



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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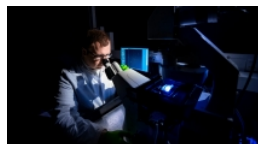
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Master's degree



Molecular Systems Science and Engineering (MSSE)

Heidelberg University • Heidelberg



Overview

Degree	Master of Science
Teaching language	<ul style="list-style-type: none">English
Languages	All courses are held in English.
Full-time / part-time	<ul style="list-style-type: none">full-time
Programme duration	4 semesters
Beginning	Winter semester
Application deadline	15 March for the following winter semester
Tuition fees per semester in EUR	Varied
Additional information on tuition fees	Approx. 1,500 EUR per semester for students from non-EU (European Union) and non-EEA (European Economic Area-Iceland, Lichtenstein, Norway) countries
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	<p>The Master's programme in "Molecular Systems Science and Engineering" (MSSE) aims to equip students with the knowledge and skills necessary to explore the complexities of molecular systems through the lenses of physics, chemistry, materials science and the molecular life sciences.</p> <p>After one semester of basic lectures with exercises in at least three of the five main subjects, students specialise in elective courses from the second semester onwards. The compulsory modules of Creative Science Lab, Technology Transfer, Data & Project Management form an important part of the programme, as they provide students with the knowledge and skills to design and carry out research projects as independent scientists. This is followed by the research phase in</p>

the form of internships accompanied by seminars and a Master's thesis.

MSSE graduates will be well-prepared for careers in research or development in the field of Molecular Systems Science and Engineering as well as for participation in PhD programmes.

Course Details

Course organisation

The MSSE programme at Heidelberg University explores the fascinating and highly interdisciplinary realm of Molecular Systems Engineering. Students are introduced to the core research topics within the field and then have the opportunity to narrow down their focus. Alongside this, they'll acquire essential skills and techniques for lab work. Eventually, students get to apply this knowledge first-hand when they join our affiliated research groups full-time during their lab rotations and Master's theses.

FIRST SEMESTER:

In the first semester, students learn the basics of Molecular Systems Science by choosing three out of the five main topics:

- Energy Conversion
- Molecular Engineering
- Biomaterials
- Nanosystems
- Philosophy and Ethics in the Engineering Science

They furthermore choose one of the four specialisations:

- Specialisation (Macro) Molecular Engineering
- Specialisation Life Inspired Molecular Systems
- Specialisation Physics of Functional Materials
- Specialisation Physical and Biological Principles of Sensing

In addition, students are introduced to the basics of Data and Project Management.

SECOND SEMESTER:

In the second semester, students choose their two final specialisation topics:

- Functional Organic Materials
- Synthetic Biosystems
- Advanced Macromolecular Chemistry
- Physics of Molecular Systems Science and Engineering

They are furthermore introduced to the methods and lab practices necessary for their lab rotations and Master's theses in the Creative Science Lab (rotation and seminar).

Additionally, they learn about Technology Transfer at Heidelberg University.

THIRD SEMESTER:

The third semester is focused on lab rotations in one of the many host labs available at the IMSEAM and other locations at Heidelberg University and abroad.

FOURTH SEMESTER:

The fourth semester is reserved for the Master's thesis.

International elements

- Projects with partners in Germany and abroad

Description of other international elements	There will be an exchange programme with several partners, which is part of the lab rotations.
Course-specific, integrated German language courses	No
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	Varied
Additional information on tuition fees	Approx. 1,500 EUR per semester for students from non-EU (European Union) and non-EEA (European Economic Area-Iceland, Lichtenstein, Norway) countries
Semester contribution	Approx. 151.05 EUR per semester for all students
Funding opportunities within the university	No

