SUSTAINABLE CHEMISTRY AND BENIGN BY DESIGN

→ PROFESSIONAL SCHOOL

LEUPHANA
UNIVERSITY LÜNEBURG

Do you want to get fit for the challenges of today's professional world?

In the part-time, compact certificate programmes, you can expect an **interdisciplinary and cross-disciplinary course of study** that is precisely tailored to your needs and limited time.

DEAR PROSPECTIVE STUDENT,

Thank you very much for your interest in the certificate programme Sustainable Chemistry and Benign by Design. This programme has been designed to provide you with a focused insight into the (re)design of chemicals with sustainability and reduced environmental impact as central goals. Grounded in environmental chemistry and toxicology, you will explore the potential and practical application of the Benign by Design approach, addressing current gaps in experimental and computational data needed for its wider implementation.

The programme is delivered predominantly online over two semesters, combining flexible digital learning with an on-campus laboratory week for hands-on experience and networking. You will be guided by experts in the field and gain advanced knowledge to contribute to sustainable chemical innovation.

In this document, you will find essential information about the programme's content, structure, and certification options.

We look forward to your participation and will be happy to advise you personally if you have any questions.

Anastasia Polyzou
Study programme coordinator

To the programme website

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BECOME A CHANGE AGENT FOR SUSTAINABILITY IN THE FIELD OF CHEMISTRY

The **certificate Sustainable Chemistry and Benign by Design** is designed for professionals seeking to develop skills for the targeted creation and modification of chemical substances. Based on insights from environmental chemistry and toxicology, it explores the (re)design of chemicals, laying emphasis on the potential and applicability of Benign by Design, as well as existing gaps in experimental and in silico data required for widespread application of the approach.

After completion, you are equipped with profound knowledge about molecular (re)design of chemicals with reduced environmental and toxicological impact.

AT A GLANCE	
Degree	Certificate of Advanced Studies (CAS) or optionally a certificate of attendance
Credit Points	20
Length of study	2 semesters
Language	English
Start date	May
Application deadline	December 10th
Costs	4,400€ in total plus the current semester fees of approx. 210€ per Semester (Semester fees only apply if you decide to acquire ECTS)
Admission requirements	Completed first university degree, at least one year of relevant professional experience, advanced knowledge of English
Programme Director	Prof. Dr. Klaus Kümmerer

FUTURE-ORIENTED QUALIFICATION

As sustainability becomes a central driver of innovation and regulation, professionals with expertise in sustainable chemistry are increasingly in demand. The Sustainable Chemistry and Benign by Design certificate gives you future-relevant skills to advance your career in chemical industries, environmental services, product development or regulatory bodies.

You will learn to assess and redesign chemicals with reduced environmental and health impacts — a key competence in sectors transitioning toward greener, safer solutions. The programme combines online flexibility with a hands-on lab week and covers environmental chemistry, toxicology, modelling and substance design.

With this qualification, you position yourself as a driver of innovation and sustainability within your organisation. It enhances your professional profile, strengthens your expertise at the interface of science and practice, and opens doors to new roles and responsibilities in a fast-evolving field.

COURSE OF STUDY

The certificate programme is offered every year and comprises a workload of 20 ECTS credits, which can be completed within two semesters. The online-based certificate is complemented by an on-campus laboratory phase. The wide range of e-learning options and intensive student support guarantee a well-organised digital learning environment that is tailored to your needs. This allows you to optimally combine the courses with your professional activities.

Would you like to view the semester schedule so you can compare it to your personal calendar?
No problem, please contact us and we will send you the current plan.

Pre- and post-processing documents for the synchronous events as well as for your self-study are made available to you via our online learning platform. You can engage with your fellow students and teaching staff around the world in forum discussions, webinars and group work spaces. The platform is also used to submit assessments and for preparing and revising classes.

MODULES AND CONTENTS

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

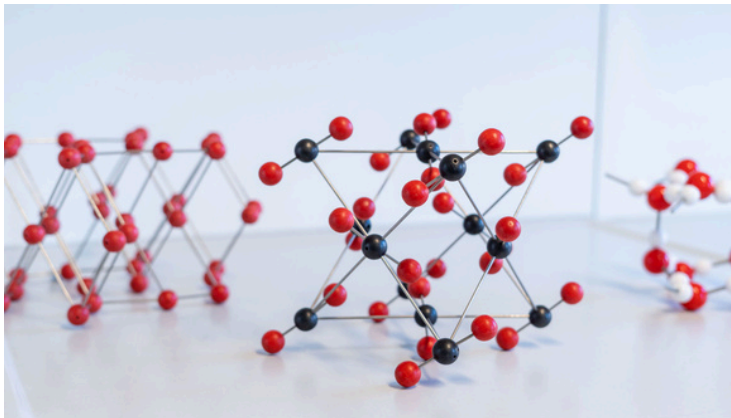
F4 SC	MODELLING OF CHEMICAL PROPERTIES AND FATE

