ulm university universität ulm

Creative Spirit. Human Touch.

Master Programmes in English

Content


PUPPE
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GARTEN
PALAST
SCHMUCK
NEST

Creative spirit. Human touch.

In 2017 Ulm University was again ranked first among “Young Universities” in Germany. Ulm University is an outstanding university in the area of research and science. Today about 10,000 students are enrolled at the four faculties:

- Natural Sciences
- Mathematics and Economics
- Engineering, Computer Science and Psychology
- Medicine

All students receive a profound mentoring during their studies.

Study out of the ordinary - Study PLUS

Creative spirit and human touch - that is what Ulm University stands for. Modern learning-techniques and latest equipment make your studies an interesting and a worthwhile experience.
No matter what kind of support you need for succesful studies - we offer a wide range of additional and supportive tutoring events.
The campus infrastructure is very well because lecture halls, libraries and canteens are all close together and can easily be reached within some minutes walk. The campus is well connected thanks to many different bus lines.

Research & links to economy

Right from the beginning, Ulm University asserted its claim as a research university. Thanks to its interdisciplinary and cooperative working methods, the University has been able to establish numerous research concentrations and Collaborative Research Centres both in basic and applied research, achieving successful results.
Our research focus is:

- Trauma Research
- Ageing research and Age Related Diseases
- Quantum Science and Technology
- Energy Conversion and Storage
- Cognitive Systems and Human Computer Interaction
- Financial Services and their Mathematical Methods

Bonds between research at Ulm University and the regional economy are strong. Numerous successful cooperations are awarded annually with the so-called “University/Industry Cooperation Award“. But also students profit from these research networks as scientific results use to be transferred to daily study routine.

⇢ Studies: https://www.uni-ulm.de/en/study/study-at-ulm-university
⇢ Study programmes: https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes
⇢ Mentoring & tutoring: https://www.uni-ulm.de/en/study/study-at-ulm-university/study-plus
⇢ Research: https://www.uni-ulm.de/en/research
⇢ Rankings: https://www.timeshighereducation.com/world-university-rankings/2015/one-hundred-under-fifty

Your future. Your choice. Your university.

Ulm feels good

The City of Ulm is a friendly and safe place in the South of Germany. It is situated on the Danube River, in between the city Stuttgart and the Bavarian hot spot Munich. 170,000 people live in the city area of Ulm and Neu-Ulm.

The region is well-known for its economic strengths and high standard of living. Ulm and the region offer many events among them various traditional customs like “Nabada” – a water festival during the summer time – but also museums, galleries, bars and shopping facilities. Last but not least, the regional “Swabian” food is delicious – enough reasons to come and get to know Ulm and Ulm University!

⇢ City of Ulm:
http://www.ulm-internationalestadt.de/en/home
⇢ Ulm University:
https://www.uni-ulm.de/en
⇢ International Office:
https://www.uni-ulm.de/en/io
⇢ Application and enrolment:
https://www.uni-ulm.de/en/study/application-and-enrolment
⇢ Student service Office:
https://studierendenwerk-ulm.de

Facts & Figures about Ulm University

- Best young German University in 2014, 2015 and 2017
- About 10,000 students
- More than 60 study programmes
- 4 Faculties
- More than 200 professors
- 2,000 academic employees
- University sports with about 100 courses
- Over 20 leisure groups
- More than 20 students representation groups
- 9 student dormitories offered by the Student Service Office
- Bus connections to campus, city and dormitories

Internationality

Coming from abroad and you want to study in Ulm? No problem! We offer a wide range of programmes and are well networked with universities worldwide. In order to learn German and to get into touch with German students, who will help you during your start at Ulm University, we offer a Buddy Programme. Furthermore, several introduction events and trips will make your stay in Ulm a valuable experience. There are many options for accommodation and further support offered by our International Office as well as by the Student Service Office.

Faculty of Engineering, Computer Science and Psychology

- Cognitive Systems
- Communications Technology

Master of Science in Cognitive Systems

Our cognitive functions allow us to interact with the environment, to smoothly adapt and react to external influences, and to gain knowledge. We do so by using various senses and relying on previous experiences from other contextual situations and our ability to learn, reason and plan future actions. Technical systems that implement or imitate the cognitive functions of humans are what we call cognitive systems. In order to implement such functionalities, systems must be equipped with capabilities for

- perception and cognition,
- planning and reasoning for action control and problem solving,
- learning and memory, as well as
- interaction.

The programme is completely taught in English and introduces students to the theoretical and empirical foundations of cognitive skills, which serve as the basis for the development of models. These models allow for connecting neuro-biological mechanisms, theoretically well-founded concepts, and cognitive behaviour and for analysing this in psychopysical studies and psychological tests. The results build the foundation for various applications, e.g., a new generation of assistance and companion systems, intelligent robots, vehicles, gadgets and games, or even intelligent cities, with the goal of supporting and improving human performance.

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: Restricted Admission.
  Bachelor‘s degree with examinations in study programmes in psychology, computer science, cognitive science or any other programme with an equivalent degree. Proof of a bachelor‘s degree with an overall grade of 2.6 or better. Each of the following qualification raises your average degree by 0.1 points (programming skills by 0.2 points). The overall improvement is limited to 0.3 points.
  - Proficiency in practical computer science (with programming in higher level languages) of 6 CP.
  - Participation in interdisciplinary projects or professional experience (at least six months) with a thematic connectionto the program
  - Substantial periods of study or research abroad
  - Expertise relevant to the course through previously attended lectures
- Language skills: Good proficiency of English (at level C1 or with a min. of 88 points in the internet-based TOEFL or IELTS with an overall band score of at least 6.5)
- Fees: please see page 42
- Online application period: April 15th to June 01st
- Application procedure:
  For German applicants and applicants enrolled in an Ulm University programme: www.uni-ulm.de/index.php?id=56317
  For applicants with foreign nationality: www.uni-assist.de

