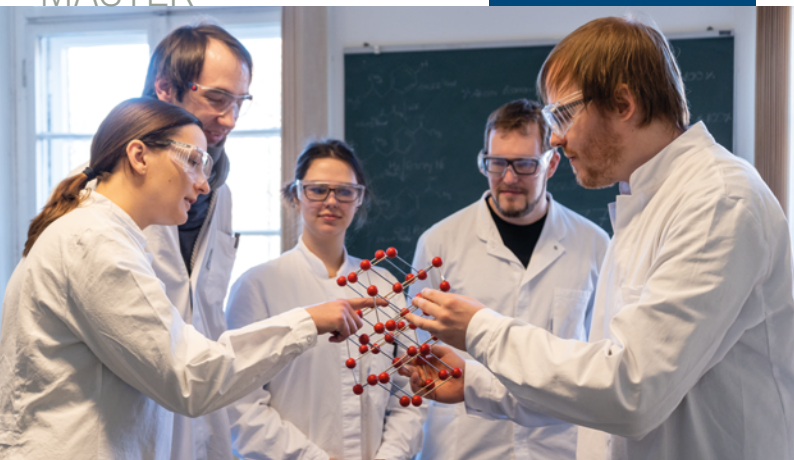


# SUSTAINABLE CHEMISTRY

MASTER



→ PROFESSIONAL SCHOOL

[professional programme]

# CHEMISTRY FOR SUSTAINABILITY

Chemistry provides the building blocks for virtually all of the products used in our everyday life. How can we make sure that the products and processes we use every day are in line with sustainable development? In a novel interdisciplinary curriculum, the M.Sc. Sustainable Chemistry teaches the interrelationship of chemistry and sustainability along the life cycle of chemical products, services and functions.

Through training in green chemistry, environmental chemistry, toxicology, and computational chemistry in combination with modules covering resources, sustainability assessment, international regulations, ethics and business models, participants are equipped with the necessary expertise for sustainability based decision making in the field of chemistry, its products, services and functions.

## YOUR ADVANTAGES AT A GLANCE

With our new Masters course, we aim to bring the mindset of sustainability system thinking and decision making into chemistry higher education.

- Learn how to assess the sustainability of chemical products and services
- Learn how to design chemical products that meet the requirements of function and environment
- Find out about alternative business models, services and functions of chemical products
- Learn about Circular Economy, it's opportunities and limitations from the perspective of sustainable chemistry

# INTERDISCIPLINARY M.SC. IN CHEMISTRY

4 | There is a growing need to place sustainability at the heart of the chemical enterprise, to acknowledge chemistry's central role for sustainability and mitigation of climate change. Key to this are skills and knowledge that go beyond conventional chemistry education. Still, training options for chemical experts are rare in this respect.

The worldwide first and unique M.Sc. Sustainable Chemistry fills this gap and provides interdisciplinary training ranging from the study of molecular structures to a macroscopic view on global processes and businesses. Experts from science, authorities, non-governmental organizations and industry offer diverse perspectives on the concept of sustainable chemistry, opening manifold options for graduates of the course to integrate acquired knowledge into practice, expand their network and explore new professional opportunities.

## CERTIFICATE COURSES

In addition to the full 90 CP programme, two options for 20 CP certificates will be offered:

- Sustainable Chemistry and Benign by Design: Modules Environmental Chemistry, Toxicology and Ecotoxicology, Modelling of Chemical Properties & Fate and Benign by Design
- Sustainable Chemistry and Regulatory Affairs: Modules Environmental Chemistry, Toxicology and Ecotoxicology, Law, International Regulations & Chemicals Management and Project Work Chemistry, Sustainability & the Agenda 2030 (5 CP variant)

### 1<sup>st</sup> Semester

**Concepts of Sustainable Chemistry**  
[5 CP]

**Environmental Chemistry** [5 CP]

**Toxicology & Ecotoxicology** [5 CP]

**Modelling of Chemical Properties & Fate** [5 CP]

**Green Chemistry** [5 CP]

### 2<sup>nd</sup> Semester

**Sustainable Chemistry & Renewable Energy** [5 CP]

**Benign by Design** [5 CP]

**Resources, Recycling & Circular Economy** [5 CP]

**Sustainability Assessment** [5 CP]

### 3<sup>rd</sup> Semester

**Law, International Regulations & Chemicals Management** [5 CP]

**Business Models & Strategies** [5 CP]

**Project Work Chemistry, Sustainability & the Agenda 2030** [10 CP]

**C3 Society & Responsibility** [5 CP]

### 4. Semester

**MASTERS THESIS** [20 CP]

# FOR PROFESSIONALS


## FLEXIBLE STUDYING

6 | The study programme is designed so that students can continue working full-time during their studies. Course content is provided via Leuphana University's e-learning platform. In addition, three classroom sessions lasting 1 to 2 weeks each will take place on the Campus of Leuphana University. Classroom sessions include lectures, seminars and laboratory work and provide the opportunity for networking.


During e-learning phases, students will be required to self-study as well as work interactively in groups on online assignments. The self-study content will be guided by various materials (books, scripts etc.). Students will also be intensively supervised by their lecturers, the programme director and coordinator as well as the e-learning team during the online phases.