- 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

F7 SC	BENIGN BY DESIGN

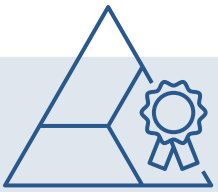
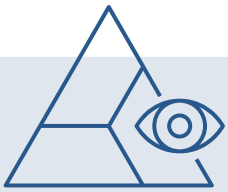
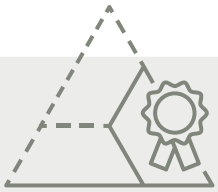
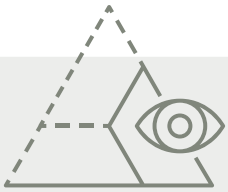
- De-novo design or re-design of chemical compounds, products and processes according to sustainability requirements
- Comparison and evaluation of different molecular Benign-by-Design approaches
- Practical exploration of Benign by Design

All modules can also be taken individually if interested. If you pass the exams, the ECTS credits earned can later be credited to degree programmes, e.g. to the Master in Sustainable Chemistry.



FORMS OF PARTICIPATION FOR YOUR FURTHER EDUCATION

If you successfully complete all the modules for the certificate with an examination, you will receive your university certificate at the end of the programme: the Certificate of Advanced Studies. This certificate attests to the acquisition of specialist knowledge at university Master's level and is worth a total of 20 credit points. However, you also have the option of waiving the exams without acquiring credit points. At the end of the course, you will then receive a certificate of attendance confirming your participation in the training programme.

	 Certificate studies	 Certificate participation	 Module studies	 Module participation
Immatriculation	✓	✗	✗	✗
Examination	✓	✗	✓	✗
CP acquisition	✓	✗	✓	✗
Degree	University certificate	Certificate of attendance	Confirmation of CP acquisition	Certificate of attendance
Study fees	✓	✓	✓	✓
Semester fees	✓	✗	✗	✗

If you decide to participate in the regular certificate programme, you will enrol as a student and can take advantage of benefits such as student discounts. If you choose the certificate participation option, you will only have to pay the tuition fees and no semester fees.

APPLICATION AND ADMISSION

The certificate programme begins in May each year. You have until 10 December to submit your application digitally using our application tool.

To meet the admission requirements for the certificate programme, you need

- a completed bachelor's degree in chemistry or a degree of at least equivalent level in a related field, provided that it imparts knowledge in general, organic, physical and inorganic chemistry
- relevant work experience of one year
- advanced knowledge of English

To the application website

You must submit the following application documents with your online application by the deadline:

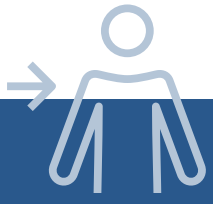
- First University Degree
- Proof of English language skills
- Proof of one year relevant work experience

After you submit your application, we will review your documents and you will usually receive official notification in February. During the admission process, we will keep you informed of the individual steps and are always available to answer your questions.

It is also possible to take individual modules and to have them credited to the course at a later date, or to opt for the certificate participation. You can register for the modules, subject to availability, up until the start of the module in question.

At the beginning of your studies, you will receive all the information you need about the programme and have the opportunity to meet your fellow students and lecturers.

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



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

FEES AND FINANCING

The following fees apply for participation in the part-time Certificate Sustainable Chemistry & Benign by Design:

- Tuition fees: €4,400
- Plus semester fee: approx. €210 (per enrolled semester, not for the certificate participation option)

At the beginning of your studies, you determine the payment method in consultation with the coordinator. Instalment and special payments are possible. We will invoice you for the tuition fees based on the information you provide. The semester fee is charged in advance by the university during enrolment.

It is also possible to attend individual modules.

According to the currently applicable legal regulations in Germany, you can claim costs related to your studies against tax. Please feel free to ask your tax advisor!

Studying is not only to your own advantage. Investing in your professional development can also be beneficial for your employer. A discussion with your superiors can provide clarity here. Some students negotiate individual financing models with their employers. These can vary from offers of support for flexible working hours to granting days off for study purposes or full financing of studies. We will be happy to issue the invoices for the tuition fees directly to your employer if they cover (a portion of) the costs.

Arrange a personal consultation appointment by email and get answers to your questions about student financing: psfinanzierung@leuphana.de

Is it worth the financial investment in a part-time certificate programme? What costs can I expect and how can I best manage them? There are many questions regarding the financing of a part-time course of study.

Before you start your part-time studies at the Professional School, we recommend that you create an individual financing plan. It may also be worth looking at possible scholarships and grants.

Information on funding and financing

CONTACT

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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 Certificate Sustainable Chemistry & Benign by Design 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