



ulm university

universität  
**uulm**



**Creative Spirit. Human Touch.**

**Master Programmes in English**





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## Creative spirit. Human touch.

In 2014 and 2015 Ulm University was ranked first among “Young Universities” in Germany and number 16 worldwide. 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 & 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 successful 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.html>

→ **Study programmes:** <https://www.uni-ulm.de/en/study/courses.html>

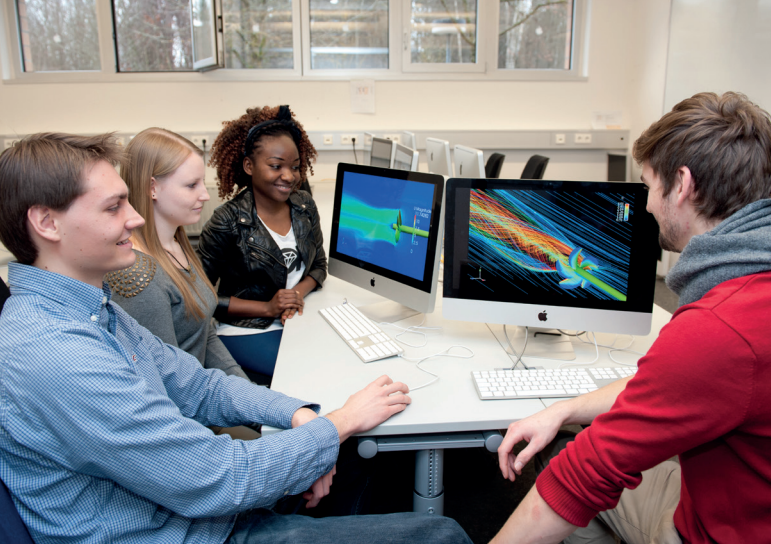
→ **Mentoring & tutoring:** <https://www.uni-ulm.de/en/study/study-plus.html>

→ **Faculties:** <https://www.uni-ulm.de/en/fakultaeten.html>

→ **Research:** <https://www.uni-ulm.de/en/research.html>

→ **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!

### Facts & Figures about Ulm University

- Best young German University in 2014 and 2015
- 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.

#### → City of Ulm:

<http://www.ulm-internationalestadt.de/en/home.html>

#### → Ulm University:

<https://www.uni-ulm.de/en/homepage.html>

#### → International Office:

<http://www.uni-ulm.de/en/io/welcome-to-ulm.html>

#### → Application and enrolment:

<https://www.uni-ulm.de/en/study/application-and-enrolment.html>

#### → Student service Office:

<http://www.studentenwerk-ulm.de/en/start.html>





## 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 psychophysical 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

- 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
- 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)
- Duration: 4 semesters (2 years)
- Online application period: 15th April - 01st June for winter semester
- For German applicants and applicants enrolled in an Ulm University programme <http://www.uni-ulm.de/index.php?id=56317>
- For applicants with foreign nationality online application via [www.uni-assist.de](http://www.uni-assist.de)

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 ECTS.
- Participation in interdisciplinary projects or professional experience (at least six month) with a thematic connection to the program
- Substantial periods of study or research abroad
- Expertise relevant to the course through previously attended lectures

1st	Core Subject 6 CP	Core Subject 6 CP	Specialisation Subject 6 CP	Foundation Subject for Psychological Scientists 6 CP	Foundation Subject for Psychological Scientists 6 CP	30 CP
				Foundation Subject for Computer Scientists 6 CP	Foundation Subject for Computer Scientists 6 CP	
2nd	Core Subject 6 CP	Interdisciplinary Subject 8 CP		Applied Subject 4 CP	Specialisation Subject 6 CP	30 CP
					Foundation Subject for Psychological Scientists 6 CP	
3rd	Interdisciplinary Subject 12 CP		Applied Subject 12 CP		Specialisation Subject 6 CP	30 CP
4th	Master's Thesis 30 CP					30 CP
						120 Credit Points