Semester						Credit Points 120
1st	Core Subject 6 CP	Core Subject 6 CP	Specialisation Subject 6 CP	Basic Subject 6 CP	Basic Subject 6 CP	30 CP
2nd	Core Subject 6 CP	Interdisciplinary Subject 8 CP	Applied Subject 4 CP	Specialisation Subject 6 CP	Basic Subject 6 CP	30 CP
3rd	Interdisciplinary Subject 12 CP	Applied Subject 12 CP			Specialisation Subject 6 CP	30 CP
4th	Master's Thesis 30 CP					30 CP

- Contact
  cogsys@uni-ulm.de
- More information
  www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/cognitive-systems

Master of Science in Communications Technology

As the global economy transitions from the industrial to the information age, a broadband and omnipresent communications infrastructure becomes each nation‘s most vital resource, creating new and exciting professional opportunities everywhere on the planet. A global workplace for highly qualified engineers of tomorrow develops, which requires

- a deep understanding of the concepts that fuel the rapid technological change in the field,
- as well as a solid appreciation of the non-technical issues which so often make the difference between success and failure

The Master of Science Programme in Communications Technology at Ulm University is uniquely designed to meet these demands. Established in 1998, it was among the first educational programmes in Germany taught exclusively in English, and designed specifically for foreign students.

We are devoted to giving you the right education to help shape communication systems of the future.

Our curriculum offers you a high degree of flexibility to select contents according to your personal interests, while providing you experienced guidance for your career.

Overview

- Standard period of study programme: 4 semesters
- Programme start: summer semester
- Admission requirements: Above-average performance in the completed degree. Willingness to work in and integrate into a challenging, multi-cultural environment. For foreign students: B.Sc. or B.Eng. (or higher degree), usually of four years duration, in Electrical Engineering or Electronics or a closely related field.
  For German students: A Bachelor‘s degree or a Fachhochschuldiplom or University degree in one of the above subjects.
- Language skills: Good knowledge of English: TOEFL score of minimum 570 in the paper-based, 230 in the computer-based, or 88 in the internet-based test or comparable proof (e.g. IELTS with a minimum of 6.5)
- Fees: please see page 42
- Application period:
  Pre-Application: deadline September 1st
  Main Application: deadline October 1st
- Application procedure:
  Pre-Application: https://ctechadmission.e-technik.uni-ulm.de/
  Main application: https://www.uni-ulm.de/c-tech “How to apply”

Semester	Module 1	Module 2	Module 3	Module 4	Elective Courses	ASQ*	Credit Points 120
1st	Digital Communications 7 CP	Introduction to Microwave Engineering 5 CP	Track-specific Electives 14 CP			German 1 4 CP	30 CP
2nd		Introduction to Microwave Communication Systems 5 CP	Track-specific Electives 16 CP	Labs 5 CP		German 2 4 CP	30 CP
3rd			Track-specific Electives 18 CP	Labs 5 CP	Elective Courses 6 CP		30 CP
4th	Master's Thesis 30 CP						30 CP

* ASQ: Additional Transferable Skills

- Contacts
  c-tech@uni-ulm.de or sandra.mann@uni-ulm.de
- More information
  www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/communications-technology

Faculty of Mathematics and Economics

- Finance

Master of Science in Finance

focuses on...
... financial mathematics, applied mathematics, finance and insurance. These areas are central to research and teaching of our faculty.
... quantitative state-of-the-art techniques that give you a competitive edge in the job market. There are many finance programs in the world but few of them are as quantitative as ours.

The programme is very quantitative and practical. The programme allows you to specialize in Financial Mathematics, in Financial Economics or in Actuarial Science. The programme involves

- advanced mathematical methods in order to solve practical problems. Example applications are portfolio optimization, the pricing and risk analysis of credit derivatives, asset-backed securities and insurance products, or bankruptcy prediction.
- GARP's Financial Risk Manager or the professional examination of the German Actuarial Society (DAV).
- an alumni network, a career fair as well as industry contacts that will help you to start into your career. Many theses, for example, are written in co-operation with industry partners.

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: Bachelor in Mathematics, Physics, Engineering, Computer Science, Economics with a quantitative focus and other degrees in a quantitative subject.
- Language skills: Good proficiency of English (IELTS: 6.5 min. or TOEFL: 88 min.). Applicants who have completed a Bachelor taught in English or whose native language is English do not need to present a test certificate.
- Fees: please see page 42
- Online application period: January 1st to April 30th
- Application procedure: www.uni-ulm.de/studium/bewerbung-und-immatrikulation/masterstudiengaenge/finance

	Specialization		
Modules	Financial Mathematics	Financial Economics	Actuarial Science
Financial Mathematics I 9 CP	●	●	●
Asset Pricing 7 CP	●	●	–
Financial Mathematics II 9 CP	●	Optionally as elective	Optionally as elective
Electives	8 CP in Financial Mathematics, 31 CP in Mathematics/ Financial Economics	32 CP in Financial Economics, 16 CP in Mathematics/ Financial Mathematics	25 CP in Actuarial Science, 16 CP in Mathematics / Financial Mathematics, 7 CP in Financial Economics, 8 CP in any area
Two seminars 8 CP	●	●	●
Practical Financial Engineering 5 CP	●	●	● (PFE or RMR)
Risk Management Roundup 5 CP	●	●	
Practical Actuarial Science 4 CP	–	–	●
Additional Key Qualifications 8 CP	●	●	●
Master's Thesis 30 CP	●	●	●

Note: Within the area "Financial Economics" you can also choose courses from Actuarial Science.