### THE PROFESSIONAL MASTERS PROGRAMMES OF THE PROFESSIONAL SCHOOL ARE

- **Tailored to your needs:** Content is designed to meet the requirements of working professionals. Study time per week is adjusted to allow studying while working full time.
- **Flexible:** Our e-learning platform supports self-organised learning and work in virtual work groups. This allows for high flexibility and enables you to individually plan your study time.
- **Transfer-oriented:** Scenarios of global relevance are discussed in groups and interdisciplinary projects, promoting knowledge exchange and transfer to practice.

7 |  Chemistry is a key enabler for sustainable development. This means that we have to put chemistry into the context of sustainability. The worldwide first master course “Sustainable Chemistry” aims to enable young professionals to understand the opportunities and limitations of this new perspective on chemistry and allows them to make a difference in their professional practice.

Prof. Dr. KLAUS KÜMMERER, Study Programme Director

 Practising Sustainable Chemistry requires a bird's eye perspective on the function of chemistry and how it should be applied in order to contribute to sustainable development. If you are interested to learn about chemistry with the mindset of sustainability, this programme is for you!

Dr. MYRIAM ELSCHAMI, Study Programme Developer

 I welcome this new course on Sustainable Chemistry. An understanding of sustainability and its vital role in the future chemical industry is essential to the training of the modern chemist.

Prof. Dr. JAMES CLARK, University of York, Programme Lecturer



**LEUPHANA PROFESSIONAL SCHOOL** — ADDITIONAL QUALIFICATION FOR WORKING PROFESSIONALS AT UNIVERSITY LEVEL | HIGHLY FLEXIBLE COURSE STRUCTURE | ATTRACTIVE LEARNING ENVIRONMENT | PERFECT WORK-LIFE-LEARNING-BALANCE

# YOUR ADVANTAGES AT A GLANCE

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## ONLINE-BASED DEGREE

The M.Sc. Sustainable Chemistry curriculum is tailored to professionals who wish to study part-time while continuing to work. The 4 semesters of the programme can by design be completed in two years. However, if more time is required, this can be extended to up to five years. The programme's flexible structure provides extensive e-learning elements in combination with selected clustered classroom and laboratory sessions, allowing your studies to be optimally integrated into your daily schedule. An effective programme coordination and e-tutoring will make sure you are consistently supervised and guided throughout the degree.

## NEW PROFESSIONAL OPTIONS

There is a growing demand for professionals with composite training in chemistry and sustainability. As a graduate of the programme, you will be uniquely qualified to implement sustainable chemistry in academia, authorities, industry and related vocational fields.

## INTERNATIONALLY-RECOGNIZED DEGREE

All study programmes at Leuphana Professional School are externally accredited according to German higher education guidelines, ensuring high quality standards are met at all times.



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## INTERNATIONAL AND INTERDISCIPLINARY

The programme is aimed at an international community. You will work on internationally relevant topics in international groups, providing the opportunity to learn from each other about regional perspectives on questions that concern us all.

## PROFESSIONAL NETWORK

You will get to know renowned international lecturers and practitioners. Additionally, you will work and connect with your fellow students. This way your professional network will expand in the field of sustainable chemistry, across institutions, and internationally.

## MAKING A DIFFERENCE

As a graduate of the M.Sc. Sustainable Chemistry you have the skills to apply chemistry to contribute to sustainable development, thus tackling the most pressing challenge of our time. You will be trained to think in systems, and where to address and shape change.

## CARRY ON WITH A PHD

Interested to learn even more? Successful completion of the programme entitles to the pursuit of a PhD.

# YOUR PATH TO THE M.SC. APPLICATION

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The programme is offered once a year. Applications for the March intake are due on the 10<sup>th</sup> of December.

## ADMISSION REQUIREMENTS

The Masters programme is designed for professionals with a background in chemistry, biochemistry, and chemical as well as bio- and environmental engineering, pharmacy, or related fields who wish to acquire further qualification in the field of sustainability in chemistry.

### Applicants for the M.Sc. Sustainable Chemistry need to:

- Hold a first university degree in the field of chemistry or related fields,
- Have professional experience of at least one year,
- Have sophisticated English skills (e.g. 92 points in the online TOEFL test or other relevant proof.)

### HOW MUCH DOES THE COURSE COST?

The fees amount to 19.000 EUR total, plus around 200 EUR (current value) in semester fees. Costs relating to the degree may be deducted from tax subject to country specific tax regulations.



# CONTACT AND ADVISING. FIND OUT DETAILS

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WOULD YOU LIKE TO RECEIVE MORE DETAILED INFORMATION?

Not sure whether you fulfill the requirements? Or interested in a certificate in “Sustainable Chemistry and Benign by Design” or “Sustainable Chemistry and Regulatory Affairs”? Please do not hesitate to contact us and make use of our counselling services.

Leuphana Universität Lüneburg  
Institute for Sustainable and Environmental Chemistry  
**Dipl. humanbiol. Lisa Keßler, M. Sc**  
Study Programme Coordinator  
Universitätsallee 1  
21335 Lüneburg, Germany  
Phone +49.4131.677-4110  
schem@leuphana.de

## AT A GLANCE

Degree	Master of Science (M.Sc.)
Credit Points	90
Length of Study	4 semesters
Language	English
Start Date	March
Application Deadline	December 10
Costs	19.000 Euro total plus the current term contribution of 200 Euro per term
Programme Director	Prof. Dr. Klaus Kümmerer

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[www.leuphana.de/sustainable-chemistry](http://www.leuphana.de/sustainable-chemistry)