

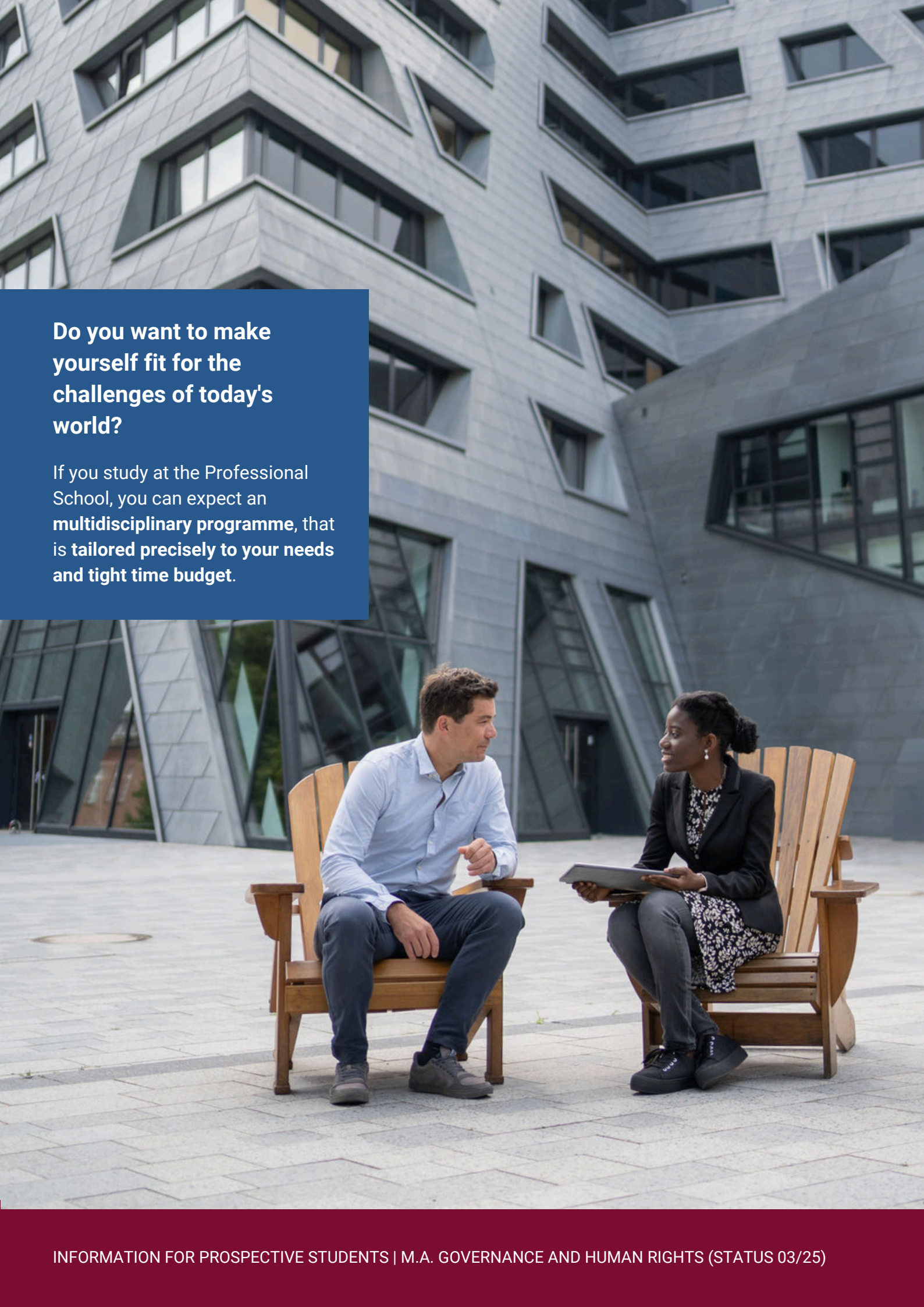
MASTER SUSTAINABLE CHEMISTRY



→ PROFESSIONAL SCHOOL



LEUPHANA
UNIVERSITY LÜNEBURG



Do you want to make
yourself fit for the
challenges of today's
world?

