTS credits

Admission requirements:

At least three years of study in architecture and an approved digital portfolio.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se
**Sustainable Urban Design**

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

**Programme overview:**

Drawing on best practices and advanced research into urban form, urban quality and sustainability, this programme produces highly skilled professionals, capable of meeting the challenge of sustainable urban design as productive, successful individuals who are creative, insightful and intellectually skilled in their approach to the profession and their practice.

**Programme structure:**

- Sustainable Urban Recycling, 15 ECTS credits
- Urban Recycling, Theory and Methods, 7.5 ECTS credits
- Urban Quality and Urban Form, 7.5 ECTS credits
- Sustainable Urban Landscape, 15 ECTS credits
- Sustainable Urban Landscape, Theory and Method, 7.5 ECTS credits
- Landscape Architecture and Gardens, 7.5 ECTS credits

**Special features of the programme:**

Making the world’s growing cities healthy, attractive and sustainable is an exceptional challenge. Lund University, located in the dynamic Copenhagen-Malmö region, is a global leader in balancing urban economic growth and environmental development and offers superb resources for studying the diverse aspects of sustainability and design.

**Admission requirements:**

Three years of study in architecture, landscape architecture, physical planning or urban design. A specific requirement is that applicants submit a digital portfolio of their own work in architecture and/or urban construction. The portfolio must clearly prove that the applicant has good potential to benefit from the programme.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

**Contact details:**

SwB@kansli.lth.se

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**Biomedical Engineering**

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

**Programme overview:**

This package puts special emphasis on signals and images in biomedical applications, biomechanics, and medical physics. The courses are selected to provide both up-to-date theoretical knowledge and practical skills that are vital for a successful career as a biomedical engineer.

**Programme structure:**

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Biomechanics, 7.5 ECTS credits
- Optimal Signal Processing, 7.5 ECTS credits
- Image Analysis, 7.5 ECTS credits
- Lasers, 7.5 ECTS credits
- Advanced Biomechanics, 7.5 ECTS credits
- Biomathematics, 7.5 ECTS credits
- Ultrasound Physics and Technology, 7.5 ECTS credits
- Biomedical Signal Processing, 7.5 ECTS credits
- Medical Optics, 7.5 ECTS credits
- Biomathematics (continued)

**Special features of the programme:**

This package of courses offers an attractive mix of knowledge in biomedical engineering, all courses being born out of the world-leading, interdisciplinary research undertaken at Lund University. All courses are taught by experts in the field, and therefore the courses offer a unique opportunity to learn more about advanced issues.

**Admission requirements:**

Three years of studies in Biomedical Engineering or Electrical Engineering or Computer Science (including fundamental course in Physics, Mechanics, Signal processing, Mathematics).

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

**Contact details:**

SwB@kansli.lth.se
Control Engineering

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

The control engineering programme gives a deep understanding of automatic control, including automation and real-time systems, which is suitable both for those that aim for an industrial career and those that intend to continue with PhD studies. The topic has wide applicability in a wide range of domains, e.g., transportation, automotive systems, power systems, and process automation. Most of the courses contain practical elements in the form of laboratories using physical processes, and four of the courses (Real-Time Systems, Predictive Control, System Identification, and Project in Automatic Control) contain projects.

Multivariable control is a continuation of the introductory course that focuses on control of multi-input, multi-output linear systems using optimisation-based techniques. In real-time systems the focus is design and implementation of discrete-time controller on embedded execution platform. The course also covers concurrent real-time programming and scheduling. The predictive control course studies adaptive and predictive control techniques. The optimisation course given by the Mathematics department gives an introduction to mathematical optimisation. The automation course provides an overview of automation techniques and components. In the nonlinear control course the focus is analysis and control of nonlinear systems. In the system identification course different methods for data-based identification of dynamical models are presented. Finally, the project course in control is a project course that covers the entire development chain from physical system modelling to controller implementation and testing using embedded system platforms.

Programme structure:

- Multivariable Control, 7.5 ECTS credits
- Real-Time Systems, 10 ECTS credits
- Predictive Control, 7.5 ECTS credits
- Optimisation, 6 ECTS credits
- Nonlinear Control and Servo Systems, 7.5 ECTS credits
- System Identification, 7.5 ECTS credits
- Automation, 7.5 ECTS credits
- Project in Automatic Control, 7.5 ECTS credits

Special features of the programme:

The Department of Automatic Control is a very international department with employees from several parts of the world. The department is considered to be one of the best control departments in the world, with very strong research in several areas, e.g., modelling and control of complex systems, real-time computing, control of computer systems, robotics, and process control. More information about the department, the courses, and the research can be found at http://www.control.lth.se

Admission requirements:

Three years of studies (180 ECTS credits) in Electrical Engineering, Computer Engineering or Information Technology, Engineering Physics, Mechanical Engineering, or equivalent including relevant courses in mathematics, signals, and at least one basic level course in control.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se
Computer Science

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

The computer science programme gives a deep understanding of software development which is suitable both for those that aim for an industrial career and those that intend to continue with PhD studies. The topic has wide applicability in a wide range of domains, e.g., entertaining, gaming, communication, embedded system, automatic control, and medical application. All courses contain practical elements in the form of laboratories.

The computer graphics and high performance computer graphics courses give a good understanding of modern 3D computer graphics rendering in real time on desktop computers and mobile devices. The Photo-realistic computer graphics course is a continuation focusing on lightening and ray tracing generation of photorealistic graphics. The advanced algorithm course is a continuation of an introduction course to computer algorithms. It covers both theory and advanced algorithms and their practical use. The courses in functional programming, C++ programming and constraint programming give a good understanding of different programming paradigms and the compiler course gives a understanding of the different steps in a compiler.

Programme structure:

- Computer Graphics, 7.5 ECTS credits
- Advanced Algorithms, 7.5 ECTS credits
- High Performance Computer Graphics, 7.5 ECTS credits
- Functional Programming, 7.5 ECTS credits
- C++ Programming, 7.5 ECTS credits
- Compiler Construction, 7.5 ECTS credits
- Constraint Programming, 7.5 ECTS credits
- Photo-realistic Computer Graphics, 7.5 ECTS credits
- C++ Programming, 7.5 ECTS credits
- Compiler Construction, 7.5 ECTS credits

Special features of the programme:

The Department of Computer Science is a very international department with employees from several parts of the world. Several of the researches at the department are regarded as among the best in their fields, with very strong research in several areas, e.g., computer graphics, embedded system design, and software engineering.

More information about the department, the courses, and the research can be found at www.cs.lth.se

Admission requirements:

Three years of studies (180 ECTS credits) in Electrical Engineering, Computer Engineering or Information Technology, Engineering Physics, Mechanical Engineering, or equivalent including relevant courses in mathematics, and courses on programming and data structures corresponding to at least 10 weeks of full time studies (15 ECTS). Basic knowledge of object oriented programming is assumed.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se
Communications Systems

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

This programme covers several aspects of communications systems. It covers network protocols used in mobile communication systems and wireless local networks. Further, it covers the communication chain from how the data is coded, modulated and sent over a transmission channel to how it is demodulated and decoded. It also gives an introduction to how the data can be encrypted in order to guarantee confidentiality and integrity of the data.

