The one year Curriculum

Molecular Medicine @ Tübingen

The interdisciplinary Master’s program in Molecular Medicine is offered by the Faculty of Medicine and the Graduate Training Centre of Neuroscience. Courses in academic, computational and soft skills are provided by the Competence Centre for University Teaching in Medicine, the Career Service and the “Zentrum für Datenverarbeitung”.

The University of Tübingen

Innovative. Interdisciplinary. International. Since 1477. These have been the University of Tübingen’s guiding principles in research and teaching ever since it was founded. With this long tradition, the University of Tübingen is one of the most respected universities in Germany. Recently, its institutional strategy was successfully selected for funding in the Excellence Initiative sponsored by the German federal and state governments, making Tübingen one of Germany’s eleven universities distinguished with the title of excellence. Tübingen has also proven its status as a leading research university in many national and international competitions – in key rankings Tübingen is listed among the best universities for the Humanities and Social Sciences as well as for Science and Medicine.

With its broad spectrum of subjects, the University of Tübingen provides a wealth of opportunities for interdisciplinary collaboration. And such close cooperation on research extends beyond the University and around the world. The University of Tübingen has joint research projects at all levels with other institutions of higher education, with research institutes and with industry.

The one year Curriculum

The Master’s program lasts one academic year (two semesters) and encompasses a total of 60 ECTS. The one year curriculum is divided into two main parts, the first concentrating on deepening knowledge and advanced laboratory research training, the second on an individual research project (= Master’s thesis).

In the first semester, students can choose from a catalogue of modules in two selected areas of specialization allowing the student to tailor the program to their individual interests. A total of 5 modules (33 ECTS) must be taken.

The Master’s thesis Research Project (27 ECTS) in the second semester forms a major component of the course and entails six months’ full-time practical work in the laboratory on an autonomous research project. This element gives students experience in independently solving a scientific problem within the field of modern biomedical research and how to write a scientific publication.

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FIELD OF STUDY

The innovative Master’s program in Molecular Medicine is characterized by interdisciplinarity, practice orientation and internationality with the ambition to qualify future excellent scientists for medical research. A particular strength of the Faculty of Medicine at the University of Tübingen is research in the excellent focus areas of neurosciences, immunology, oncology, and infection biology.

**Immunology:** Exploring the specialist field of immunology will allow students to gain a sound knowledge of the complex processes involved in the regulation of cellular and immunological processes in both humans and animals. The immunological processes are thus examined in association with disease-induced malfunctions, for example in the case of immunity defects or in tumor immunology. The lectures in the series “Advanced Immunology” cover the detailed mechanisms of the immune system, including an examination of the recent discoveries made in cellular and molecular immunology. The main lecture comprises the evolution of immune systems, therapeutic antibodies, computational immunobiology, antigen processing, cellular communication, negative and positive regulatory mechanisms in immunity, interaction between immune systems, and pathogens and pathomechanisms.

**Infection Biology:** Viral infections, the threat of pandemics, and the emergence of antibiotic resistance have made clear the enormity of the unmet medical needs in infectious diseases. In Tübingen special emphasis is currently being placed on issues such as development of new antibiotics, malaria, and viral oncogenesis. The Departments of Medical Microbiology, Virology, and Tropical Medicine meet this need by harnessing the current explosion of new information about the basic biology of pathogens and host responses in order to develop novel therapeutics to combat serious infections. The main lecture series in this area cover molecular mechanisms related to bacterial, viral and parasite pathogenesis and experimental strategies to explore them in the area of major topics in the field of infectious diseases.

**Oncology:** Cancer is a frequently occurring complex disease with an increasing incidence and a high socio-economic impact. Both the lecture on Advanced Oncology and the other courses in this area are intended to provide further knowledge on the molecular basis of tumor development and molecular approaches to pathology and diagnostics, as well as molecular strategies in cancer therapy. Based on the topics to be addressed, students will acquire a solid understanding of the state of the art in molecular and translational oncology with respect to molecular mechanisms of cancer development, molecular pathology and diagnostics, and molecular strategies in cancer therapies.

**Neurosciences:** The scope of neuroscience has expanded to include different approaches used to study the molecular, cellular, developmental, structural, functional, and computational aspects of the nervous system, as well as neurological disorders. The main lecture series in this area places considerable emphasis on the molecular and cellular pathomechanisms of the most common dementias and other neurodegenerative disorders, especially Alzheimer’s and Parkinson’s disease.

PERSPECTIVES

**Degrees and Career Opportunities**

The Master’s program in Molecular Medicine lasts one academic year and leads to a Master of Science (M. Sc.) degree. Upon successful completion of the program, graduates may choose to continue their studies by directly pursuing a doctorate or PhD in Molecular Medicine.

Alternatively graduates may choose to embark upon a professional life:

- in medical or basic research and development
- in industry, private laboratories
- in clinical departments, marketing, and administration

**Start of studies/course:** Each winter semester

**Standard of duration:** 2 semesters (in accordance with PO from 11/05/2017)

**Total amount:** 60 ECTS Credit Points

**Course language:** English

**Keywords:** Molecular Medicine, Molekulare Medizin, Molekularmedizin, Molekularbiologie

Requirements

In addition to the completed application form, the minimum graduate admission requirements are:

1. a Bachelor’s degree/first degree in Molecular Medicine or a recognized equivalent from an accredited institution with 240 ECTS points and with a final grade of at least 3.0 in the German grading system; equivalence is tested by the selection committee.
2. at least 6 credits in each of the following subjects: Immunology, Infection Biology, Oncology, and Neurosciences.
3. official proof of English language proficiency
4. an ‘Allgemeine Hochschulzugangsberechtigung (HZB)’ i.e. a general qualification for university entrance. Foreign certificates must be verified by the relevant public authority as comparable;
5. a Curriculum Vitae (CV)
6. a letter of motivation (optional, maximum of 2 A4 pages)

Foreign language competence

Applicants must provide proof of their English skills. Proof of English language skills can be demonstrated on the basis of Internet-based TOEFL (TOEFL IBT), IELTS, Cambridge Certificate of Advanced English Test, language certificate from the German Academic Exchange Service (DAAD) in accordance with the levels of language competence of the Common European Framework of Reference and the UNicert System.

Application procedure

15 places are available per year and will be awarded according to the applicant’s qualifications and experience. The program only starts in the winter term and the application deadline is 15th June. To be admitted to the Master’s program, students must have completed their first degree.

A ranking list is created based on the final grades or provisional final grades of the first degree. A bonus can additionally be awarded by the selection committee, especially for publications and academic prizes in scientific fields.

Application and admission takes place via the central administration office of the university.

Application deadline: 15th June - in order to apply for one of our Master’s programs, please visit the link below and complete the online application form.

https://movein-uni-tuebingen.moveonnet.eu/movein/portal/studyportal.php/_language=en

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