If you study at the Professional
School, you can expect a
multidisciplinary programme
precisely tailored to your needs
and tight time budget.

DEAR PROSPECTIVE STUDENT,

Thank you for your interest in the professional Master's programme Sustainable Chemistry at the Professional School of Leuphana University. Our programme is worldwide unique in conveying interdisciplinary training in sustainable chemistry - from the molecular level to global product flows, sustainability assessment and alternative business models for chemical products. Moreover, it is listed in the SDG Good practices of the United Nations Department of Economic and Social Affairs (UN DESA) for actively contributing to the SDGs 4, 9, 12 and 17.

The M.Sc. is designed as a blended learning programme for international professionals. The course language is English, and course content will be provided mostly online via our e-learning platform. Throughout the entire programme, your lecturers, e-learning team and programme coordinator will provide close supervision, ensuring an optimal online learning experience. In addition to the online phases, there will be two classroom sessions. On the wonderful campus of Leuphana, you will enjoy lectures, seminars and selected laboratory classes. Moreover, these sessions offer an excellent opportunity to closely interact with your peers and lecturers and exchange ideas and experiences in the field of sustainable chemistry.

Besides, we offer two certificate courses that allow you to take selected modules from the Master's course. Guest students for one or more modules are also welcomed.

In this brochure, you will find more information about the programme, its goals, subjects and organisation. Additionally, I would be happy to offer you a personal consultation via phone or email to answer any questions you may have about the programme.



Anastasia Polyzou
Study programme coordinator



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WHY SUSTAINABLE CHEMISTRY?



Further offers:



Sustainable Chemistry &
Benign by Design
Certificate



Sustainable Chemistry &
Regulatory Affairs
Certificate

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.

THE M.SC. PROGRAMME AT A GLANCE

With our Master's 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

AT A GLANCE	
Degree	Master of Science (M.Sc.)
Credit Points	90
Length of study	4 semesters
Language	English
Start date	March, flexible entry options
Application deadline	December 10th
Costs	EUR 19,000 total plus the current term contribution of approx. 210 Euro per term
Application requirements	<ul style="list-style-type: none">• a first university degree (e.g. Bachelor) in the field of chemistry or related fields (entry via modular studies possible without a university degree)• at least one year of relevant work experience (entry via modular studies possible with shorter work experience)• sophisticated English language skills
Programme Director	Prof. Dr. Klaus Kümmerer



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 Jork, Programme Lecturer

STRUCTURE OF THE DEGREE PROGRAMME



The four-semester master's programme consists of 12 theoretical modules, a complementary module and the Master's thesis.

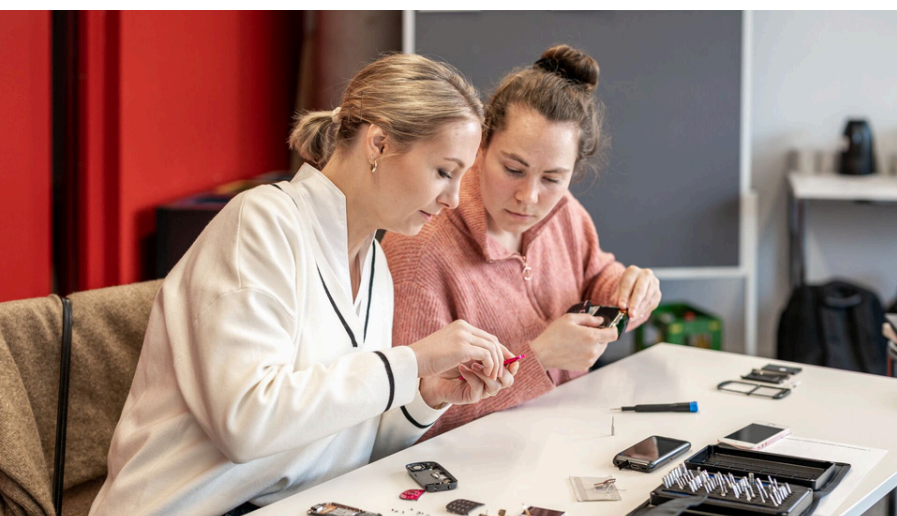
1 st Semester	2 nd Semester	3 rd Semester	4 th Semester
Concepts of Sustainable Chemistry [5 CP]	Sustainable Chemistry & Renewable Energy [5 CP]	Law, International Regulations & Chemicals Management [5 CP]	MASTERS THESIS [20 CP]
Environmental Chemistry [5 CP]	Benign by Design [5 CP]	Business Models & Strategies [5 CP]	
Toxicology & Ecotoxicology [5 CP]	Resources, Recycling & Circular Economy [5 CP]	Project Work Chemistry, Sustainability & the Agenda 2030 [10 CP]	
Modelling of Chemical Properties & Fate [5 CP]	Sustainability Assessment [5 CP]		
Green Chemistry [5 CP]		C3 Society & Responsibility [5 CP]	