Programme structure:

- Basic Wireless Communication Technique, 7.5 ECTS credits
- Digital Communications, 7.5 ECTS credits
- Digital Communications, Advanced Course, 7.5 ECTS credits
- Cryptography, 7.5 ECTS credits
- Advanced Telecommunication, 7.5 ECTS credits
- Channel Modelling for Wireless Communication, 7.5 ECTS credits
- OFDM for Broadband Communication, 7.5 ECTS credits
- Radio Systems, 7.5 ECTS credits

Special features of the programme:

Modern communication systems require a very high bit rate, while maintaining reliability and robustness in the system. The courses will provide detailed knowledge about communication links consisting of a transmitter, the communication channel and a receiver. The techniques covered by the courses are used in e.g., mobile broadband/telephony, WLAN, ADSL, Bluetooth and GPS. Modern important techniques which are covered include MIMO and OFDM and the Rayleigh fading channel model.

Communication, in particular wireless communication, needs to be protected from eavesdroppers and other malicious parties. The course package will give an understanding of the possibilities and limitations in cryptographic techniques, including stream and block ciphers, authentication codes and digital signatures. The course package will give a comprehensive understanding of many aspects of mobile and wireless networks and communication, as well as the ability to develop future technologies in this area.

Admission requirements: Three years of studies in Electrical Engineering, Computer Science or Information Technology.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se

Signal Processing

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

This course package will give a comprehensive knowledge about statistical signal processing. It covers the design of filters, including adaptive filters, how signals can be processed in noisy environments, biomedical signals and clinical applications where such signals are used. It also covers the implementation of algorithms in digital signal processors and mathematical modelling of any time varying phenomena.

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Optimal Signal Processing, 7.5 ECTS credits
- Stationary Stochastic Processes, 7.5 ECTS credits
- Adaptive Signal Processing, 7.5 ECTS credits
- Mathematical Statistics, Time Series Analysis, 7.5 ECTS credits
- Algorithms in Signal Processors – Project Course, 7.5 ECTS credits
- Stationary and Non-stationary Spectral Analysis, 7.5 ECTS credits
- Biomedical Signal Processing, 7.5 ECTS credits
- Signal Processing – Design and Implementation, 7.5 ECTS credits

Special features of the programme:

Signal processing is used in a wide variety of areas, such as mobile communication, biomedical signals and acoustics. Using techniques covered by the courses in this course package, it is possible to process signals, and extract information even if the channel is very noisy. Fast and efficient algorithms for accomplishing this are needed in real-time systems and in communication systems with high throughput. Signals originating in the human body, e.g., from the heart and the brain, contain clinically significant information, which can be extracted and processed. The course package will give a thorough treatment of many aspects of signals processing, both mathematical models and the design and implementation of signal processing algorithms.

Admission requirements:

Three years of studies in Electrical Engineering, Computer Science or Information Technology, including basic knowledge in signal processing and basic knowledge in statistics.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se
Information Theory and Security

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:
Information theory provides basic mathematical tools for understanding possibilities and limitations in communication systems. This course package will give a comprehensive overview of information theoretic applications, such as error control coding, source coding and cryptography. It will also cover protocols used on the Internet, in mobile communication and in wireless local networks, as well as several important security aspects of the systems and the communication.

Programme structure:
During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Advanced Computer Security, 7.5 ECTS credits
- Error Control Coding, 7.5 ECTS credits
- Internet Protocol, 7.5 ECTS credits
- Cryptography, 7.5 ECTS credits
- Mathematical Cryptology, 7.5 ECTS credits
- Advanced Telecommunications, 7.5 ECTS credits
- Information Theory, 7.5 ECTS credits
- Advanced Course in Electrical and Information Technology, 7.5 ECTS credits

Special features of the programme:
Security is becoming more and more important as the amount of data communicated over the Internet and in mobile telephony keeps increasing. The courses cover everything from cryptographic building blocks and ciphers, including weaknesses and attacks, to secure protocols, software security and computer forensics. Transferring data over a noisy channel introduces errors, and in order to detect and correct these errors, techniques in error control coding are used. The course package gives an understanding of the principles behind these techniques and how they can be implemented.

Admission requirements:
Three years of studies in Electrical Engineering, Computer Science or Information Technology, including a basic course in computer security.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:
SwB@kansli.lth.se

Computation and Simulation

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:
This one year programme deals with advance numerical methods for both ODEs and PDEs, based on a solid ground of courses within mathematics. These methods are applied to structural analysis and fluid mechanics and complemented with other computational methods such as calculus of variations and Monte Carlo methods. In order to use these methods on real world problems there are also courses within simulation environments and a project course. Students with this competence has found jobs in companies such as McKenzie, Accenture and Volvo aerospace.

Programme structure:

- The Finite Element Method – Flow Analysis, 7.5 ECTS credits
- Numerical Linear Algebra, 7.5 ECTS credits
- Simulation Tools, 7.5 ECTS credits
- The Finite Element Method – Structural Analysis, 7.5 ECTS credits
- Structural Dynamic Computing, 7.5 ECTS credits
- Monte Carlo and Empirical Methods for Stochastic Inference, 7.5 ECTS credits
- Calculus of Variations, 6 ECTS credits
- Applied Computational Fluid Mechanics, 6 ECTS credits
- Applied Mathematics, project, 3 ECTS credits
- Calculus of Variations, 6 ECTS credits

Special features of the programme:
Lund University has a very strong tradition and position within the area and computational methods and simulation environments.

Admission requirements:
Three years of studies (180 ECTS credits) in Engineering Physics, Electrical Engineering, Computer Engineering or Information Technology or equivalent including relevant courses in mathematics, mathematical statistics, numerical methods, solid and fluid mechanics.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:
SwB@kansli.lth.se
Signals, Systems and Control

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:
This one year programme deals with modern methods within signal processing, systems theory and automatic control theory, including optimal and adaptive signal processing, multivariate control, non-linear control systems and system identification. The programme also contains courses with mathematical statistics, such as time series analysis and spectral analysis and a course in information theory. This programme gives a solid competence within signal processing and control theory with a good base within mathematical statistics. Students with this competence have found jobs within companies such as Ericsson, Sony and Volvo aerospace.

Programme structure:
- Multivariable Control, 7.5 ECTS credits
- Optimal Signal Processing, 7.5 ECTS credits
- Adaptive Signal Processing, 7.5 ECTS credits
- Time Series Analysis, 7.5 ECTS credits
- Non-linear Control and Servo Systems, 7.5 ECTS credits
- Stationary and Non-stationary Spectral Analysis, 7.5 ECTS credits
- System Identification, 7.5 ECTS credits
- System Identification, 7.5 ECTS credits

Special features of the programme:
The department of automatic control theory at Lund University is one of the world leading research groups within automatic control.