Requirements / Registration

Academic admission requirements	<ol style="list-style-type: none"> 1. Applicants must provide proof of a Bachelor of Science degree with above-average grades (e.g. in chemistry, physics, molecular biology, biochemistry, materials science, biotechnology), or a degree course of at least six semesters in a related natural science field, or a degree recognised as equivalent. Proof of an above-average Bachelor's degree is provided with a minimum grade of 2.3 (good). The grades are calculated according to the modified Bavarian formula for certificates from foreign educational institutions. 2. In the case of certificates from foreign educational institutions, officially certified translations in German or English must be enclosed. If the higher education entrance qualification and academic achievements were acquired in the People's Republic of China, India or Vietnam, a certificate or a certificate from the Academic Evaluation Center (APS) must also be submitted. 3. If the degree according to point number one (above) is not yet available by the end of the application period, a provisional certificate from the university on the work completed up to that point must be provided. 4. Proof of 96 ECTS credit points, or more than half of the coursework in the study-relevant natural science subjects listed under § 2 paragraph two number one and mathematics 5. Applicants who are not English native speakers must provide proof of sufficient English language skills (details below). 6. You must provide a letter of motivation (including self-reflection) with your own research experience and research interests relevant to your studies in the length of one DIN A4 page. The topics of the self-reflection and the modalities of the letter of motivation are determined by the admissions committee and posted on the homepage of the degree programme during the application phase. 7. You must provide a declaration stating whether you have definitively failed an examination required by the examination regulations in the Master's degree programme in Molecular Systems Science and Engineering or in a related Master's degree programme, whether you are no longer entitled to an examination for other reasons or whether you are currently undergoing an examination procedure in one of these degree programmes.
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Language requirements

Applicants who are not English native speakers must provide proof of sufficient English language skills. The proof must not be older than four years at the end of the application phase and can be provided by one of the following:

1. The Test of English as a Foreign Language (TOEFL) paper-based with at least 570 out of 677, or with at least 90 out of 120 points Internet-based
2. The International English Language Test System with a score of 6.5 or better
3. A Cambridge Certificate in Advanced English (CAE)
4. UNlcert®: at least a UNlcert® II certificate with a minimum grade of 2.3
5. NULTE certificates: at least level B2+
6. Proof of sufficient knowledge of the English language, which also includes at least two years of relevant study or professional experience in an English-speaking country within the last three years prior to the submission of the application for admission or the successful completion of an English-language degree course

Application deadline

15 March for the following winter semester

Submit application to

<https://heico.uni-heidelberg.de/>

Services

Possibility of finding part-time employment

Students can work as "Hiwi" students, which means that they can work at student jobs at the university.

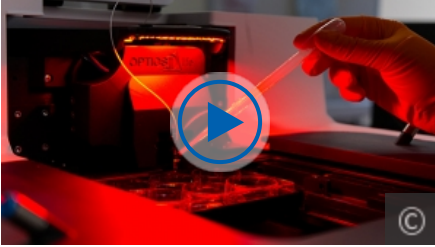
Accommodation

<https://www.stw.uni-heidelberg.de/en/node/49>

Private accommodation is also an option.

Support for international students and doctoral candidates

- Specialist counselling
 - Support with registration procedures
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Master's Programme in Molecular Systems Science and Engineering

The video gives a short introduction into the the Master's programme in Molecular Systems Science and Engineering at Heidelberg University.

» more:
https://www.youtube.com/watch?v=NzTIgYS_LNk

Heidelberg University

Heidelberg University is a comprehensive university founded in 1386. It is a university of excellence with a broad range of subjects covering humanities, social sciences, life sciences and natural sciences. Approximately 30,000 students are enrolled, of which 5,600 are international students. The university is well known for its outstanding research in medicine and life sciences as well as the natural sciences. To complete the picture of a comprehensive university, the Faculty of Engineering Sciences was founded in 2021 with a focus on molecular systems engineering.



University location

Heidelberg University is located in the beautiful town of Heidelberg in South Germany. Besides the student life, the city offers a lot of cultural events and the opportunity to think outside of the box with all the university events offered.

Contact

Heidelberg University

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🌐 Course website: <https://www.ingwiss.uni-heidelberg.de/en/study/molecular-systems-science-and-engineering-master>

📺 <https://www.youtube.com/@IMSEAMHeidelberg>

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International Programmes in Germany - Database

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Editor

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