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.

STUDY ORGANISATION

The Master's programme starts every year in March. It is a distance-learning programme designed for working professionals who seek to expand their knowledge and skills as well as their network in the field of sustainable chemistry.



The duration of the mandatory on-site session is 5 days, a tourist visa is sufficient for this duration. The programme does not qualify for a student visa.

The programme allows you to remain fully active in your profession during your studies. Attendance is highly recommended for two five-day block seminars in Lüneburg.

The first semester starts with an introductory classroom session and concludes with a second classroom session that features laboratory classes in environmental chemistry and toxicology. Hybrid participation in the introductory session is also possible, providing flexibility for those unable to attend in person.

The second and third semester are taught entirely online. At the end of the fourth semester, participants can optionally convene at Leuphana University to present and discuss their theses and to celebrate a farewell.

Most of the seminars are distance-learning units. Lecturers, other programme staff and e-learning teams provide comprehensive support not only during the online learning units and block seminars, but also during self-study periods.



You can flexibly organise most parts of your degree in line with your professional commitments: the e-learning platform gives you access to material such as literature, e-lectures, presentations and exercises. You can engage with your fellow students and teaching staff around the world in forum discussions, webinars and group work spaces and work on joint projects.

The platform is also used to submit assessments and for preparing and revising classes. This allows you to choose your own learning environment to a large extent and gives you flexibility in terms of time and location.

FLEXIBILITY FOR WORKING PEOPLE

New challenges await you on the part-time degree programme: Balancing work, private life and studies is a key issue. You will have to save time for your continuing education programme elsewhere, which requires good time and self-management.



Would you like to take a look at the semester schedule to compare it with your personal calendar?

No problem, please contact us and we will send you the current schedule.



However, if things get tight because deadlines collide or you have more work commitments, you can postpone examinations or even entire modules to a later date. Incidentally, attendance is not compulsory for our courses. The decisive factor for completing a module is passing the examination.



For me, learnings from the Sustainable Chemistry Master's programme are like an asset that will keep growing as I explore further on the relevance of sustainability in my professional domain.

DAVINDER SINGH KAHLON, Alumnus

MODULES AND CONTENTS

F1 SC CONCEPTS OF SUSTAINABLE CHEMISTRY

- Introduction to Sustainable Chemistry
- Sustainable Chemistry and Green Chemistry
- Life cycle perspective of chemical products
- Chemistry in the context of sustainable development
- Resources and recycling
- Benign by design of chemicals and products
- International chemicals management

F2 SC ENVIRONMENTAL CHEMISTRY

- Sources, reactions, transport, fate and effects of chemicals in air, soil and water environments
- Effect of anthropogenic activities on these processes
- Analytical chemistry

F3 SC TOXICOLOGY AND ECOTOXICOLOGY

- Introduction to toxicology and ecotoxicology
- Introduction to toxicology risk assessments and risk-based decision-making
- Toxicological tests