Admission requirements:
Three years of studies (180 ECTS credits) in Engineering Physics, Electrical Engineering, Computer Engineering or Information Technology or equivalent BSc including relevant courses in mathematics, mathematical statistics, control theory and signal processing. English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:
SwB@kansli.lth.se

Applied Mathematics – Image Analysis

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:
This one year programme deals with modern digital image analysis and computer vision, based a solid ground of courses in mathematics and mathematical statistics, such as optimisation, matrix theory, Markov processes and Monte Carlo methods. Two project courses are included, in image analysis and computer vision, where a broad range of applications can be studied. Apart from giving a competence in the expanding field of digital image analysis and computer vision, the programme gives a both broad and deep competence within applied mathematics. Students with this competence have found jobs within companies such as Apple, Google and Microsoft.

Programme structure:
During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Image Analysis, 6 ECTS credits
- Markov Processes, 7.5 ECTS credits
- Functional Analysis and Harmonic Analysis, 7.5 ECTS credits
- Image Analysis, project course, 3 ECTS credits
- Optimisation, 6 ECTS credits
- Functional Analysis and Harmonic Analysis, 7,5 ECTS credits
- Matrix Theory, 6 ECTS credits
- Computer Vision, 6 ECTS credits
- Monte Carlo and Empirical Methods for Stochastic Inference, 7.5 ECTS credits
- Matrix Theory, 6 ECTS credits
- Computer Vision, project course, 3 ECTS credits
- Statistical Modeling of Extreme Values, 7.5 ECTS credits

Special features of the programme:
The Mathematical Imaging Group at Lund University is one of the leading research groups in the world within digital image analysis and computer vision.

Admission requirements:
Three years of studies (180 ECTS credits) in Engineering Physics, Electrical Engineering, Computer Engineering or Information Technology or equivalent including relevant courses in mathematics, mathematical statistics. English proficiency: IELTS 6.5 or accepted equivalent. Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se
Nanophysics

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

On the nanometer scale, the distinction between disciplines such as physics, chemistry and biology becomes less clear. Characteristic for nanotechnology is therefore a large degree of interdisciplinarity. The nanophysics programme at Lund University has its scientific base in a physics description of nanoscale phenomena, but in addition to nanophysics you can, depending on your background and interests, direct your studies towards nanoelectronics or materials.

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Processing and Device Technology, 7.5 ECTS credits
- Semiconductor Physics, 7.5 ECTS credits
- Quantum Mechanics Advanced Course 1, 7.5 ECTS credits
- The Physics of Low-dimensional Structures and Quantum Devices, 7.5 ECTS credits
- Material Analysis at the Nanoscale, 7.5 ECTS credits
- Aerosol Technology, 7.5 ECTS credits
- Optoelectronics, 7.5 ECTS credits
- High-speed Devices, 7.5 ECTS credits
- Crystal Growth and Semicondctor Epitaxy, 7.5 ECTS credits
- Nanoelectronics, 7.5 ECTS credits
- The Physics of Surfaces, 7.5 ECTS credits
- Solid State Theory, 7.5 ECTS credits

Special features of the programme:
The programme is part of the Nanometer Structure Consortium, one of the world’s leading nanoscience research centres. By studying at Lund University you will interact with cutting-edge research and be able to explore the cross-disciplinary nature of nanoscience

Admission requirements:

At least three years of study in science or engineering. Courses in physics of at least 40 ECTS and mathematics of at least 40 ECTS must be included. These courses should, on a basic level, cover quantum mechanics, electromagnetism, solid state physics, multi-dimensional calculus, linear algebra and Fourier analysis.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se

Nuclear Physics with Applications

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

This one-year programme offers courses mainly in applied nuclear physics, covering general nuclear physics and quantum mechanics (not at beginner’s level) and continuing with experimental tools, methods for diagnostics and analysis and for particle physics research.

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Nuclear Physics, Advanced course, 7.5 ECTS credits
- Quantum Mechanics Advanced Course 1, 7.5 ECTS credits
- Particle Physics, Cosmology and Accelerators, 7.5 ECTS credits
- Experimental Tools for Subatomic Physics, 7.5 ECTS credits
- Aerosol Technology, 7.5 ECTS credits
- Applied Subatomic Physics (part 1), 7.5 ECTS credits
- Methods for Environmental Monitoring, 7.5 ECTS credits
- Modern Experimental Particle Physics, 7.5 ECTS credits
- Modern Subatomic Physics, (part 2) 7.5 ECTS credits
- Nuclear Reactor Physics, 7.5 ECTS credits
- Atmospheric Physics and Chemistry, 4 ECTS credits

Admission requirements:

At least three years of study in Science or Engineering including introductory courses in quantum mechanics, nuclear physics or equivalent.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se
Photonics

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

Photonics is the science and technology of generating and controlling photons. The science of photonics includes the emission, transmission, amplification, manipulation, detection and utilisation of light. The one-year programme covers two of the major photonics areas: Engineering (generation and manipulation of light) and Communication (transport of information by optical and microwave techniques).

This education programme is coupled to world-leading research activities in optics, lasers and their applications, performed at the Lund Laser Centre (LLC). LLC is the largest unit in the Nordic countries within the field of lasers, optics and spectroscopy, and a large scale facility of the European Union.

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Optics and Optical Design, 7.5 ECTS credits
- Digital Communications, 7.5 ECTS credits
- Semiconductor Physics, 7.5 ECTS credits
- Lasers, 7.5 ECTS credits
- Advanced Digital Communication, 7.5 ECTS credits
- Multispectral Imaging, 7.5 ECTS credits
- Photonics and Optical Communication, 7.5 ECTS credits
- Advanced Telecommunication, 7.5 ECTS credits
- Optoelectronics, 7.5 ECTS credits
- Advanced Optics and Lasers, 7.5 ECTS credits
- Signal Processing – Design and Implementation, 7.5 ECTS credits

Special features of the programme:

The programme offers two courses focused on devices, given within the Nanometer Structure Consortium in Lund.

Admission requirements:

At least three years of study in Science or Engineering including introductory courses in quantum mechanics, atomic, molecular and solid state physics.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se
Supply Chain Management

Programme overview:
Supply Chain Management (SCM) is a concept that is gaining in popularity and importance in industry and academia. Lund University's Faculty of Engineering (LTH) offers a broad range of courses and has a large group of recognised researchers in the area of logistics and supply chain management. The overall goal of the programme is to develop supply chain professionals for the future by providing students with sound theoretical knowledge and “hands-on” practical experience, which facilitates their development of essential professional skills for an excellent career in Supply Chain Management.