- Contacts  
heiko.neumann@uni-ulm.de  
or birte.glimm@uni-ulm.de
- More information  
<http://www.uni-ulm.de/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 Program in Communications Technology at Ulm University is uniquely designed to meet these demands. Established in 1998, it was among the first educational programs 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

- 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 degree or a Fachhochschul-diplom or University degree in one of the above subjects
- Above-average performance in the completed degree
- Start of the program : each March (summer term)
- Fees: no fees have to be paid, only a social fee of presently 158.50 Euro will be charged per semester
- 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 IELTS score of 6.5 or better or UCLES CPE grade C or better, or UCLES CAE grade B or better
- Willingness to work in and integrate into a challenging, multi-cultural environment
- Pre-Application: the deadline for completing the online-based pre-application is 1st September under <https://ctechadmission.e-technik.uni-ulm.de/>
- Main application: deadline is 1st October and the application has to be handed in paper-based including CV, 2 letters of reference, more information under <http://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 Elective 14 CP			German 1 4 CP	30 CP	
2nd		Introduction to Microwave Communication Systems 5 CP	Track-specific Elective 16 CP	Labs 5 CP		German 2 4 CP	30 CP	
3rd			Track-specific Elective 18 CP	Labs 5 CP	Elective Courses 6 CP		30 CP	
4th	Master's Thesis							30 CP

\* ASQ: Additional Transferable Skills

- Contacts  
c-tech@uni-ulm.de  
or sandra.mann@uni-ulm.de
- More information  
<http://www.uni-ulm.de/c-tech/>







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## 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

- Admission requirements: The programme is open to students with a Bachelor in Mathematics, Physics, Engineering, Computer Science, Economics with a quantitative focus and other degrees in a quantitative subject.
- 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.
- [www.uni-ulm.de/msc\\_finance](http://www.uni-ulm.de/msc_finance)
- Duration: 4 semesters
- Online application: Online application from January, 1 until April, 30

Modules	Specialization		
	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](mailto:mscfinance@uni-ulm.de)
- More information  
<http://www.uni-ulm.de/index.php?id=43481>





## Faculty of Medicine

- Advanced Oncology
- Molecular Medicine
- Molecular and Translational Neuroscience

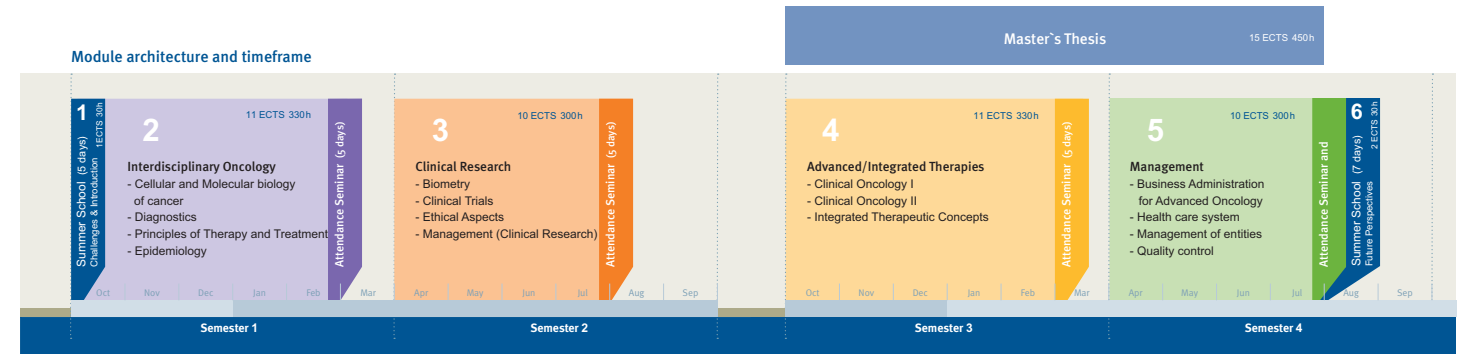
## Master of Science in Advanced Oncology

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

- Applications must be received by Ulm University between December 1st and April 15th every year.
- 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.
- Proof of a sufficient command of the English language (e.g. TOEFL exam).
- 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).
- The application documents must be submitted via our online application system until April 15th.
- 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).
- The study fee is 4,875 € per semester plus 156 € administrative fee 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.