F4 SC MODELLING OF CHEMICAL PROPERTIES AND FATE

- Introduction to chemo-informatics and its application for the modelling of chemical properties
- Computational toxicology predictions of new compounds and evaluation of existing compounds and their environmental effects

F5 SC GREEN CHEMISTRY

- Principles of green chemistry and their evolvement
- Microreactor technology and continuous flow chemistry
- The business case for green chemistry and bioeconomy

F6 SC SUSTAINABLE CHEMISTRY AND RENEWABLE ENERGY

- The chemistry of materials and processes required for renewable energy conversion and storage
- Aspects of resource use and recycling for renewable energy infrastructure

F7 SC BENIGN BY DESIGN

- De-novo design or re-design of chemical compounds, products and processes according to sustainability requirements
- Comparison and evaluation of different molecular Benign-by-Design approaches
- Practical exploration of Benign by Design

F8 SC RESOURCES, RECYCLING AND CIRCULAR ECONOMY

- Future usage of resources and recycling
- Circular Economy
- Safe and Sustainable by Design (SSbD)

F9 SC SUSTAINABILITY ASSESSMENT

- Qualitative and quantitative sustainability assessment, and how to apply it in decision-making and policy development

F10 SC LAW, INTERNATIONAL REGULATIONS AND CHEMICALS MANAGEMENT

- Chemical law
- Environmental law
- International conventions
- International chemicals management

F11 SC BUSINESS MODELS AND STRATEGIES

- Service and function of chemicals
- Substitution
- Alternative economic solutions

In this module, you will choose a topic of interest to implement your acquired knowledge in a project on sustainable chemistry, considering its implications for the Sustainable Development Goals of the 2030 Agenda and the ongoing debate on sustainable development.

C1 SOCIETY AND RESPONSIBILITY

You will develop criteria for psychologically sound leadership behaviour, analyse your personal communication style and thus develop your skills as a responsible manager. Another part of this module is the responsible management of change processes in companies and organisations. You will also reflect on the importance of business ethics and learn how to communicate a conscious approach to values.

- Leadership and responsibility
- Shaping change in a meaningful way
- Ethics and values

This module is organised centrally by the Professional School and is offered to all Master's students across all degree programmes.

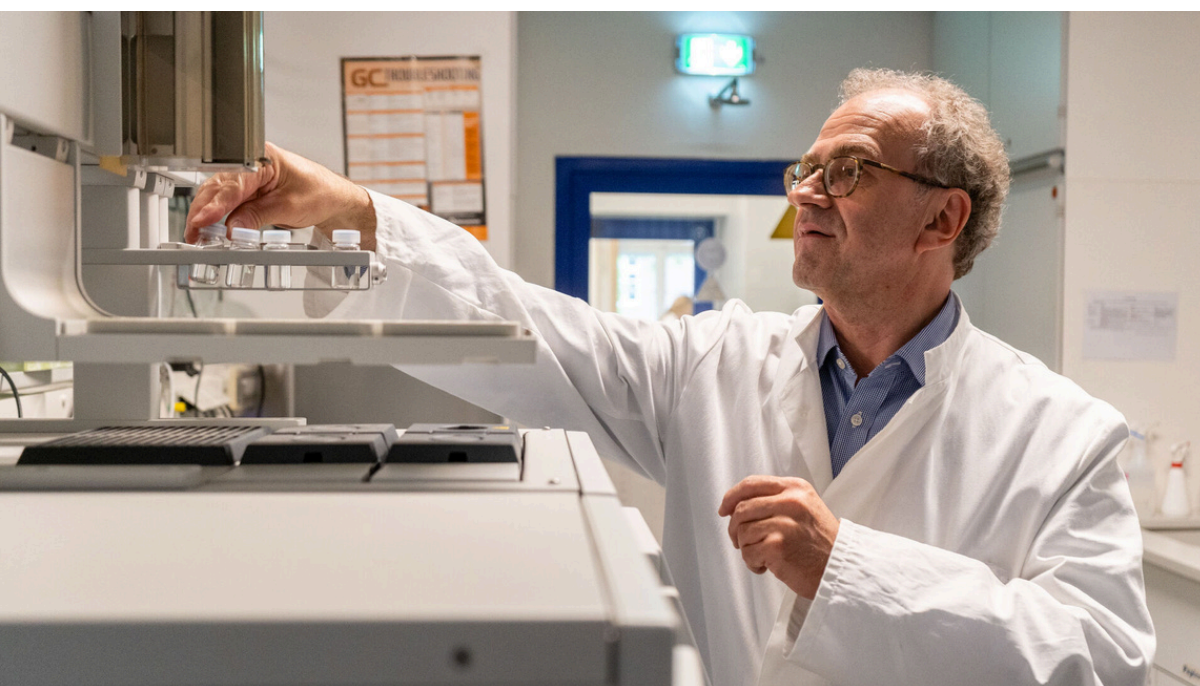
What happens during your studies?