Programme structure:
- Materials Handling, 7.5 ECTS credits
- Supply Chain Information Systems, 7.5 ECTS credits
- Packaging Technology and Development, 7.5 ECTS credits
- Industrial Purchasing, 7.5 ECTS credits
- Packaging Logistics, 7.5 ECTS credits
- Production and Inventory Control, 7.5 ECTS credits
- International Physical Distribution, 7.5 ECTS credits
- Management of Production and Inventory Systems, 7.5 ECTS credits
- Innovation Management, 7.5 ECTS credits
- Supply Chain Management, 7.5 ECTS credits
- Process-based Business Development, 7.5 ECTS credits
- Production Management, 7.5 ECTS credits

Special features of the programme:
The programme particularly emphasises the importance of globalisation in a supply chain management context, with respect to the global distribution of production activities and the associated requirements for global logistics, sourcing and supply chain capabilities. This trend has significant impact on how supply chain processes and activities are designed and managed on an international scale, including the impact on individuals, companies and societies.

Admission requirements: Three years of studies (180 ECTS credits) or equivalent BSc including relevant courses in: Mathematics / Operations Research (particularly mathematical statistics), Managerial Economics, Industrial Management / Industrial Organisation / Production and Operations Management / Logistics Management.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:
SwB@kansli.lth.se

Computational Mechanics

Programme overview:
Physical concepts and mathematical methods essential for modelling and analysis of fluid and solid mechanics problems are treated. Training in physical understanding, knowledge of mathematical methods and numerical solution methods are emphasised in the courses. A good balance between depth and breadth in computational mechanics, as well as practical skills makes skilled problem solvers.

Programme structure:
During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.
- Continuum Mechanics, 8 ECTS credits
- Computational Inelasticity, 7.5 ECTS credits
- Numerical Heat Transfer, 4.5 ECTS credits
- Mechanical Vibrations, 8 ECTS credits
- Numerical Heat Transfer, 4.5 ECTS credits
- Finite Element Method for Non-linear Systems, 7.5 ECTS credits
- Turbulence – Theory and Modellings, 7.5 ECTS credits
- Multibody Dynamics, 8 ECTS credits
- Structural Optimisation, 7.5 ECTS credits
- Fracture Mechanics, Advanced Course, 7.5 ECTS credits
- Applied Computational Fluid Mechanics (CFD), Basic Course, 6 ECTS credits
- Heat Transfer, 7.5 ECTS credits

Special features of the programme:
Modern product development includes, to a higher extent than before, simulation of product characteristics at an early stage in the product cycle. The labour market is growing rapidly and employers are found in most industries where advanced technology development takes place.

Admission requirements:
At least three years of study in engineering including courses in mathematics, mechanics, linear algebra, analysis, Finite Element Method, materials engineering and thermodynamics and heat transfer.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se
Production Engineering

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:
In a modern production system technologies used and the design of the organisation interact, from a very detailed level to an effective ensemble. The components and design of production systems are key ingredients to create both efficiency and profitability.

Programme structure:
During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.
- Warehousing and Materials Handling, 7.5 ECTS credits
- Project – Production and Materials Handling, 7.5 ECTS credits
- Advanced Materials Technology, 7.5 ECTS credits
- Production and Inventory Control, 7.5 ECTS credits
- Automation 7.5 ECTS credits
- Applied Robotics, 7.5 ECTS credits
- Automation for Complex Systems, 7.5 ECTS credits
- Production Management, 7.5 ECTS credits

Special features of the programme:
The labour market offers many tasks - from the management and decision making functions, to the design and development of production systems and optimisation of machine processes.

Admission requirements:
At least three years of study in engineering including courses in mathematics, statistics, mechanics, material science, logistics, programming and managerial economics.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se

Automotive Engineering

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:
Road vehicles account for the vast majority of both passenger and freight transports today. Transports provide the conditions for a well functioning modern society with world trade, peace, personal freedom etc. On the other hand they produce air pollution and cause accidents. A challenge for the future of road transports is to reduce its impact on the environment and the individual and satisfy the ever increasing demand for transports in order for more people to raise their standard of living. Vehicles must be made energy efficient and safe.

Programme structure:
During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.
- Introduction to Vehicle Systems, 7.5 ECTS credits
- Real-time Systems, 10 ECTS credits
- Hybrid Vehicle Drive Systems, 7.5 ECTS credits
- Aerosol Technology, 7.5 ECTS credits
- Finite Element Method for Non-linear Systems, 7.5 ECTS credits
- Advanced Combustion Engine Concepts, 7.5 ECTS credits
- Light Materials, 7.5 ECTS credits
- Structural Optimisation, 7.5 ECTS credits
- Applied Computational Fluid Mechanics, 6 ECTS credits
- High Temperature Materials, 7.5 ECTS credits

Special features of the programme:
Sweden is unique as the automotive industry is dominating the mechanical engineering industry. Volvo is the world’s largest manufacturer of heavy trucks and Scania is also one of the leading manufacturers of heavy vehicles. Sweden is at the forefront regarding environmental and safety issues which makes the Swedish automotive industry a world leader that can continue to contribute to a better world.

Admission requirements:
At least three years of study in engineering (180 ECTS credits) including courses in mathematics, mechanics, physics, Finite Element Method, material science, thermodynamics and heat transfer and computational drawing and programming.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:
SwB@kansli.lth.se
Fire Safety Engineering

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

This course package aims at providing scientific knowledge to understand, critically evaluate and analyse the phenomenon of fire and its consequences. Furthermore it aims at providing the ability to judge risks with respect to fire and explosions as well as judge the human behaviour in case of fire.

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Introduction to Societal Resilience, 7.5 ECTS credits
- Fluid Mechanics, 7.5 ECTS credits
- Fire Chemistry and Explosions, 15 ECTS credits
- Advanced Fire Dynamics, 9 ECTS credits
- Risk Assessment, 8 ECTS credits
- Simulation of Fires in Enclosures, 5 ECTS credits
- Simulation of Fires in Enclosures, 5 ECTS credits
- Human Behaviour in Fire, 8 ECTS credits

Special features of the programme:

The worldwide trend from prescriptive to performance-based fire safety designs goes hand in hand with a strong need for high-level education in the broad multi-disciplinary field of Fire Safety Engineering (FSE). The application of FSE principles improves the global level of fire safety. It also allows more freedom in architecture of complex buildings.

Admission requirements:

Three years of studies (180 ECTS credits) in Civil Engineering, Environmental Engineering or equivalent including relevant courses in calculus, general chemistry, mechanics, thermodynamics and statistics, corresponding to a combined duration of 6 months.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se

Process Engineering

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

The courses in this package will build a strong theoretical and practical foundation for a broad professional career in chemical, environmental and biotechnological engineering. The students will be engaged in several projects where real life problems are solved in groups of strongly committed students. In the courses, the students get in contact with several industrial companies and are taught and supervised by internationally renowned researchers.