- Contacts
  mscfinance@uni-ulm.de
- More information
  www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/finance

Faculty of Medicine

- Online Advanced Oncology
- Molecular Medicine
- Molecular and Translational Neuroscience

Master of Science in Online Advanced Oncology

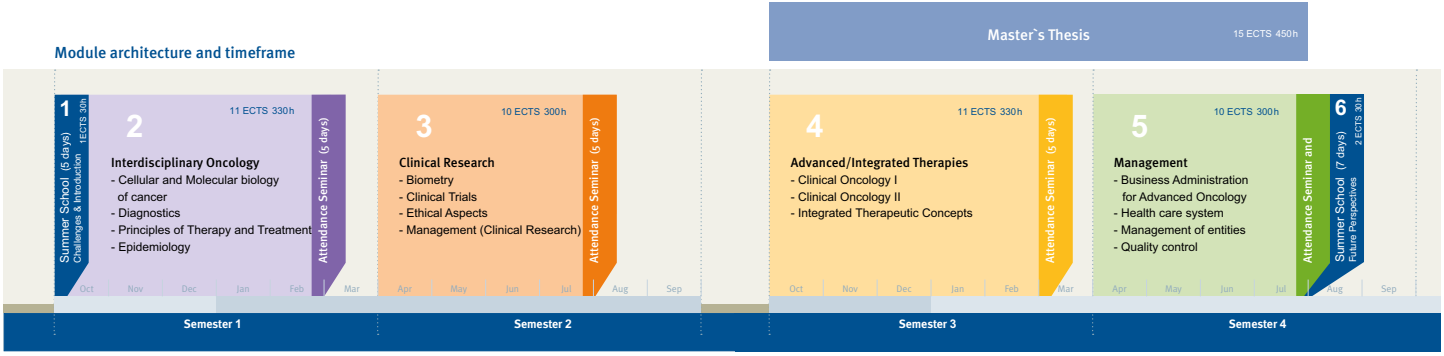
There is a growing global demand for academic continuing education of oncologists comprising - besides extensive clinical skills in various fields of oncology - aspects of patient management, standardization of treatment procedures as well as expertise in the performance of clinical trials and cooperation with the industry. Oncology is one of the medical specialties with the highest dynamics with respect to new findings as far as molecular mechanisms and their implementation in new therapies are concerned.
The development of new drugs is accompanied by a growing demand for clinical trials, participating patients and physicians being operationally in charge of the studies.

The main objective of this Master Online Programme is to improve the quality of patient treatment and care through the development of professional competencies and excellence. In order to attain this progress, we cooperate with health professionals and health care institutions worldwide and promote health care capacities by sharing scientific knowledge, methods and skills.

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: Restricted Admission.
  College or university degree in medicine or natural sciences, which shows the overall grade point average (if the diploma does not give the overall grade point average, please submit the transcript of records of the degree exams).
  Physicians: verification (for example, job reference letter) of at least one year of professional experience in oncology.
  Natural Scientists: verification of at least two years of professional experience in oncology.
- Language skills: Proof of a sufficient command of the English language (e.g. TOEFL exam).
- Administrative Fee: 155.81€ per semester
  Study Fee: 4,875 € per semester. It includes all costs for the 7 modules (including master thesis supervision), tutorial guidance, online conferences, exams and master thesis. Travel, living expenses and accommodation costs during the 5 attendance seminars are not included in the fee.
- Online application period: December 1st to April 15th
- Application procedure:
  Letter of motivation in which you should explain why you believe you are eligible for this program and how and why it will support your intended career. Curriculum vitae with list of publications (if applicable).
  First step: Pre-selection according to Bachelor overall grade point average and additional qualification.
  Second step: Personal interviews with the applicants by video conference (SKYPE).

Module architecture and timeframe



- Contact
  masteroncology@uni-ulm.de
- More information
  https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/advanced-oncology

Master of Science in Molecular Medicine

In today's post-genomic world, researchers and scientists in the field of molecular medicine are transforming the way we understand, treat, and cure diseases. Germany is a prominent leader in this fast-moving field and is spearheading many of the latest innovations and cutting-edge approaches.
This exciting degree programme enables students to expand and enhance their:

- understanding of the molecular pathways that lead to the proliferation, differentiation, and death of cells
- knowledge of the physiology of cells and organs
- insights into the pathophysiology of diseases
- practical laboratory skills

A master degree in molecular medicine equips students with the knowledge and skills necessary to undertake scientific projects in the field of molecular medicine and to review and critically discuss published data related to this research area.
Students in this programme benefit from our professors' professional ties with nearby hospital partners, other researchers, healthcare providers, and industry specialists.
Several specializations are offered, e.g. Double Degree programmes with partner universities in Italy and Finland or a specialization in Molecular Oncology.

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: Restricted Admission.
  Bachelor's degree in Molecular Medicine or any programme with essentially the same content (e.g. biochemistry, bio-medical science, human biology, molecular biology, molecular biotechnology, molecular life science).
  Final grade of the bachelor's degree of 2.5 or better.
- Language skills: TOEFL: 100 points internet-based; IELTS: 7.0; Cambridge Certificate: Advanced or Proficiency, Grade A-C; UNIcert: level III or IV.
  No proof of English language skills is required if the language of instruction during bachelor's program was exclusively English.
- Fees: please see page 42
- Online application period: March 15th to May 15th
- Application procedure: www.uni-ulm.de/index.php?id=19429