■ Contact  
[masteroncology@uni-ulm.de](mailto:masteroncology@uni-ulm.de)





## 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.

- Contacts  
katharina.schilberg@uni-ulm.de  
or barbara.eichner@uni-ulm.de

- More information  
<http://fakultaet.medizin.uni-ulm.de/studium-lehre/studiengaenge/molekulare-medizin/master>



## Overview

- Bachelor's degree in Molecular Medicine or any programme with essentially the same content (e.g. biochemistry, biomedical science, human biology, molecular biology, molecular biotechnology, molecular life science)
- Final grade of the bachelor's degree of 2.5 or better
- 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
- Start of the program : winter term
- Fees: no fees have to be paid, only a social fee of presently 156 Euro will be charged per semester
- No proof of English required if applicant is native speaker of English, or if applicant's language of instruction during bachelor's programme was exclusively English
- Application period for the winter semester: 15 March to 15 April (cut-off date). Please note that the online application is only available in this period
- German applicants and applicants enrolled in an Ulm University programme: online application at Ulm University
- Applicants with foreign nationality and EU citizens: online application via [www.uni-assist.de](http://www.uni-assist.de)

Semester	Module 1/7/9/11	Module 2/5/6	Module 3/8/10	Module 4	Credit Points 120 CP
1.	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
2.	Block "Molecular Oncology": lecture, 4 weeks research internship, seminar (12 CP)	GLSP/Bioethics (6 CP)	Block "Trauma research and regenerative medicine": lecture, 4 weeks research internship, seminar (12 CP)		30 CP
3.	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 "Infectious diseases and immune defense": lecture, 4 weeks research internship, seminar (12 CP)		30 CP
4.	Master's Thesis and Disputation including Journal Club and Progress Report (30 CP)				30 CP

## 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

- Duration: 4 semesters
- Start of programme: winter semester
- Application period: 15 May to 15 July. Please note that the online application is only available in this period
- German applicants: online application at Ulm University <https://www.uni-ulm.de/?id=63846>
- Applicants with foreign nationality and EU citizens: online application via [www.uni-assist.de](http://www.uni-assist.de)
- 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
- 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: no fees have to be paid, only a social fee of presently 156 Euro will be charged per semester