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Chemical Engineering, 7.5 ECTS credits
- Bioprocess Technology, 7.5 ECTS credits
- Multivariable Control, 7.5 ECTS credits
- Applied Transport Phenomena, 7.5 ECTS credits
- Energy and Environment, 7.5 ECTS credits
- Feasibility Studies on Industrial Plants, 15 (7.5) ECTS credits
- Process Simulation, 7.5 ECTS credits
- Feasibility Studies on Industrial Plants, 15 (7.5) ECTS credits
- Fundamental Combustion, 7.5 ECTS credits
- Applied Computational Fluid Mechanics, 7.5 ECTS credits

Special features of the programme:

The skills and competences gained are highly relevant for jobs related to renewable energy as well as the petrochemical industry.

Admission requirements:

Three years of studies (180 ECTS credits) in Chemical Engineering or equivalent including relevant courses in chemical engineering, corresponding to a combined duration of 18 months.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se
Material Science and Engineering

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:
The programme gives the theory and applications of inorganic and polymer materials from a molecular perspective.

Programme structure:
During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Material Chemistry, 7.5 ECTS credits
- Polymer Chemistry, 7.5 ECTS credits
- Material Analysis at the Nanoscale 7.5 ECTS credits
- Advanced Materials Technology, 7.5 ECTS credits
- Nanomaterials – Thermodynamics and Kinetics, 7.5 ECTS credits
- Project in Chemistry, 15 (7.5) ECTS credits
- Polymer Physics, 7.5 ECTS credits
- Crystal Growth and Semiconductor Epitaxy, 7.5 ECTS credits
- Project in Chemistry, 15 (7.5) ECTS credits
- Surface and Colloid Chemistry 7.5 ECTS credits

Special features of the programme:
Lund University hosts MAX IV, a synchrotron radiation laboratory. Lund is also the location for the European Spallation Source (ESS), a multi-disciplinary research centre based on the world’s most powerful neutron source.

Admission requirements:
Three years of studies (180 ECTS credits) in Chemical Engineering or equivalent including relevant courses in chemical engineering, organic chemistry and inorganic chemistry, corresponding to a combined duration of 18 months.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se

Bioprocess Technology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:
This programme combines knowledge and skills in biochemistry and technology in order to build competence in bioprocess technology. It deals with using biocatalysts in order to refine raw material into products. Knowledge about the bioreactor and how to analyse it in order to control the process is important. Courses in biochemical reaction engineering are included as well as courses on how to purify the refined products.

Programme structure:

- Bioprocess Technology, 7.5 ECTS credits
- Bio-analytical Chemistry, 7.5 ECTS credits
- Biochemical Reaction Engineering, 7.5 ECTS credits
- Separations in Biotechnology, 7.5 ECTS credits
- Enzyme Technology, 7.5 ECTS credits
- Environmental Biotechnology, 7.5 credits
- Process Simulation, 7.5 ECTS credits
- Green Chemistry and Biotechnology, 7.5 ECTS credits
- Biotechnology, Process and Plant Design, 15 ECTS credits
- Gene Technology, 7.5 ECTS credits
- Immunotechnology, 7.5 ECTS credits
- Biotechnology, Process and Plant Design (continued)

Special features of the programme:
This programme gives a deep knowledge on the most advanced bioreactors available today. In addition, it provides modern insight into green chemistry, sustainable engineering and biotechnology. For example, in Lund there is ongoing research on the production of bio-alternatives to fossil fuels.

Admission requirements:
Three years of study in genetic engineering, microbiology, biochemistry or equivalent including courses in basic and physical chemistry, calculus and linear algebra.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details: SwB@kansli.lth.se
Molecular Biotechnology

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

Through a broad range of courses this programme gives you good opportunities to deepen knowledge on the dynamic border between chemistry, biology and medicine. The courses treat basic theory in biochemistry, biophysical chemistry and bioinformatics as well as modern techniques for analysis, molecular biology and enzymology. This programme is a collaboration between the Faculty of Science Faculty and the Faculty of Engineering.

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Bio Analytical Chemistry, 7.5 ECTS credits
- Protein Engineering, 7.5 ECTS credits
- Experimental Protein Chemistry, 15 ECTS credits
- Biophysical Chemistry, 7.5 ECTS credits
- Separations in Biotechnology, 7.5 ECTS credits
- Enzyme Technology, 7.5 ECTS credits
- Human nutrition, 7.5 ECTS credits
- Quality and Product Safety, 7.5 ECTS credits
- Green Chemistry and Biotechnology, 7.5 ECTS credits
- Bioinformatics, 7.5 ECTS credits
- Immunotechnology, 7.5 ECTS credits
- Biochemistry, advanced course, 15 ECTS credits

Special features of the programme:

In this programme, you will meet world leading research and researchers within the field of enzyme technology, protein chemistry, biophysical chemistry and immunotechnology. You can choose between broadening towards deeper knowledge in biochemistry and protein science or towards biotechnology and process technology.

Admission requirements:

Three years of study in genetic engineering, microbiology, biochemistry or equivalent including courses in basic and physical chemistry, calculus and linear algebra.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se

Pharmaceutical Chemistry

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

This programme provides an in-depth knowledge of working with the production and development of pharmaceuticals. Developing a new drug is a complex and interdisciplinary process. The scientific breadth of Lund University allows us to provide extensive knowledge in both the design of new molecules, synthesis and analysis of active substances and the development of drug formulations and process development. This programme is a collaboration between the Faculty of Engineering and Faculty of Science.

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Medicinal Chemistry, 7.5 ECTS credits
- Drug Formulation, 7.5 ECTS credits
- Bio Analytical Chemistry, 7.5 ECTS credits
- Organic chemistry, 15 ECTS credits
- Physiology, 7.5 ECTS credits
- Biophysical Chemistry, 7.5 ECTS credits
- Chromatographic Analysis, 7.5 ECTS credits
- Organic chemistry, advanced course, 15 ECTS credits
- Quality and Product Safety, 7.5 ECTS credits
- Magnetic Resonance – Spectroscopy and Imaging, 7.5 ECTS credits
- Scattering Methods, 7.5 ECTS credits
- Surface and Colloidal Chemistry, 7.5 ECTS credits
- Bioinformatics, 7.5 ECTS credits
- Immunotechnology, 7.5 ECTS credits

Special features of the programme:

In this programme you will have the opportunity to focus either on advanced organic synthesis or drug formulation. In addition, you will learn advanced analytical techniques such as chromatography and state of the art NMR spectroscopy.