Find out more in the following video:



LONG-STANDING EXPERTISE IN SUSTAINABLE CHEMISTRY

The 2030 Agenda for Sustainable Development with its 17 Goals adopted by all UN Member States is increasingly moving into the focus of industries and companies across all sectors. Chemical innovations are of central importance in many areas of our everyday lives. For the chemical sector to play an active role in a developing world, in-depth knowledge of chemistry needs to be complemented by sound expertise on sustainability.



At Leuphana, research and education in the field of Sustainable Chemistry is well established. Leuphana Professional School offers two English online Master's programmes and three certificate programmes for highly motivated international professionals who wish to integrate expertise in Sustainable Chemistry and Sustainable Chemistry Management into their professional portfolio. The programme director is Prof. Dr. Klaus Kümmerer, who was awarded the Federal Cross of Merit (Bundesverdienstkreuz) of the Federal Republic of Germany in 2024 for his long-standing, pioneering commitment to sustainable chemistry.

PRACTICAL ORIENTATION AND INTERDISCIPLINARY PERSPECTIVES

In addition to teaching specialised knowledge, the M.Sc. Sustainable Chemistry has a strong focus on application. Practice-oriented skills are not only presented in the courses, but are also integrated into the project work. Experts from science, authorities, non-governmental organisations 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. Small learning groups enable optimal supervision and a lively exchange within a cohort.



We cordially invite you to bring current issues and (sub-)projects from your everyday working life to the seminars and discuss them with your fellow students and lecturers. Kill two birds with one stone and apply the knowledge you have learnt directly in your institution. For example, you can choose questions related to your own working environment for some examinations or your Master's thesis.

FINAL THESIS WEEK ON CAMPUS OR ONLINE

Writing a thesis can present students with major challenges. In addition to time management, the writing process in particular raises many questions:

- How do I narrow down my topic?
- How do I do targeted research?
- What is the best way to approach the writing process?
- And how do I manage my sources?

Answers to these fundamental questions will be found during the final thesis week.



Note for students working in Germany: The thesis week is registered as regular educational leave in various federal states. Use your personal contingent.

Twice a year, the Leuphana Professional School organises a thesis week in which everything revolves around planning and writing the thesis. Students from different degree programmes tackle this task together, with the Professional School team providing the best possible support. The thesis week is structured around a framework programme, allowing students to tailor their writing process according to their individual needs.



Learn more
about the final
thesis week



YOUR ADVANTAGES AT A GLANCE

Online-based degree

Completion in just two years, extensive e-learning elements in combination with selected clustered classroom and laboratory sessions, effective programme coordination and e-tutoring

International and interdisciplinary study programme

Work on internationally relevant topics in international groups, learning about regional perspectives on questions that concern us all, interdisciplinary projects promote knowledge exchange and transfer to practice

Professional network

Excellent networking opportunities in the field of sustainable chemistry, across institutions and internationally: connect with renowned international lecturers and practitioners and students from all over the world

Tailored to your needs

Content design for the requirements of working professionals, study time per week adjusted to allow studying while working full time

Flexibility in studying

E-learning platform supporting self-organised learning and work in virtual work groups which allows for high flexibility and enables you to individually plan your study time

Quality-assured professional education

External accreditation according to German higher education guidelines, continuous evaluation and quality assurance





APPLICATION AND ADMISSION

The Master's in Sustainable Chemistry starts in March of each year. You have until 10 December to submit your application digitally via our application tool. It is also possible to take individual modules and have them subsequently credited to your degree programme. You can register for the individual modules subject to availability until the start of the respective module.