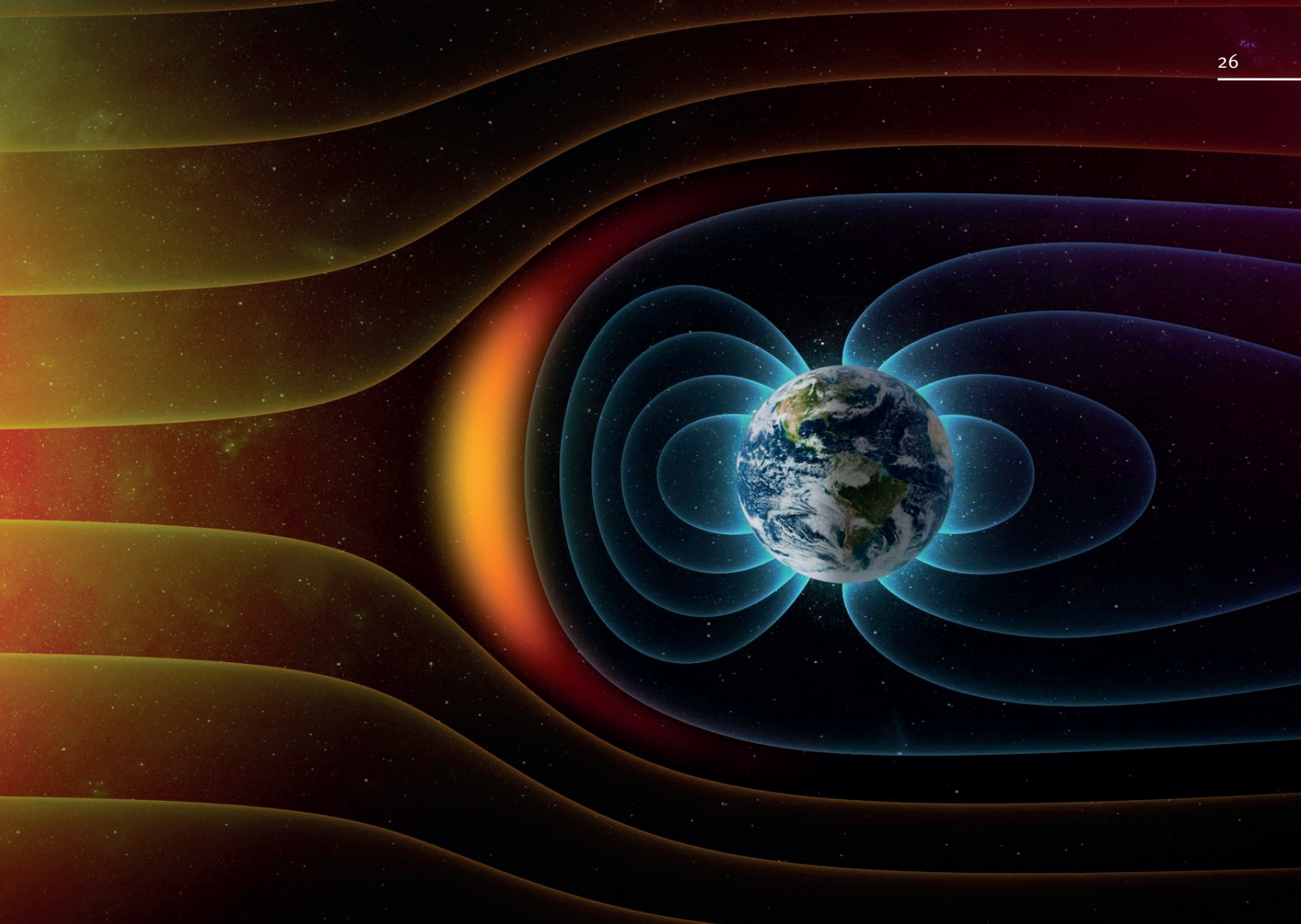
Sem.				CP	
1.	Introduction to Molecular and Translational Neuroscience (O, 9 CP)	Advanced Neurobiology (E, 21 CP)	or	Medical Neuroscience (E, 15 CP)	30
			European Patent Law and Medical Products (E, 6 CP)		
2.	Elective Modules (O, 9 CP)	Behavioral Physiology (E, 21 CP)	or	From Basic Research to Product (E, 6 CP)	30
				Clinical Trials (E, 9 CP)	
				Neurological / Psychiatric Diseases II (E, 6 CP)	
3.	Advanced Molecular and Translational Neuroscience (O, 20 CP)			Advanced Methods in Molecular and Translational Neuroscience (O, 10 CP)	30
4.	Master’s Thesis (O, 30 CP)				30

■ subject specific basic knowledge 
 ■ subject specific specialized knowledge 
 ■ complementary subject/special aspects 
 CP = Credit points  
 O = Obligatory  
 E = Elective subject

- Contacts [andreas.grabrucker@uni-ulm.de](mailto:andreas.grabrucker@uni-ulm.de) or [claudia.grab@uni-ulm.de](mailto:claudia.grab@uni-ulm.de)
- More information in German <http://fakultaet.medizin.uni-ulm.de/studium-lehre/studiengaenge/neuroscience-medizinnah>
- More information in English <https://www.uni-ulm.de/?id=63846>







## 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 nanomaterials 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

- 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
- Good proficiency of English (IELTS: 6.5 min. or TOEFL: 88 min.)
- CV, letter of motivation, two letters of references
- [www.uni-ulm.de/index.php?id=6764](http://www.uni-ulm.de/index.php?id=6764)
- Duration: 4 semesters (2 years)
- Online application: January 1st - April 30th for winter semester