Semester	Module 1/7/9/11	Module 2/5/6	Module 3/8/10	Module 4	Credit Points 120
1st	Current Concepts in Stem Cell Biology and Regenerative Medicine 6 CP	Bioinformatics and Systems Biology 6 CP	New Drug Discovery, Development and Evaluation 5 CP	Practical Training in Laboratory Methods and Correlative Imaging 13 CP	30 CP
2nd	Block "Molecular Oncology": lecture, 4 weeks research internship, seminar 12 CP	GLSP/Bioethics 6 CP	Block "Infectious diseases and immune defense": lecture, 4 weeks research internship, seminar 12 CP		30 CP
3rd	Block "Signaling pathways in stem cells, development and aging": lecture, 4 weeks research internship, seminar 12 CP	Clinical trials/ Project management and funding 6 CP	Block "Trauma research and regenerative medicine": lecture, 4 weeks research internship, seminar 12 CP		30 CP
4th	Master's Thesis and Disputation including Journal Club and Progress Report 30 CP				30 CP

- Contact
  katharina.schilberg@uni-ulm.de or barbara.eichner@uni-ulm.de
- More information
  https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/molekulare-medizin-2

Master of Science in Molecular and Translational Neuroscience

The newly established study programme offers a specialized Neuroscience education covering a wide range of topics of molecular and translational aspects. It provides a link between the well-known area of interdisciplinary basic research in medicine and natural sciences as well as clinical and industrial applications. It enriches the regular curriculum at the university by transcending traditional boundaries between the above-mentioned study fields.

At Ulm University students will profit from small groups and excellent tutoring during their studies.
Additionally, there exist cooperations between Ulm university and industry partners, other universities and research centers such as the "virtual Helmholtz Institute".
Altogether, Molecular and Translational Neuroscience stands for

- Research in the field of molecular mechanisms of neuronal diseases
- Research that aims at testing innovative therapies (e.g. pharmaceuticals, new ways of application)
- Research that leads to discovery of biomarkers and improved diagnostics
- Working in fields such as neurobiology, pharmacological research, molecular neurology, behavioral neuroscience as well as diagnostic, and pharmaceutical applications
- Bringing these fields in a "from bench to bedside" approach

Overview

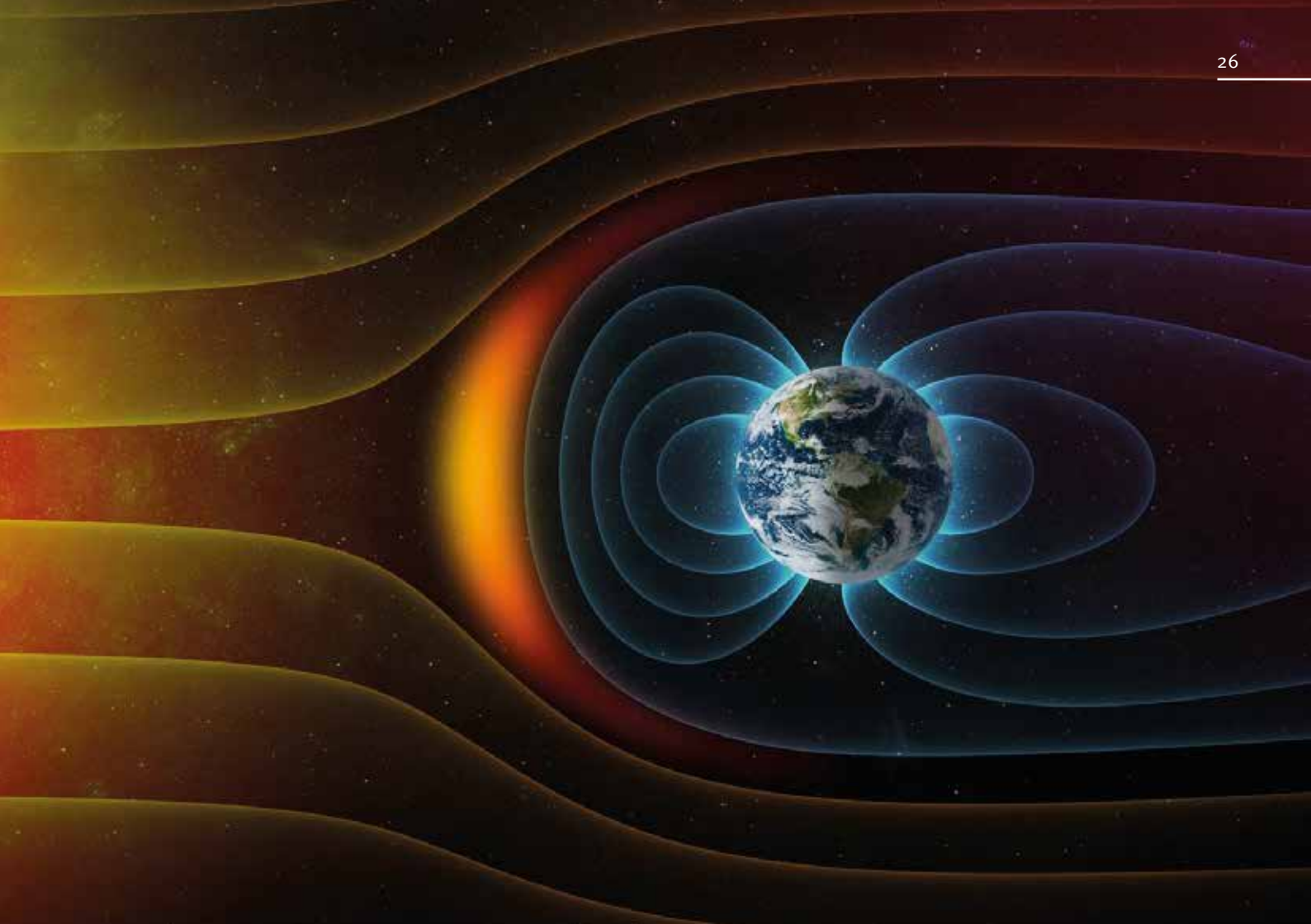
- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: Restricted Admission.
  Proof of a Bachelor's degree with examination results in programmes in biology, biochemistry, molecular medicine, pharmaceutical biotechnology, physiological chemistry, neurobiology, biopsychology or any other programme with essentially the same content.
  Final grade of the Bachelor's degree of 2.5 or better.
- Language skills: Proof of adequate English language competence; TOEFL with a minimum of 570 points (paper-based TOEFL) or 230 points (computer-based TOEFL) or 88 points (internet-based TOEFL) or any comparable proof, e.g. IELTS with 6.5 points or more. No proof of English required if applicant is native speaker of English, or if applicant's language of instruction during bachelor's programme was English to a certain degree.
- Fees: please see page 42
- Online application period: March 15th to May 15th
- Application procedure:
  German applicants: online application at Ulm University:
  www.uni-ulm.de/?id=63846
  Applicants with foreign nationality and EU citizens
  www.uni-assist.de

