

- Master of Science, Major Applied Computational Science with specialisation in Chemistry
- 2 years, full-time, 120 ECTS credits
- Centre for Mathematical Sciences
- Lund Campus
- Application deadline: January 2023
- Programme start: August 2023

PROGRAMME OVERVIEW

This interdisciplinary education will give you in-depth knowledge in the field of computational science, but you also study advanced courses based on your subject knowledge in chemistry from your bachelor's degree. In addition to knowledge of theory of computational science, there will be an emphasis on obtaining knowledge about the practical tools that are used by professionals in the field and you will amongst several things train your skills in programming. You will get generic knowledge and skills of importance for computationally intensive jobs such as problem formulation, information search, data processing, scientific writing, and presentation techniques.

The programme has five separate specialisations: Environmental Science, Biology, Geology, Physical Geography and Chemistry. You will study several courses together with students from another specialisation than your own and there are possibilities to do common projects and thesis work. During your studies, an interdisciplinary perspective is emphasized and you will even study together with students from mathematics and physics.

The education has a strong connection to research. You will meet and be taught by active and internationally well recognised researchers, and you will be in contact with several research groups. You will at the same time be prepared for a career in business and industry. For programme details, full entry requirements, application steps and selection, visit the programme web page: www.lunduniversity.lu.se/applied-computational-science-chemistry

PROGRAMME MODULES/COURSES

With a specialisation in Chemistry, you will first study the mandatory course Molecular Driving Forces and Chemical Bonding, KEMM30. This course includes statistical data analyses, using Python programming. Also included are computationally relevant parts, such as Statistical Thermodynamics, Quantum Mechanics, Intermolecular Interactions, and Spectroscopy. The next course within the programme is Mathematics for Scientist 2. During the first half of the second semester, we recommend master level courses in Statistical Mechanics and Molecular Simulation (KEMM48) as well as Molecular Quantum Mechanics (KEMM58). During the final half of the spring semester, the programme provides courses in Biostatistics, and Computational Programming using Python. The second year includes two compulsory courses: Computational Science, and Reproducible Data Science and Statistical Learning. We also recommend applied master courses within the field of Chemistry. The final semester is devoted to an exam project.

CAREER PROSPECTS

After graduation, there are several different career paths depending on which subject profile you have chosen. The Master's programme gives you a solid ground for postgraduate education in natural sciences. You can also choose a career path outside academia and then find attractive jobs in areas where there is a need to solve computational problems both in industry and in public administration and other organisations..

ENTRY REQUIREMENTS AND HOW TO APPLY

Entry Requirements

Bachelor's degree of at least 180 credits, including 90 credits in science of which 15 credits should be in mathematics and 45 credits should be in chemistry (we strongly recommend that this should include 15 credits in physical chemistry).

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

or

Bachelor's degree of at least 180 credits, including 90 credits in science of which 15 credits should be in mathematics and 75 credits should be in physics.

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

How to apply

1. **Apply online:** Go to www.lunduniversity.lu.se/applied-computational-science-chemistry. Click on "Ap-



ply” and follow the instructions for the online application at www.universityadmissions.se, the Swedish national application website. Rank the chosen programmes in order of preference.

2. Submit your supporting documents:

- **General supporting documents** : Check what documents you need to submit (i.e. official transcripts, degree diploma/ proof of expected graduation, translations, proof of English, passport) and how you need to submit them at www.universityadmissions.se.
- **Programme-specific supporting documents**: When applying for this programme, you must also submit a ‘Summary Sheet’ with your application. See the programme webpage for details.

3. Pay the application fee (when applicable).

Selection criteria/additional info

Seats are allocated according to: Previous college/university studies (HPAV): 100 %.

Tuition fees

Tuition fee SEK 145 000 per year for non-EU/EEA citizens. No fee for EU/EEA citizens. See www.lunduniversity.lu.se for details on tuition fees.

ABOUT THE CENTRE FOR MATHEMATICAL SCIENCES

The Centre for Mathematical Sciences is both part of the Faculty of Science and of the Faculty of Engineering. The Centre consists of approximately 120 employees. We carry out research

and teaching in mathematics, mathematical statistics and scientific computing. The personnel of the Centre can be clustered according to different non-disjoint criteria, e.g. according to title, faculty, subject or research groups. The three administrative divisions are: Mathematics (Faculty of Science), Mathematics and Numerical Analysis (Faculty of Engineering) and Mathematical Statistics).

ABOUT LUND UNIVERSITY

Lund University was founded in 1666 and is repeatedly ranked among the world’s top 100 universities. The University has around 46 000 students and more than 8 000 staff based in Lund, Helsingborg and Malmö. We are united in our efforts to understand, explain and improve our world and the human condition.

Lund is considered one of the most popular study locations in Sweden. The University offers one of the broadest ranges of programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. The unique disciplinary range encourages boundary-crossing collaborations both within academia and with wider society, creating great conditions for scientific breakthroughs and innovations. The University has a distinct international profile, with partner universities in approximately 70 countries.

Lund University has an annual turnover of EUR 912 million, of which two-thirds go to research in our nine faculties, enabling us to offer one of the strongest and broadest ranges of research in Scandinavia.

CONTACT

Programme webpage:

www.lunduniversity.lu.se/applied-computational-science-chemistry

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Learn more at www.lunduniversity.lu.se

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