Admission requirements:

Three years of study in chemistry, chemical engineering, biochemistry, biotechnology or similar, including introductory courses in organic, analytical or physical chemistry, linear algebra and calculus in several variables.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se
Food Engineering and Nutrition

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Engineering LTH

Programme overview:

This programme aims to provide specialised theoretical knowledge in a practical technological context in order to make students employable for advanced tasks in society and industry. The programme aims to provide qualifications for both professional activities in society and industry and for research studies. The programme provides in-depth knowledge in food technology and nutrition:

- ability to plan, complete and assess experiments, in both the laboratory and on a large scale, and ability to use theoretical models to describe physical, biological and chemical processes as well as to assess the applicability and limitations of these models in different contexts;
- ability to select and design technical solutions for bio-based products, especially food, with due regard to raw materials, quality, energy, economics and sustainability in the system of industrial food production;
- ability to create and develop products with good sensory properties and nutritional quality;
- ability to consult specialised literature;
- ability to address issues concerning food and food processing in a global perspective

Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- Food Chemistry for Product Formulation, 7.5 ECTS credits
- Food Microbiology, 7.5 ECTS credits
- Packaging Technology and Development, 7.5 ECTS credits
- Probiotics, 7.5 ECTS credits
- Physiology, 7.5 ECTS credits
- Packaging Logistics, 7.5 ECTS credits
- Human Nutrition 7.5 ECTS credits
- Quality and Product Safety, 7.5 ECTS credits
- Integrated Food Science, 7.5 ECTS credits
- Integrated Food Science; Production Systems, 7.5 ECTS credits
- Surface and Colloidal Chemistry, 7.5 ECTS credits
- Design of Experiments, 7.5 ECTS credits

Special features of the programme:

Our vision for the students is that, after graduation, they will play important roles in the sector of food manufacturing and distribution, and that their educational experience in Lund will assist them in becoming outstanding professionals. The objectives are:

- To offer a broad programme covering the most important aspects of Food Technology and Nutrition
- To give the students an opportunity to specialise in fields where we have world leading expertise
- To provide access to up-to-date knowledge and methods of high relevance
- To provide practical skills in the field of Food Technology and Nutrition

- To instil in the students the importance of a scientific approach and a problem based working methodology
- To take advantage of the possibilities created by a multinational student group

Admission requirements:

Three years of study in food technology, biotechnology, chemical engineering or equivalent including courses in microbiology, biochemistry, process technology and mathematics.

English proficiency: IELTS 6.5 or accepted equivalent.

Note: Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

Contact details:

SwB@kansli.lth.se
## Water Resources

- **SwB undergraduate sandwich programme**
- **60 ECTS credits**
- **Faculty of Engineering LTH**

### Programme overview:

This internationally oriented programme aims to develop the knowledge, skills and judgement of students in the field of water resources management. This programme of study

- is broad and covers the most important aspects of water resources;
- gives the students the opportunity to specialise in a chosen field of water resources and;
- offers access to current knowledge about and relevant methods of water resource management.

### Programme structure:

During each semester 30 credits (ECTS) should be completed, thus 60 credits in a full year.

- **Urban Waters, 15 ECTS credits**
- **Integrated Water Resources Management, International Aspects, 7.5 ECTS credits or**
- **Field Investigation Methodology, 7.5 ECTS credits**
- **Groundwater Engineering, 7.5 ECTS credits**
- **Groundwater Modelling and Contaminant Transport, 7.5 ECTS credits**
- **Hydromechanics, 7.5 ECTS credits**
- **River Restoration, 7.5 ECTS credits or**
- **Decentralised Water and Wastewater Treatment, 7.5 ECTS credits**
- **Coastal Engineering, 7.5 ECTS credits or**
- **Geographic Information Systems, 7.5 ECTS credits**

### Admission requirements: University courses in Mathematics (calculus), Hydraulics/Fluid Mechanics and Geology or equivalent.

English proficiency: IELTS 6.5 or accepted equivalent.

**Note:** Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

### Contact details: SwB@kansli.lth.se

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## GIS and Urban Planning

- **SwB undergraduate sandwich programme**
- **60 ECTS credits**
- **Faculty of Engineering LTH**

### Programme overview:

After an introductory part giving insights into traffic engineering, real estate law and law and economics, this programme will deepen the knowledge on geographic information technology needed to develop spatial data infrastructures for urban planning.

### Programme structure:

- **Traffic Engineering Theory, Accessibility, Level of Service, Safety and Environment, 7.5 ECTS credits**
- **International Real Estate Law, 7.5 ECTS credits**
- **Law and Economics, 7.5 ECTS credits**
- **Web GIS, 7.5 ECTS credits**
- **Geographical Databases, 7.5 ECTS credits**
- **Spatial Analysis, 7.5 ECTS credits**
- **Sustainable Urban Landscape - Theory and Method**
- **Remote Sensing, Digital Methods, 7.5 ECTS credits**

### Special features of the programme

The utilisation of geographic information technology and digital geographic data in all planning processes is increasing rapidly. The combination of law, economics and technology related to urban planning is unique for this programme, and provides an excellent base for students who want to work with technical aspects of for example urban – and physical planning.

Courses build directly on today’s requirements of possibilities to construct common spatial data bases for managing societies’ spatial data infrastructure, and to make spatially related data and information accessible via Inter- or Intranet in map services.

### Admission requirements:

Three years of studies (180CR) including basic course in GIS of approximately 30 ECTS including introduction programming in any programming language and some geo statistics; Some course on physical planning, economics or planning law.

English proficiency: IELTS 6.5 or accepted equivalent.

**Note:** Students with an IELTS score between 5.5-6.5 or TOEFL score between 72-90 can still be considered for admission if they meet all other admission requirements. An interview and/or writing sample may be required as part of this additional evaluation.

### Contact details: SwB@kansli.lth.se
Public Health

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Faculty of Medicine, Malmö campus

Programme overview:

Lund University offers one of the leading Public Health programmes in Europe. The Public Health courses are based at the Clinical Research Centre in Malmö, an environment at the forefront of innovative research. Course leaders and guest lecturers have substantial experience in a wide range of disciplinary and geographical contexts, and come from countries such as Sweden, Canada, Ghana, Nigeria, India and USA. The diversity and experience of fellow students also contributes to the stimulating multicultural learning environment. As one student expressed it, “The class and the teaching are a microcosm of the global context we will face in our work life.” The programme’s focus is thus global and cross-disciplinary, and provides students with the research-based knowledge and skills necessary for policy-making as well as for hands-on field work.

Many of the courses are of a practical nature and taught using a variety of pedagogical methods where critical thinking and active learning are an integral part of the process. As a result, students are equipped with a diverse range of professional capabilities, opening the doors to any number of career directions within the field of Public Health.

Programme structure:

- Planning and Leadership in Public Health (10 ECTS credits)
- Health Promotion and Health Communication (12.5 ECTS credits)
- Sexual and Reproductive Health and Rights (ECTS 7.5 credits)
- Health Economics and Health Systems (15 ECTS credits)
- Health Policy (7.5 ECTS credits)
- Internship (7.5 ECTS credits)

Special features of the programme:

In our programme, students from all over the world join internationally renowned lecturers and researchers. Together they create a multi-cultural environment where creative ideas and exciting encounters are born. The courses you will encounter are interactive and stimulating, with lively discussions, online simulations, group work, and values exercises. The open and informal atmosphere between students, lecturers and researchers makes learning dynamic and enjoyable.