Semester					Credit Points 120
1st	Introduction to Molecular and Translational Neuroscience O, 9 CP	Advanced Neurobiology E, 21 CP	or	Medical Neuroscience E, 15 CP European Patent Law and Medical Products E, 6 CP	30 CP
2nd	Elective Modules O, 9 CP	Behavioral Physiology E, 21 CP	or	From Basic Research to Product E, 6 CP Clinical Trials E, 9 CP Neurological / Psychiatric Diseases II E, 6 CP	30 CP
3rd	Advanced Molecular and Translational Neuroscience O, 20 CP		Advanced Methods in Molecular and Translational Neuroscience O, 10 CP		30 CP
4th	Master's Thesis O, 30 CP				30 CP

subject specific basic knowledge subject specific specialized knowledge complementary subject/special aspects

CP = Credit points
O = Obligatory
E = Elective subject

- Contacts
  leda.dimou@uni-ulm.de or claudia.grab@uni-ulm.de
- More information
  https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/molecular-and-translational-neuroscience



Faculty of Natural Sciences

- Advanced Materials
- Biology
- Biophysics
- Chemical Engineering
- Energy Science and Technology
- Physics

Master of Science in Advanced Materials

focuses on...
... modern, innovative materials with special properties at the atomic/molecular level showing a strong potential towards applications in science, technology and medicine.

...an interdisciplinary education and research combining various topics in the fields of physics, chemistry, biology, engineering and medical technology.

The programme is strongly research oriented and allows you to specialize either in nanomaterials or biomaterials.
This involves

- hands-on experience in physics, materials science, molecular biology labs.
- gaining scientific competency and professional skills in modern molecular materials science.
- research experience in material science with emphasis on emerging properties of nanometrials or the nano/bio interface.

Modern nanoscopic materials are expected to influence almost every aspect of our lives ranging from semiconductors to biomedical implants. So be prepared to contribute in shaping the materials of our future!

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: Qualified Bachelor's degree in natural sciences or engineering (minimum of 3 years). Sufficient Bachelor's course work in mathematics and physics or mathematics and chemistry
- Language skills: Good proficiency of English (IELTS: 6.5 min. or TOEFL: 88 min.)
- Fees: please see page 42
- Online application period: January 15th to March 15th
- Application procedure: CV, letter of motivation, two letters of references
  www.uni-ulm.de/index.php?id=6764
- Preparatory Course:
  www.uni-ulm.de/nawi/master/ps/pre-master-course

- Contact
  adv-mat@uni-ulm.de
- More information
  https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/advanced-materials

<table>
<tr><td>Semester</td><td>Focus</td><td colspan="4">Fundamentals: 4-5 CP each course, ∑ 27 CP</td><td>ASQ*</td><td>Credit Points
120</td></tr>
<tr><td rowspan="2">1st</td><td rowspan="2">Nano
+
Bio</td><td colspan="4">Mathematics</td><td rowspan="2">German Language Training I
3 CP</td><td rowspan="2">30 CP</td></tr>
<tr><td>Physics I</td><td>Chemistry</td><td>Materials Science I
Electrical Engineering</td><td>Biology I</td></tr>
<tr><td></td><td colspan="5">Advanced Courses: 4-5 CP each course, ∑ 24 CP</td><td></td></tr>
<tr><td rowspan="3">2nd</td><td rowspan="3">Nano</td><td>Lab Physics</td><td rowspan="2">Materials Chemistry</td><td colspan="2">Lab. Mat. Science</td><td rowspan="2"></td><td rowspan="2">German Language Training II
3 CP</td><td rowspan="3">Nano
30 CP</td></tr>
<tr><td>Physics II</td><td>Materials Science II</td><td>Compound Semi-conductors</td></tr>
<tr><td colspan="4">Scientific Method Training: 3 CP</td><td></td></tr>
<tr><td rowspan="2">2nd</td><td rowspan="2">Bio</td><td>Lab Physics</td><td>Materials Chemistry</td><td>Biomaterials in Medicine</td><td>Biology II
Lab Biology</td><td rowspan="2">German Language Training II
3 CP</td><td rowspan="2">Bio
30 CP</td></tr>
<tr><td colspan="4">Scientific Method Training: 3 CP</td></tr>
<tr><td></td><td></td><td colspan="4">Spezialisation: Student chooses 2 out of 3 research fields
and completes 8 CP advanced lab + 6 CP advanced lectures in each field, ∑ 28 CP</td><td></td><td></td></tr>
<tr><td>3rd</td><td>Nano</td><td>Physics</td><td>Chemistry of Nanomaterials</td><td>Materials and Engineering Science</td><td></td><td>German Language Training III
2 CP</td><td>Nano
30 CP</td></tr>
<tr><td>3rd</td><td>Bio</td><td>Softmatter/Biophysics</td><td>Chemistry of Biomaterials</td><td>Biomaterials in Medicine</td><td></td><td>German Language Training III
2 CP</td><td>Bio
30 CP</td></tr>
<tr><td>4th</td><td>Nano + Bio</td><td colspan="5">Master's Thesis
30 CP</td><td>30 CP</td></tr>
</table>

* ASQ: Additional Transferable Skills

Biology

In Master of Science in Biology

you will...
... develop an expertise in one area of biology while also getting in-depth training in one medical subject and a minor subject outside the field.

