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Master's degree

MSc Molecular Medicine
Friedrich Schiller University Jena • Jena

Overview

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<td>Combined Master's degree / PhD programme</td>
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Description/content

The MSc course in Molecular Medicine conveys basic and advanced insights into the molecular basis of disease. The imparted knowledge and practical training should enable students to conduct biomedical research and medical biotechnology. To impart skills of experimental methods in biomedicine, the course offers comprehensive laboratory exercises. The curriculum responds to increasing demands of research institutions in molecular biomedicine. Scientists with pronounced knowledge in medicine and natural sciences are sought to fulfil these demands.

Profound knowledge in molecular medicine will be provided in the modules Molecular Pathology, Molecular Pharmacology, Human Genetics, Clinical Chemistry/Molecular Diagnostics and Medical Biometry. For the advanced students in the second year, the course covers recent research achievements in molecular pathology and molecular pharmacology.

The module Molecular Pathology provides basic knowledge about causes and treatments of main disease entities including cancer, cardiovascular, inflammatory, and neurological diseases. Different types of cell and tissue damage, and their histological correlates will be demonstrated with microscopic and macroscopic preparations.

The module Molecular Pharmacology offers basic knowledge of common pharmacology and toxicology. The complex interactions between agents and their pharmacological targets in the human body will be explained. The module combines medical-pharmacological efficacy patterns of these agents with their molecular, cellular, and organ specific effects and functions.

The module Clinical Chemistry/Molecular Diagnostics presents various topics of laboratory medicine and diagnostics, principles of frequently used clinical biochemical and molecular...
biological methods as well as instruments of diagnostic analysis, principles of step-by-step diagnostics for early diagnosis, course of disease, and therapy control. This includes a review of diagnostically relevant metabolic products and substrates, methods of point-of-care diagnostics, enzyme activity determination, diagnostic procedures in hemostaseology, and procedures for drug monitoring and diagnostic molecular biology.

The module Medical Biometry explains the basics, fundamental terms and prerequisites for biomedical data analysis. In small groups students will be taught to use the statistical software package SPSS. The course includes basics of probability calculation, epidemiology, descriptive statistics, diagnostic tests, random variables, and selected distributions as well as concluding statistics (estimation procedures, significance tests, multiple test procedures, etc.).

Course Details

Course organisation

The first year of the Master’s programme is divided into five mandatory modules: Molecular Pathology, Molecular Pharmacology, Human Genetics, Clinical Chemistry/Molecular Diagnostics and Medical Biometry. In addition, students may select two of the 15 compulsory elective modules dealing with clinical research topics (Molecular Intensive Care, Gynaecology and Obstetrics, Cardiology, Molecular Genetics, Molecular Oncology, Neuroscience, Rheumatology, Transgenic Animals, Medical Microbiology, Medical Immunology, Gene-environment Interaction in the Developing and Ageing Brain and Associated Disorders, Experimental Surgery, Experimental Nephrology, Bioinformatics, Molecular-Biological Approaches in Medical Research and Diagnostics) consisting of lectures, seminars and a block of practical training. The second year is devoted to in-depth instruction on special problems in molecular pathology and pharmacology. For most of the second year, intensive experimental work on a research project in one of the participating institutes will provide further practical skills and form the basis for the completion of the Master’s thesis.

Part-time studies may be permitted by the board of examination.

Types of assessment

Each of the modules of the Master’s programme is concluded with an exam. Exams include multiple choice questions, essay questions, oral presentations and written reports. The overall grade is a combination of the module grades and the grade of the Master’s thesis (written in English and with a public viva voce exam).

A Diploma supplement will be issued

Yes

Integrated internships

Not systematically provided

Course-specific, integrated German language courses

Yes

Course-specific, integrated English language courses

No

Costs / Funding

Tuition fees per semester in EUR

None

Semester contribution

Semester fee (student services and student self-government) including semester ticket for free
use of public transport: approx. 220-230 EUR per semester and a one-off fee of 20 EUR for a multifunctional student ID card ("Thoska")

Costs of living
Students need approximately 700 EUR per month for rent, food, health insurance, books and personal items.

Funding opportunities within the university
No

Requirements / Registration

Academic Admission Requirements
Bachelor’s degree in biochemistry/molecular biology or in a relevant/comparable discipline such as natural science, life science, or medicine

Language requirements
Non-native English speakers must prove proficiency in English in order to meet the requirements of courses given in English and to be able to write the Master’s thesis in English.

Application deadline
31 May for the following winter semester, application period starts on 1 April

Submit application to
https://www.uni-jena.de/en/Master_Service_Centre.html
A signed copy of the automatically generated application form should be sent by mail to:
Friedrich Schiller University Jena
Master Service Centre
07737 Jena
Germany

Services

Possibility of finding part-time employment
Generally possible, depending on visa requirements and current availability

Accommodation
Accommodation in student residences is available. Please apply at the "Studierendenwerk Thüringen". For further information, please visit our website at http://www.stw-thueringen.de/english/housing/wohnen.html.
You can also look for single or shared private accommodation yourself. In the buildings of the university, there are numerous information boards with accommodation offers. Note, however, that the availability of private accommodation in Jena is rather limited.