Admission requirements:

Minimum three years of studies (180 ECTS) in a Bachelor’s degree programme.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact: elena.lirakis@med.lu.se

Biomedicine

- September start only
- SwB undergraduate sandwich programme
- 60 ECTS credits
- Biomedical Education, Faculty of Medicine

Programme overview:

This programme provides courses within the field of biomedical sciences. It includes 3 short courses in biomedical profession that deals with biomedical ethics, writing a research proposal and the publication process. It also provides a course in developmental biology and a modular course in molecular medicine that apply basic molecular and technological knowledge on medical problems. The year ends with a project that is performed in a research laboratory.

Programme structure:

- BIMA54 Professional Development - Introduction to Biomedical Ethics (1.5 ECTS)
- BIMA52 Developmental Biology (13.5 ECTS)
- BIMA51 Molecular Medicine (27 ECTS)
- BIMA60 Professional Development 6 (1.5 ECTS)
- BIMA61 Professional Development - From Hypothesis to Publication (1.5 ECTS)
- VMFB12 Project in Biomedicine (First Cycle) (15 ECTS)

Special features of the programme:

The year will give you extensive insights in contemporary biomedical research. It provides knowledge to either work in a biomedical research laboratory or apply for a Master’s programme in biomedicine.

Admission requirements:

Two years studies in biomedicine including at least 15 ECTS credits chemistry, 15 ECTS credits biochemistry/cell chemistry, 30 ECTS credits cell/molecular biology, 15 ECTS credits physiology, 5 ECTS credits immunology and 15 ECTS credits pathobiology/pharmacology.

English proficiency: IELTS 6.5 or accepted equivalent.

Contact: Thomas.Hellmark@med.lu.se
Environmental Studies and Sustainability Science

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Lund University Centre for Sustainability Studies

Programme overview:

Do you want to work with complex sustainability challenges (e.g., climate change, food security, biodiversity loss) from local to global levels. Then this programme is what you are looking for. Building on the knowledge and experience students already possess, emphasis is placed on understanding present societal development patterns and the environmental problems they create, as well as approaches for formulating strategies for future sustainable pathways.

LUMES does not concentrate on training practitioners; the foundation of the programme is rather an interdisciplinary and holistic perspective for comprehending the interactions between social, economic, and environmental systems across a variety of spatial and temporal scales.

Special features of the programme:

The programme is set in a unique interdisciplinary and international educational milieu, creating a setting that challenges students to broaden personal outlooks and sharpen critical thinking skills. Courses are taught in English by individuals from both the human and natural sciences with the aims of creating students who can grasp, analyse and formulate governance strategies for complex sustainability challenges. In addition, interpersonal and academic skills are developed through strong emphases on group work, presentations and academic writing.

Programme structure

- MESB01 Earth Systems Science, 10 credits
- MESS32 Social Theory and Sustainability, 10 credits
- MESS33 Sustainability Science, 10 credits
- MESS34 Governance of Sustainability, 7,5 credits
- MESS35 Urban & Rural Systems and Sustainability, 10 credits
- MESS36 Economy and Sustainability, 7,5 credits
- MESS37 Knowledge to Action, 5 credits

For more information about our courses, please see www.lumes.lu.se

Admission requirements:

Three years of studies (180 ECTS credits) in a subject area relevant for the programme.

English proficiency: IELTS 6.5 or accepted equivalent.

In addition to the documentation stipulated by University Admissions we also require you to submit the following documents (please use the forms available on http://www.lumes.lu.se/html/swb2014.aspx):

- LUMES Statement of Purpose
- Résumé / Curriculum Vitae (CV)
- Two Letters of Recommendation

Contact details:

Programme Coordinator: Amanda Elgh, amanda.elgh@lucsus.lu.se
Fine Arts, Malmö Art Academy

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Department of Fine Arts, Malmö Art Academy, Malmö campus

Since the start in 1995, Malmö Art Academy has been able to offer a modern education in Fine Art. This means that the education at the Academy is not divided into separate forms and that the Academy has a lively exchange with the international art community with many visiting international artist and guest lecturers. The Academy also offers a wide variety of courses in art theory, technique and interpretation and has a focus on various kinds of interdisciplinary projects.

Malmö Art Academy is housed in a former school building in central Malmö. The beautifully renovated brick building with its towered annex contains well-equipped workshops for artwork with wood, metal, plaster, clay, concrete, photography, video and computers. The building has large project studios, a library and lecture room as well as private workshops for each of the 70 students in the Fine Arts programme and a common study for the students in the Critical Studies programme.

Programme overview:

This programme includes in-depth research in art through individual studio practice, courses in art and various related disciplines. Malmö Art Academy has no separate departments. Students organise their own curriculum, choosing from a wide range of technical and theoretical courses, many of which are taught by internationally renowned artists. The international profile is an important feature of the Academy. It is accentuated by the close proximity to Denmark and mainland Europe, as well as by student exchanges with art academies in other countries. The Academy also benefits from the rich and internationally orientated art life in the region, which has many art galleries, museums and other institutions. Guest lectures from visiting artists and critics as well as various forms of collaborative projects are continuously offered at the Academy.

A contemporary programme in Fine Arts can work in close connection with cultural, artistic and scientific currents in the fields of art history and theory, architecture, philosophy, sociology, psychology and many other subjects. The affiliation with Lund University is a great advantage to the Malmö Art Academy.

Programme structure:

- Individual choice of offered courses, seminars, workshops
- Individual Studio Practice
- Open lectures
- Analysing your own Artistic Work (7.5 ECTS credits)
- Open lectures
- Participation in yearly spring exhibition
- Study tour

Special features of the programme:

During this programme the students begin their advanced artistic work, with continuous discussions in seminars led by a teacher. Examples of such seminars are theory seminars, painting seminars, and concept seminars. The focus in these seminars changes with regard to the students’ needs and wishes. On this level, the focus is on the capacity for participating in a more advanced discussion, and on taking part of relevant lectures, texts, etc., within the individual seminars. The seminars are held once every second week. If they wish, the students can participate in several seminars.

A variety of courses will be offered during the programme. The courses aim to provide concentrated teaching in art theory, art history, film history or relevant critical theory in relation to contemporary discussions in art. The objective is that students should deepen their knowledge of and insight into the artistic field of which their work will be part, and of its historical background. It is specially emphasised that analytical knowledge, written or unwritten, should be integrated into students’ own artistic work.

A study tour to an artistically interesting place, with the possibility of making study visits at other international art schools, is also a part of the curriculum.

Admission requirements:

To be eligible for the SwB undergraduate sandwich programme at Malmö Art Academy you must have a BFA degree or the equivalent thereof. The equivalent might for example be that you have studied at least three years at a four/five-year BFA programme that does not offer a BFA degree after the first three years. Certificate of Bachelor degree or the equivalent must be handed in with the application.