To fulfil the admission requirements, you need

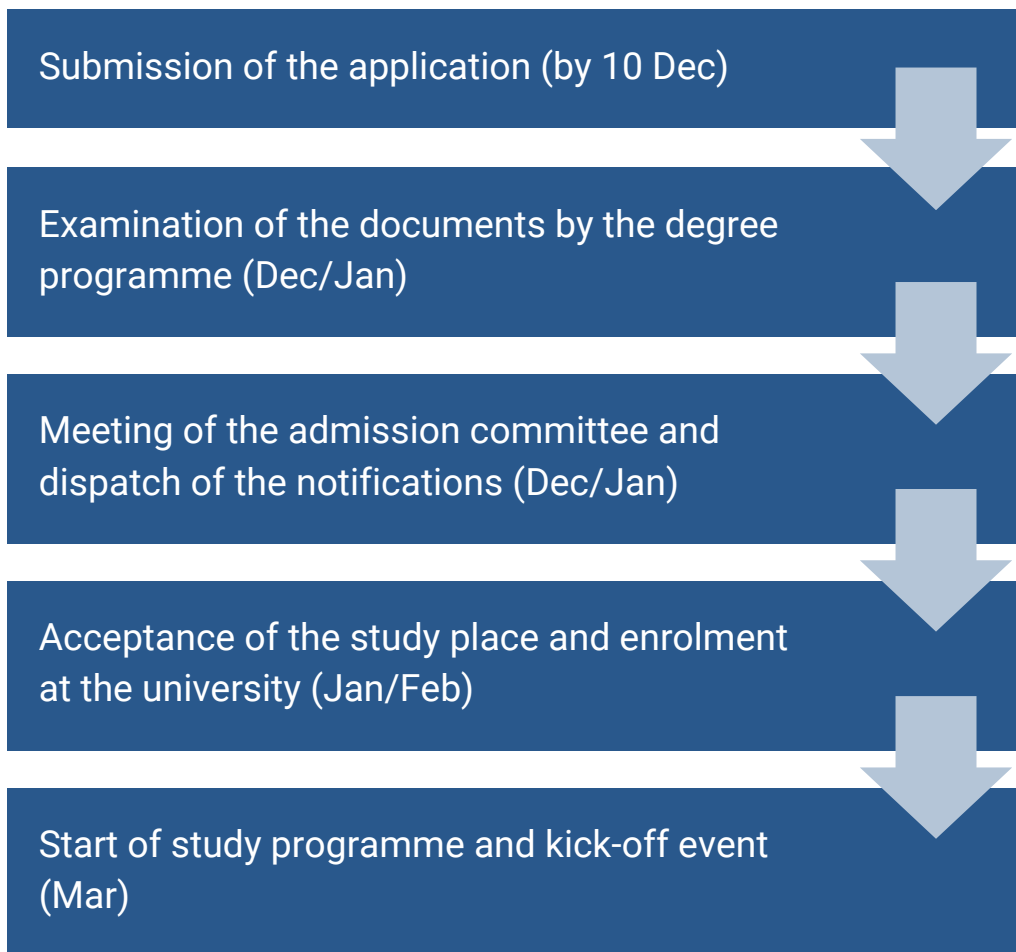
- a first university degree in the field of chemistry, bio- and environmental engineering, pharmacy, biochemistry or related fields (Entry via modular studies possible without university degree)
- one year of qualified professional experience (entry via modular studies possible with shorter work experience)
- sophisticated English language skills (e.g. 92 points in the online TOEFL test)



Go to the
application tool

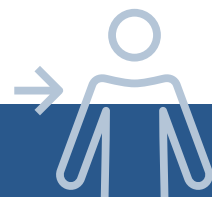


THE ADMISSION PROCESS TAKES PLACE IN THE FOLLOWING STEPS:



During the admission process, we will keep you up to date on the individual intermediate steps and are always available to answer your questions. The Master's programme starts with a kick-off event in Lüneburg, where you will receive all programme-relevant information and have the opportunity to meet your fellow students and lecturers in person.