Specific specialist or non-specialist support for international students and doctoral candidates
Welcome event

Friedrich Schiller University Jena
The History of the University
In 2008, the Friedrich Schiller University Jena celebrated its 450th anniversary. It was founded as an academic school by Prince-Elector Johann Friedrich the Magnanimous of Saxony in 1548. It was raised to the status of university by Emperor Ferdinand I in 1557 and opened as such in 1558.

Instead of an outline of the university’s history, here are some facts:
In 1663, Gottfried Wilhelm Leibniz was a student of the scientist Erhard Weigel in Jena.
Friedrich Schiller was professor of history at Friedrich Schiller University Jena between 1789 and 1799. At the same time Johann Wolfgang von Goethe, then State Minister of Saxe-Weimar, supported Friedrich Schiller University Jena extraordinarily. He spent a lot of time in Jena. Jena was the centre of classical German philosophy, hosting among others: Johann Gottlob Fichte (1794-1799), Friedrich- Wilhelm Joseph Schelling (from 1798), Georg Wilhelm Friedrich Hegel (1805-1807).
Numerous renowned German poets, writers and dramatists studied at Friedrich Schiller University Jena (Johann Christian Günther, Friedrich Gottlob Klopstock, Matthias Claudius, Friedrich Hölderlin, Novalis, Julius Mosen, Clemens Brentano, Gerhard Hauptmann, Kurt Tucholsky).
World-famous pedagogues such as Christian Gotthilf Salzmann, Friedrich Wilhelm August Fröbel, Peter Petersen (Jenaplanschule) studied or taught in Jena.
Johann Wolfgang Doebereiner (Professor of Chemistry, 1810-1849) was the first to organise the chemical elements by means of “triads”.
Ernst Haeckel (Professor of Zoology, 1834-1909) was the most distinguished representative of evolution theory in Germany.
The physicist Hans Busch (Professor of Applied Physics, 1922-1947) worked on electron optics and developed the basic principles of electron microscopy.
The Jena psychiatrist and neurologist Hans Berger (professor, 1906-1938) developed the diagnostic method of electroencephalography (EEG).
The optician and mechanic Carl Zeiss, the physicist Ernst Abbe and the glass chemist Otto Schott formed an impressive collaboration at the end of the 19th century, a unique example of cooperation between science and industry that has been shaping the profile of scientific research at Friedrich Schiller University Jena to this day.
Today the Friedrich Schiller Friedrich Schiller University Jena is a university on the move. With about 18,000 enrolled students, it is one of Germany’s fastest growing universities. Despite the fact that the number of students has quadrupled since 1989, the university is not overcrowded. More than 2,000 lecturers and researchers ensure quality teaching and training commensurate with a classic university. In addition, more than 1,300 scientists and technical staff work on research projects financed by outside sponsors.

University Location
The city of Jena is brought to life by its fascinating combination of an intellectual history, a delightful countryside, an innovative international research and industry, and a youthful student lifestyle. This rich variety creates a unique backdrop which lends this small, lively city its special charm. Watch the video at: http://tinyurl.com/poo956v

Jena’s academic and intellectual development
Jena has been one of the most famous places to study in Germany since the founding of its university, the "Alma Mater Jenensis", in 1558. At the end of the 18th century, thanks to its close connection to the nearby royal seat at Weimar and support by the poet and minister, Goethe, the city on the Saale went through its classical period, during which it developed into the most important intellectual centre in Germany.

Jena’s economic development
In the second half of the 19th century, Jena developed into an industrial city, thanks to the work of the three scientific and economic giants, Carl Zeiss, Otto Schott, and Ernst Abbe. Their cooperation led to the creation of the world-famous Zeiss Works and the “Schott und Genossen” glass factory. This effective cooperation between research institutes and economic enterprises has proven its value all the way up to the present day and justifies Jena’s exceptional reputation as a high-technology location.

Jena’s modern cultural scene
In addition to museums of technology, science, literature, and art history, there is also an attractive modern cultural scene in Jena. For example, the annual open-air festival "Kulturarena" attracts international stars to Jena. Furthermore, there are plenty of individual, top-class events among the wide range of performances at Jena Theatre (Theaterhaus), Jena Art Society (Kunstverein), and Jena Philharmonic Orchestra.

Jena’s countryside
The traditional, innovative city lies at the middle reaches of the River Saale. The Saale valley in Jena is shaped by a host of monuments to its cultural history and has connections with many great names from the past. Along with its many sights, the city, nestled in an almost Mediterranean landscape with limestone hills up to 400 metres high, boasts a variety of bicycle paths and charming surroundings for walking and all other sporting activities, such as triathlons, dragon boating, cycling, track, marathons, martial arts, etc.
Contact

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