- Contact [adv-mat@uni-ulm.de](mailto:adv-mat@uni-ulm.de)
- More information <http://www.uni-ulm.de/index.php?id=6764>



Semester	Focus	Fundamentals: 4-5 CP each course, $\Sigma$ 27 CP				ASQ*	120 CP
1.	Nano + Bio	Mathematics				German Language Training I (3 CP)	30 CP
		Physics I	Chemistry	Materials Science I Electrical Engineering	Biology I		
		Advanced Courses: 4-5 CP each course, $\Sigma$ 24 CP					
2.	Nano	Lab Physics	Materials Chemistry	Lab. Mat. Science		German Language Training II (3 CP)	Nano 30 CP
		Physics II		Materials Science II	Compound Semi-conductors		
		Scientific Method Training: 3 CP					
2.	Bio	Lab Physics	Materials Chemistry	Biomaterials in Medicine	Biology II Lab Biology	German Language Training II (3 CP)	Bio 30 CP
		Scientific Method Training: 3 CP					
		Spezialisation: Student chooses 2 out of 3 research fields and completes 8 CP advanced lab + 6 CP advanced lectures in each field, $\Sigma$ 28 CP					
3.	Nano	Physics	Chemistry of Nanomaterials	Materials and Engineering Science		German Language Training III (2 CP)	Nano 30 CP
3.	Bio	Softmatter/Biophysics	Chemistry of Biomaterials	Biomaterials in Medicine		German Language Training III (2 CP)	Bio 30 CP
4.	Nano + Bio	Master's Thesis 30 CP					30 CP

\* ASQ: Additional Transferable Skills



## 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

- Qualified Bachelor's degree in biology or biochemistry
- Strong academic records (above 2.5 GPA in German grades)
- Good proficiency of English (IELTS: 6.5 min. or TOEFL: 88 min.)
- [www.uni-ulm.de/index.php?id=50930](http://www.uni-ulm.de/index.php?id=50930)
- Duration: 4 semesters (2 years)
- Online application: April 15th - May 15th for winter semester; October 15th - November 15th for summer semester

- Contact [philipp.wrangell@uni-ulm.de](mailto:philipp.wrangell@uni-ulm.de)
- More information <http://www.uni-ulm.de/index.php?id=50930>



<b>Obligatory Courses WS:</b>			Credit Points 120-123 CP
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
<b>Without Minor Topic:</b> Choice, <u>two</u> 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)	<b>With Minor Topic Neurobiology:</b> Choice, <u>one</u> 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)	<b>With Minor Topic Biodiversity and Ecology:</b> Choice, <u>one</u> 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, <u>one</u> 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

- 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
- 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
- Duration: 4 semesters (2 years)
- External applicants must complete an online registration before sending their documents:  
<http://www.uni-ulm.de/en/nawi/master/biophysics.html>
- Online registration: 20th January – 15th June for winter semester

Semester	Compulsory Biophysics Modules 30 CP	Specialisation Modules 18 CP		Adaptation Modules 9 CP	ASQ* 3 CP	Credit Points 120 CP
		Subject I 6 or 12 CP	Subject II 6 or 12 CP			
1.	Biophysics Lab (8 CP) Adv. Biophysics Seminar (4 CP)	Specialisation subjects: Biochemistry Cell Biology and Genetics Inorganic Chemistry		BSc in Physics: courses in Biochemistry, Biology, Organic chemistry or Molecular Medicine  BSc in other areas: courses in Physics, Mathematics and Statistics	German Language Course	60 CP
2.	Biophysics: Fundamentals Methods (9 CP) Biophysics: Advanced Methods (9 CP)	Organic Chemistry Neurobiology Molecular Medicine Physics Stochastics and Bioinformatics				
3.	Biophysics Research Project (15 CP)	Selected Research Project (15 CP)				30 CP
4.	Master's Thesis (30 CP)					30 CP