... learn how to contribute to scientific questions based on known technologies and to document your results confidently and accurately, in accordance with the Guidelines of Research Integrity and Good Scientific Practice.

After completing your core courses in the first semester, you begin defining yourself as a biologist.

- Choose from molecular bioscience, neurobiology, and biodiversity/ecology as your area of biological specialization.
- Elect modules from one field of medicine, such as biochemistry, pharmacology/toxicology, virology, human genetics, and medical neuroscience or opt to study biophysics or another special subject within the field of biology.
- Select an additional area of specialization outside of the field, such as computer science, psychology, economics, mathematics, chemistry, or philosophy, and become a truly well-rounded scientist.

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
  (above 2.5 GPA in German grades)
- Admission requirements: Qualified Bachelor's degree in biology or biochemistry. Strong academic records (above 2.5 GPA in German grades)
- Language skills: Good proficiency of English (IELTS: 6.5 min. or TOEFL: 88 min.)
- Fees: please see page 42
- Online application period: January 15th to March 15th
- Application procedure:
  www.uni-ulm.de/index.php?id=84682
- Preparatory Course:
  www.uni-ulm.de/nawi/master/ps/pre-master-course

- Contact
  philipp.wrangell@uni-ulm.de
- More information
  http://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/biology

Obligatory Courses WS:			Credit Points 120-123
Molecular Bioscience 5 CP	Neurobiology 3 CP	Biodiversity / Ecology 3 CP	11 CP
Choice of a biological/medical subject, with a total of 15 CP, or a further biological subject with at least 15 CP; WS + SS:			
Biochemistry; Pharmacology + Toxicology; Virology; Biophysics; Medical Neuroscience; Human genetics (WS + SS) Biological subjects: See modules of the minor topics Neurobiology or Biodiversity and Ecology			15 CP
Choice of a non-biological subject with a total of 12 CP, WS + SS:			
Computer science; Mathematics; Chemistry; Economics; Philosophy; Psychology (WS + SS)			12 CP
Choice, two out of three:			
Patent right 3 CP (WS)	Quality control 3 CP (SS)	Medical products 3 CP (WS)	6 CP
Without Minor Topic: Choice, two out of five courses: • Genetics 18 CP (SS) • Endocrinology 18 CP (WS) • Microbiology 18 CP (WS + SS) • Molecular Botany 18 CP (WS or SS) • Protein-Biochemistry 18 CP (SS)	With Minor Topic Neurobiology: Choice, one out of five courses: • Genetics 18 CP (SS) • Endocrinology 18 CP (WS) • Microbiology 18 CP (WS + SS) • Molecular Botany 18 CP (WS or SS) • Protein-Biochemistry 18 CP (SS)	With Minor Topic Biodiversity and Ecology: Choice, one out of five courses: • Genetics 18 CP (SS) • Endocrinology 18 CP (WS) • Microbiology 18 CP (WS + SS) • Molecular Botany 18 CP (WS or SS) • Protein-Biochemistry 18 CP (SS)	18-36 CP
	Choice, one out of two courses: • Neurobiology 21 CP (WS) • Behavioral Physiology 21 CP (SS)	Choice, courses with a total of at least 18 CP out of five courses: • Chemical Ecology 9 CP (WS) • Systematics 9 CP (SS) • A - P / A – A Interactions 9 CP (SS) • Field Ecology 18 CP (SS) • Tropical ecology 18 CP (WS)	0-21 CP
	Advanced Methods in Bioscience 10 CP		10 CP
Master's Thesis 30 CP (Semester 3 or 4)			30 CP

Master of Science in Biophysics

Biophysics is a very exciting and rapidly expanding research field exploring new areas between physics and biology. The complexity of life is investigated at every level and analysed with physical methods. In particular, the programme in Biophysics aims at
... preparing you for the interdisciplinary and international working environment of modern-day life sciences.
... thoroughly training you in quantitative thinking and in state-of-the-art experimental techniques and instrumentation.

Our new and innovative programme offers you a flexible choice of subjects and the course syllabus emphasis on hands-on research, that is intimately connected to the ongoing initiatives within the life sciences at Ulm University:

- Biophysics and modern imaging applications
- Biochemistry
- Inorganic and organic chemistry
- Cell biology and genetics
- Neurobiology
- Molecular medicine
- Stochastics and bioinformatics
- Physics

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: A qualified Bachelor's degree in either Physics, Econophysics, Chemistry, Biochemistry, Molecular Medicine, Biology or Biotechnology or an equivalent study course with essentially the same content. Final grade of Bachelor's degree of 2.5 or better (in German grades). Sufficient Bachelor coursework and strong grades in Mathematics and Physics, as well as in Biochemistry and Biology. Fundamental skills in natural sciences, if missing in Bachelor studies, are to be obtained via the successful completion of the pre-master course.
- Language skills: Good proficiency of English (IELTS: 7 min. or TOEFL: 95 min.). Applicants who are native speakers do not need to submit any English certificate.
- Fees: please see page 42
- Online application period: January 16th to March 15th
- Application procedure: External applicants must complete an online registration before sending their documents: www.uni-ulm.de/studium/studieren-an-der-uni-ulm/studiengaenge/studiengangsinfo/course/biophysics
- Preparatory Course: www.uni-ulm.de/nawi/master/ps/pre-maste-course