Do you have all the documents together?
We look forward to your application!



Are you unsure whether you fulfil the admission requirements or whether your documents are sufficient? We will be happy to advise you!

CP-DELTA

In order to obtain a Master's degree, you must provide evidence of a total of 300 credit points (CP) from your Bachelor's and Master's degree programmes in accordance with legal requirements.

However, some students only have 180 or 210 credit points from their first degree programme. In these cases, a CP gap may arise, the so-called CP delta, and additional CP must be acquired before submitting the Master's thesis.

All modules of the Master's curriculum and the additional CPs must be completed by the time you submit your Master's thesis. In addition to choosing the 90 CP option of the Master's programme, you have the following options for this in the Master Sustainable Chemistry.

Recognition of professional competences via the bridging module <ul style="list-style-type: none">• Proof of at least 1 year (15 CP) or at least 2 years of relevant professional experience related to sustainable chemistry on the basis of a structured expert discussion	15-30 CP
Recognition of previous academic achievements <ul style="list-style-type: none">• Additional study achievements at other universities, regardless of the subject specialisation, shown in ECTS	individual
Preparation of an extended Master's thesis <ul style="list-style-type: none">• Completion of a Master's thesis with an extended scope and in-depth research question by individual arrangement	5-15 CP
Preparation of a project <ul style="list-style-type: none">• Carrying out a project in which the conception, realisation, evaluation and documentation of the project are carried out using scientific methods and reflected on at a scientific level	5-10 CP
Enrolment in additional courses <ul style="list-style-type: none">• Completion of additional modules of other study programmes of the Professional School (ATTENTION: the fees of the respective study programme apply here)	individual



FEES AND FINANCING

The following fees are charged for participation in the part-time Master's programme Sustainable Chemistry:

- Tuition fees: € 19,000
- Plus semester contribution: approx. € 210 (per enrolled semester)

At the beginning of your degree programme, you should specify the payment method in the payment agreement in consultation with the coordinator. Instalments and special payments are possible. The semester fee will be charged by the university in advance as part of the enrolment process.

It is also possible to attend individual modules.

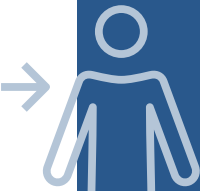


Due to the current legal regulations, you can claim costs relating to your studies for tax purposes in Germany. Please ask your tax advisor!



A degree programme benefits not only you but also your employer. Investing in your professional development can bring value to your organisation as well. A conversation with your line manager can help clarify the potential advantages. Some students negotiate individual financing models with their employers, which may include support for flexible working hours, study leave, or even full funding of their studies.

We will be happy to issue the tuition fee certificates directly to your employer in the event of (partial) cost coverage.



Arrange a personal consultation appointment by e-mail to clarify your questions about financing a part-time degree programme and to receive advice:
psfinanzierung@leuphana.de



Is the financial investment worthwhile? What costs will I face and how can I best manage them? There are many questions about financing a part-time degree programme.

Before you start your part-time studies at the Professional School, we recommend that you draw up an individual financing plan.

It may also be worth taking a look at possible scholarships and grants.



Information on
funding and
financing



CERTIFICATE SUSTAINABLE CHEMISTRY & BENIGN BY DESIGN



Develop advanced skills in the targeted (re)design of chemicals with this certificate. Designed for professionals, it draws on insights from environmental chemistry and toxicology to explore innovative (re)design strategies with a focus on potential and practical application of Benign by Design. Equip yourself with the expertise to create chemicals with minimised environmental and toxicological impacts. Join us to take a leading role in shaping the future of sustainable chemistry.