English proficiency: IELTS 6.5 or accepted equivalent.

To send with your application:

Please note that the Fine Arts programme has a special step in the application process. In addition to the general documents required for your application, you must send 5-8 digital work samples, a personal statement of intent and letters of recommendation. These additional documents are to be sent directly to ansokan@khm.lu.se.

Contact:

khm@khm.lu.se
Music - Interpretation

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Malmö Academy of Music, Malmö campus

About the Academy of Music
The Malmö Academy of Music is located in Sweden’s 3rd largest city, Malmö (10 minutes by train from Lund and 40 minutes by train to Copenhagen, Denmark).

We have a long tradition of working internationally. Many international teachers and later exchange teachers have been with us over the years. For over 20 years we have offered special courses for international students. An international environment characterises the Malmö Academy of Music and internationalisation is an integral part of the education.

We are actively working to educate future musicians and music teachers in a way that reflects the surrounding multicultural society.

Programme overview:
A special one-year course in musical interpretation designed for students coming from a country outside the Nordic countries. There are two profiles to choose between: Western Art Music or Jazz/Improvisation.

You will have individualised tuition on your main instrument as well as tuition in master classes and interpretation seminars.

You will play in chamber music- or jazz ensembles and in symphony orchestra if you are an orchestral musician. The course is full-time during the academic year (September-June) and you will study together with students in the Performance programme.

You need a good knowledge of English. You also should have a high artistic and technical level at your main instrument equivalent to a Bachelor’s degree from an Academy of Music.

To send with your application:
A 20 minutes audio recording, repertoire of your own choice, should be sent directly to the Malmö Academy of Music.

Contact:
Lena Arstam: international@mhm.lu.se

Music – Composition

- SwB undergraduate sandwich programme
- 60 ECTS credits
- Malmö Academy of Music, Malmö campus

About the Academy of Music
The Malmö Academy of Music is located in Sweden’s 3rd largest city, Malmö (10 minutes by train from Lund and 40 minutes by train to Copenhagen, Denmark).

We have a long tradition of working internationally. Many international teachers and later exchange teachers have been with us over the years. For over 20 years we have offered special courses for international students. An international environment characterises the Malmö Academy of Music and internationalisation is an integral part of the education.

We are actively working to educate future musicians and music teachers in a way that reflects the surrounding multicultural society.

Programme overview:
A one-year course in Composition (Western Art Music Tradition) for international students coming from outside the Nordic countries. Individualised tuition in composition, master classes, seminars and projects.

The course is full-time during the academic year (September-June) together with students in the Composition programme.

You need a good knowledge of English. A high artistic and technical level in composition is required.

To send with your application:
The following should be sent to the Malmö Academy of Music:

1. 4-6 scores (no manuscript) representing various ensemble types as orchestra, chamber orchestra, minor chamber groups, choir and the electro acoustic medium
2. Live or MIDI recordings (if possible)
3. Work note for each piece
4. Complete work list
5. Curriculum vitae
6. A few words about why you want to study composition at our Academy.

Please note that the material will not be returned.

Contact:
Lena Arstam: international@mhm.lu.se
Brazilian Perspectives

**LUANA DE SOUZA BRAGANÇA** from Rio de Janeiro, studying SwB Water Resources

"Viver em Lund e estudar na Universidade de Lund tem superado meus sonhos pessoais e acadêmicos. O nível de ensino e a relação com os professores tem me proporcionado um crescimento surpreendente. Hoje posso dizer que sou uma pessoa realizada com a minha escolha!"

Se você procura por excelência de ensino e estrutura, intercâmbio cultural com diferentes nacionalidades, uma vida social estudantil completa em uma cidade de alta consciência ambiental, a Universidade de Lund é a sua escolha certa.

**LUCAS LOPES DE CASTRO** from Maceió, studying SwB Advanced Architectural Design and Urban Shelter

"Minha experiência em Lund University não poderia ter sido melhor. Estudei, dentro das matérias de arquitetura e urbanismo, Sustainable Urban Design na faculdade de arquitetura de Lund. O curso superou completamente todas minhas expectativas, não só pela altíssima qualidade de ensino, mas pelo perfil internacional das aulas, com alunos do mundo inteiro (que acabaram virando meus amigos). Viagens de campo, marcenaria, convivência com vários arquitetos e urbanistas de toda a europa no dia-a-dia das aulas, tive direito a tudo. Foi uma experiência única, e posso dizer que tenho casa pela europa inteira.

Peguei o "pacote completo" em relação à vida estudantil internacional; moro em corredor com cozinha compartilhada e fazemos festas e comemorações sempre, estudo com praticamente 30 amigos de países diferentes (acabamos virando uma grande família).

Sinceramente, Lund tem uma experiência única em relação à vida estudantil e qualidade de estudo. Copenhagen está a 40 minutos de distância e várias excursões são para lá, a universidade está entre as 70 melhores do mundo. Se vocês quiserem realmente se destacar em uma universidade única, Lund University é a sua escolha certa.

**BRUNO CASTILHO** from Belo Horizonte, studying SwB Automotive Engineering

"A experiência de vir para Lund University tem sido uma das melhores da minha vida. Professores excelentes, matérias que colocam o aluno em contato com o que há de novo em cada assunto. Além disso, é muito interessante conhecer uma nova cultura, totalmente diferente da brasileira."

**EDUARDO THOMAZ ARANTES STANCARI** from Pederneiras, studying SwB Control Engineering

"Lund é uma universidade muito bem conceituada em várias áreas do conhecimento, além disso, a universidade tem uma grande infraestrutura de apoio ao estudante e é uma universidade com grande variedade cultural, fora o fato da vida social para estudantes em Lund não ter igual, são atividades para todos os gostos e pessoas do mundo inteiro para conhecer."

**JOSÉ ALCIDES GOBBO JUNIOR**, Associate Professor at UNESP and Guest Lecturer at LU’s Department of Design Sciences

"There is a very high quality of research and education at Lund University. For students who really want to study innovation, to gain knowledge and to know what to do with their knowledge, Lund University is a great place - it has an environment that fosters creativity, freedom of speech and people are valued."

**CINTIA BERTACCHI UVO**, Professor in Water Resources Engineering, Lund University (originally from São Paulo)

"I encourage Brazilian students to come to Lund University to experience a different way of learning, where the student is always at the centre of the education. You will find there is much more support here in terms of pedagogy - the teachers are very available to help you, the quality and consistency of teachers is always very high and this results in a less stressful learning environment. It’s a new way of thinking - a new way of looking at life and studies.

**CONTACT:**

Email: swb@er.lu.se
Website: www.lunduniversity.lu.se/swb
Facebook: www.facebook.com/lunduniversity
Instagram: www.instagram.com/lunduniversity