<table>
<tr><td>Semester</td><td>Compulsory
Biophysics Modules
30 CP</td><td colspan="2">Specialisation Modules
18 CP</td><td>Adaptation Modules
9 CP</td><td>ASQ*
3 CP</td><td>Credit Points
120</td></tr>
<tr><td></td><td></td><td>Subject I
6 or 12 CP</td><td>Subject II
6 or 12 CP</td><td></td><td></td><td></td></tr>
<tr><td>1st

2nd</td><td>Biophysics Lab
8 CP
Adv. Biophysics Seminar
4 CP
Biophysics:
Fundamentals Methods 9 CP
Biophysics:
Advanced Methods 9 CP</td><td colspan="2">Specialisation subjects:
Protein Biochemistry
Cell Biology and Genetics
Microbiology
Inorganic/Organic Chemistry
Neurobiology
Biomaterials
Physics
Stochastics and Bioinformatics</td><td>BSc in Physics:
courses in Biochemistry, Biology, Organic chemistry or Molecular Medicine
BSc in other areas:
courses in Physics, Mathematics and Statistics</td><td>German Language Course</td><td>60 CP</td></tr>
<tr><td>3rd</td><td>Biophysics Research Project
15 CP</td><td colspan="2">Selected Research Project
15 CP</td><td></td><td></td><td>30 CP</td></tr>
<tr><td>4th</td><td colspan="5">Master's Thesis
30 CP</td><td>30 CP</td></tr>
</table>

* ASQ: Additional Transferable Skills

- Contacts
  biophysics.msc@uni-ulm.de
- More information
  https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/biophysics

Master of Science in Chemical Engineering

focuses on...
... chemical conversion of materials and the related technical processes and equipment.
... modern methodological procedures like mathematical modelling of chemical processes.
... chemical reaction engineering techniques for energy storage and conversion and related technologies.

Students learn in a truly international environment and work together with fellows from other countries, cultures and backgrounds. Joint work in tutorials, labs and project groups will broaden the horizon and enable to interact respectfully in international teams and organizations.
At Ulm University students will profit from small groups and excellent tutoring during their studies. Additionally, there exist cooperations between Ulm University and industry partners as well as research centers such as Helmholtz Institute and Center for Solar Energy and Hydrogen Research.
Chemical engineers participate in major industrial corporations, small and medium-sized enterprises and the civil service. Due to broadly based training, chemical engineers match the multifaceted needs of the modern job market. Professional activity is not restricted to the chemical industry, but extends to many associated industries.

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: Qualified Bachelor's degree in chemical engineering or equivalent programmes. Sufficient knowledge of mathematics and of physics (engineering mechanics).
- Language skills: Good proficiency of English (IELTS: 7 min. or TOEFL: 95 min.)
- Fees: please see page 42
- Online application period: January 15th to March 15th
- Application procedure: www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/chemical-engineering
- Preparatory Course: www.uni-ulm.de/nawi/master/ps/pre-master-course

- Contact
  maria-verena.kohnle@uni-ulm.de
- More information
  https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/chemical-engineering

Semester	Compulsory Modules	Elective Modules	Specialisation Modules	Laboratory/ASQ*	Credit Points 120
1st	Chemical Reaction Engineering II 5 CP Simulation and Modelling 5 CP Thermal Process Engineering II 5 CP		Energy Science and Technology I 5 CP	Advanced Laboratory Chemical Engineering 5 CP External Engineering Internship 5 CP	30 CP
2nd	Mechanical Process Engineering II 5 CP Simulation and Modelling of Multi-Phase-Reactors 5 CP	Elective Modules Chemical Engineering 6 CP	Energy Science and Technology II 5 CP	Energy Technology Laboratory I 9 CP	30 CP
3rd		Elective Modules Chemical Engineering 4 CP	Energy Science and Technology Seminar 2 CP Energy Science and Technology III (Batteries and Fuel Cells) 5 CP	Energy Technology Laboratory II 4 CP Research Internship 12 CP ASQ 3CP	30 CP
4th	Master's Thesis 30 CP				30 CP

* ASQ: Additional Transferable Skills

Master of Science in Energy Science and Technology

provides you...
... with a comprehensive education in the scientific and technological aspects of modern techniques for energy conversion and energy storage, such as fuel cells and batteries.

... with hands-on experience in chemistry, materials and energy science and technology labs.

You will get deep insights in an active research and development environment, composed of basic research at our University, applied research at adjacent institutes and industrial development at nearby companies:

- Center for Solar Energy and Hydrogen Research (ZSW)
- Helmholtz Institute for Electrochemical Energy Storage (HIU)
- Daimler Research Center

Reflecting the interdisciplinary program character, courses will be taught by lectures from our natural science and engineering departments as well as from the participating research institutes and companies.

Overview

- Standard period of study programme: 4 semesters
- Programme start: winter semester
- Admission requirements: Qualified Bachelor's degree in natural sciences, preferably in chemistry or physics or chemical/electrical engineering. Sufficient knowledge of mathematics and of physics (minimum of 2 bachelor courses).
- Language skills: Good proficiency of English (IELTS: 6.5 min. or TOEFL: 88 min.)
- Fees: please see page 42
- Online application period: January 15th to March 15th
- Application procedure: www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/energy-science-and-technology
- Preparatory Course: www.uni-ulm.de/nawi/master/ps/pre-master-course

- Contact
  nawi.energy-sci-tech@uni-ulm.de
- More information
  https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/energy-science-and-technology