Toxicology and Ecotoxicology

Environmental Chemistry

Modelling of Chemical Properties and Fate

Benign by Design



About the
certificate



CERTIFICATE SUSTAINABLE CHEMISTRY & REGULATORY AFFAIRS



Enhance your expertise in international chemicals management in the context of Sustainable Chemistry. Ideal for professionals, this programme introduces key policy frameworks on a national and global level, based on environmental chemistry and toxicology insights, and explores the implications of sustainable chemistry on regulatory affairs and vice versa. Upon completion, you'll be equipped with profound knowledge on regulatory compliance in the light of the Agenda 2030.

Toxicology and Ecotoxicology

Environmental Chemistry

Law, Regulations and International Chemicals Management

Project Work Sustainable Chemistry and Agenda 2030 (5 CP variant)



About the
certificate



WHY STUDY SUSTAINABLE CHEMISTRY?

1

FUTURE-ORIENTATED STUDY SUBJECT

You will acquire the skills to apply chemistry in ways that contribute to sustainable development, addressing one of the most pressing challenges of our time. You will be equipped to design chemical products that meet both functional and environmental sustainability criteria throughout their entire life cycle. You will explore the concept of the circular economy, understanding both its opportunities and limitations from the perspective of sustainable chemistry, and gain the knowledge to assess the sustainability of chemical products and services.

2

DIVERSE CAREER PROSPECTS

After completing your Master's degree, you will be uniquely qualified to apply sustainable chemistry in academia, authorities, industry and related fields, opening up a wide range of job opportunities and meeting the growing demand for professionals with expertise in both chemistry and sustainability. You will be trained to think systemically and identify key areas for change, empowering you to make a real difference.

3

IN 4 SEMESTERS TO THE MASTER'S DEGREE

The Master's programme in Sustainable Chemistry is designed to support a balanced work-life-study dynamic, allowing you to complete your degree in just 24 months without interrupting your career, neglecting your personal life or losing your earnings.

4

MODULAR STUDY STRUCTURE

The modular study structure and our certificate programmes offer flexible entry options, allowing you to customise your studies by taking individual modules in advance or spreading out the workload.

5

LEARNING FROM EXPERTS

Renowned international lecturers and practitioners enrich the programme with their wealth of experience, presenting course content from different perspectives and allowing you to benefit from their valuable insights into both research and practice.

6

PRACTICAL ORIENTATION

We cordially invite you to discuss current issues from your day-to-day work in the seminars. Bring the knowledge you have learned directly into your organisation by working on a real (partial) project for some of the exams. The integrated project work gives you the opportunity to practically apply your new theoretical knowledge as you acquire it.

7

LEARNING IN SMALL GROUPS

A maximum of 25 study places are allocated per programme start. Small study groups enable optimal supervision and a lively exchange within a cohort.

8

INDIVIDUAL SUPPORT

Throughout your studies, you will be personally supervised by the programme coordinator and supported in all matters relating to the organisation of your studies.

9

PERSONAL EXCHANGE AT EYE LEVEL

In addition to online events, the programme includes two attendance weeks that promote learning with and from each other on an equal footing. In our synchronous online formats, we also emphasise interaction and exchange, viewing them as key factors in enhancing the learning experience and broadening horizons.

10

RECOGNISED UNIVERSITY DEGREE

The M.Sc. Sustainable Chemistry is an internationally recognised and accredited university degree and opens up the possibility of a PhD.

CONTACT



Programme Coordinator

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[+49.4131.677-4110](tel:+4941316774110)



INDIVIDUAL COUNSELLING

on campus, via email, telephone or virtually through Zoom to evaluate whether the content of the programme meets your expectations. For a counselling interview, please select an appointment in our [booking portal](#).

To the appointment
booking



INFO DAY PART-TIME STUDY

Twice a year, we present the Master's Sustainable Chemistry at the [Leuphana Professional School's Info Day](#).

Dates and
registration



DATES AND EVENTS

You can find the latest dates for (online) info events on our [website](#) at any time.

Dates and
registration