\* ASQ: Additional Transferable Skills

- Contact  
[biophysics.msc@uni-ulm.de](mailto:biophysics.msc@uni-ulm.de)
- More information  
<http://www.uni-ulm.de/index.php?id=52248>





## 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

- Qualified Bachelor's degree in chemical engineering or equivalent programmes
- Sufficient knowledge of mathematics and of physics (engineering mechanics)
- Good proficiency of English (IELTS: 7 min. or TOEFL: 95 min.)
- Duration: 4 semesters (2 years)
- Application period:  
October 15th – November 30th for summer semester  
April 15th – May 31st for winter semester  
application via [www.uni-assist.de](http://www.uni-assist.de)

- Contact  
[maria-verena.kohnle@uni-ulm.de](mailto:maria-verena.kohnle@uni-ulm.de)
- More information  
<http://www.uni-ulm.de/index.php?id=72179>



Semester	Compulsory Modules	Elective Modules	Specialisation Modules	Laboratory/ASQ*	Credit Points 120 CP
1.	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
2.	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
3.		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
4.	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

- 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)
- Good proficiency of English (IELTS: 6.5 min. or TOEFL: 88 min.)
- CV, letter of motivation, two letters of references
- [www.uni-ulm.de/index.php?id=57614](http://www.uni-ulm.de/index.php?id=57614)
- Duration: 4 semesters (2 years)
- Online application:  
January 1st - April 30th for winter semester

- Contact  
[nawi.energy-sci-tech@uni-ulm.de](mailto:nawi.energy-sci-tech@uni-ulm.de)
- More information  
<http://www.uni-ulm.de/index.php?id=57614>



Semester	Chemistry	Engineering	Materials Science	Energy Science and Technology	Elective Courses	ASQ*	Credit Points 120 CP
1.	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)						
2.	Surfaces-Interfaces-Heterogeneous Catalysis-Electrocatalysis (5 CP)		Materials Science II (5 CP)	Energy Science and Technology II (5 CP)		German Language II (3 CP)	31 CP
	Materials Chemistry (4 CP)						
3.				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)			
4.	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 uni-verse 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**

- 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
- 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
- Duration: 4 semesters (2 years)
- External applicants must complete an online registration before sending their documents:  
<http://www.uni-ulm.de/index.php?id=52106>
- Online registration:  
15th March – 15th June for winter semester;  
1st October – 15th January for summer semester

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 CP
1.	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
2.	Adv. Physics Seminar 4 CP					
3.	Methodology and Project Planning I (15 CP)		Methodology and Project Planning II (15 CP)			30 CP
4.	Master’s Thesis (30 CP)					30 CP

\* ASQ: Additional Transferable Skills

- Contact  
[physics.msc@uni-ulm.de](mailto:physics.msc@uni-ulm.de)
- More information  
<http://www.uni-ulm.de/index.php?id=52106>



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 and understanding of those.



### Further Information

Dr. Hans-Klaus Keul  
ASQ – Coordinator  
Humboldt-Studienzentrum  
für Philosophie und Geisteswissenschaften  
Universität Ulm, N 24/134  
89069 Ulm  
Tel.: 0731 50-23434 oder 0731 50 23461  
Fax: 0731 58718  
[www.uni-ulm.de/asq](http://www.uni-ulm.de/asq)





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 **student service center**  
<http://www.studentenwerk-ulm.de/en/start.html>



While you are studying, our so-called **academic advisors** can help you concerning your schedules or with technical queries  
<http://www.uni-ulm.de/index.php?id=412>



For general support, for handicapped students and for students with children the **central student counselling service** can assist you  
<http://www.uni-ulm.de/index.php?id=411>



## Impressum

Herausgeber: Universität Ulm  
Redaktion: Eva-Maria Klein, ZSB  
Gestaltung: kiz | medien  
Fotografie: Elvira Eberhardt, kiz | medien,  
123RF (S. 8, 14, 18, 26, 43)  
Druck: Höhn GmbH, Ulm  
Stand: Oktober 2015



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