Semester	Chemistry	Engineering	Materials Science	Energy Science and Technology	Elective Courses	ASQ*	Credi Points 120
1st	Introduc. Chemistry or Introduc. Electrical Engineering 3 CP		Materials Science I 5 CP	Energy Science and Technology I 5 CP		German Language I 3 CP	30 CP
	Physical Chemistry 4 CP	Electrical Engineering 5 CP					
	Introductory Laboratory 5 CP						
2nd	Surfaces-Interfaces-Heterogeneous Catalysis-Electrocatalysis 5 CP Materials Chemistry 4 CP		Materials Science II 5 CP	Energy Science and Technology II 5 CP		German Language II 3 CP	31 CP
	Energy Laboratory I 9 CP						
3rd				Energy Science and Technology III 5 CP Seminar EST 2 CP Simulation and Modeling 5 CP	Elective Course 1 3 CP Elective Course 2 3 CP Elective Course 3 3 CP Elective Course 4 2 CP	German Language III 2 CP	29 CP
				Energy Technology Laboratory II 4 CP			
4th	Master's Thesis 30 CP						30 CP

* ASQ: Additional Transferable Skills

Master of Science in Physics

The goals of physics are to gain a deep understanding of the universe at its most fundamental levels and to extend such knowledge to more complicated systems ranging from the subatomic to the cosmological scale. Physics can then be considered the basis for all natural sciences and the bearing structure of any modern technological development.
Students completing the programme in Physics will
... have a profound research-oriented education in physics as well as a deep knowledge and expertise in current scientific methods and techniques,
... develop a broad range of skill such as quantitative and analytical thinking, problem solving abilities, advanced computational methods, data analysis, design of electronic equipment, communication of complex ideas.

At Ulm University students will broaden their background in general physics by choosing one of the following exciting specialization areas:

- Biophysics and soft matter
- Condensed matter physics and nano sciences
- Econophysics
- Plasma physics
- Quantum information and technologies
- Quantum optics and atomic physics

Overview

- Standard period of study programme: 4 semesters
- Programme start: summer and winter semester
- Admission requirements: A qualified Bachelor's degree in Physics or an equivalent study course with essentially the same content. Final grade of Bachelor's degree of 2.4 or better (in German grades)
- Sufficient knowledge of experimental and theoretical physics and mathematics
- Language skills: Good proficiency of English (IELTS: 6.5 min. or TOEFL: 88 min.). Applicants who are native speakers or have completed the Bachelor exclusively in English, do not need to submit any English certificate.
- Fees: please see page 42
- Online application period: March 15th to June 15th for winter semester October 15th to January 15th for summer semester
- Application procedure: External applicants must complete an online registration before sending their documents: www.uni-ulm.de/nawi/master/ps/physics/apply

Semester	Compulsory Modules 12 CP	Specialisation Modules 18 CP	Electives Modules in Physics 9 CP	General Elective Modules 18 CP	ASQ* 3 CP	Credit Points 120
1st	Advanced Physics Lab 8 CP	Specialisation subjects: Biophysics Condensed Matter Econophysics Plasma Physics Quantum Information	General Metrology Physical Electronics Energy Supply and Nuclear Fusion Research	Courses in Physics Courses in Non-Physical Subjects Philosophy Language Courses	German Language Course	60 CP
2nd	Adv. Physics Seminar 4 CP					
3rd	Methodology and Project Planning I 15 CP		Methodology and Project Planning II 15 CP			30 CP
4th	Master's Thesis 30 CP					30 CP

* ASQ: Additional Transferable Skills

- Contact
  physics.msc@uni-ulm.de
- More information
  https://www.uni-ulm.de/en/study/study-at-ulm-university/study-programmes/course-information/course/physics

Additional Transferable Skills

Accompanying the core curriculum of the programmes which are stated in this brochure, Ulm University offers many additional courses to its students. We are convinced that young people need more than just best professional knowledge, but also soft-skills in order to enhance their communication skills and social competencies. These so-called “additional transferable skills” (ASQs) are divided into four main areas:

- **Basic skills**
  Course choice from e.g. presentation techniques, business etiquettes, time management and many more.

- **Practical skills**
  Course choice from e.g. creative writing, legal basics, project management and many more.

- **Orientation skills**
  Course choice from various ethical, ecological and anthropological subjects.

- **Languages and intercultural skills**
  Course choice from a wide range of languages courses and social subjects to learn more about cultures and gain deeper insights und understanding of those.

Further Information
Dr. Hans-Klaus Keul
ASQ – Coordinator
Humboldt-Studienzentrum
für Philosophie und Geisteswissenschaften
Universität Ulm, N 24/134
89069 Ulm, Germany
Tel.: 0731 50-23434 oder 0731 50 23461
Fax: 0731 58718
www.uni-ulm.de/en/einrichtungen/humboldt/schluesselqualifikationen

Fees

- Administrative fee of about 155.00€ will be charged each semester
- international students will have to pay semester tuition fees of 1,500.00€ per semester
- German students in their second degree course will have to pay 650.00€ per semester
- further fees can be charged by study programmes individually, please contact the advisor for more information or check out https://www.uni-ulm.de/en/study/application-and-enrolment/

Advisory and Support Services

In order to get in touch with Ulm University and to hand in your applications, please contact the responsible persons stated for each programme in this brochure.

For further coordination and support, the **international office** will be glad to assist you
international@uni-ulm.de
https://www.uni-ulm.de/en/io.html

For housing and financial issues you can contact the **Studierendenwerk“** (student services) https://studierendenwerk-ulm.de

While you are studying, our so-called **course advisors** can help you concerning your schedules or with technical queries
www.uni-ulm.de/en/study/student-advisory-services/course-advisors

For general support, for handicapped students and for students with children the **“Zentrale Studienberatung“** (central student advisory service) can assist you
www.uni-ulm.de/en/study/student-advisory-services/zentrale-studienberatung-central-student-advisory-services

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