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Degree	Program Option	Standard Period of Study	Beginning of Semester
Bachelor of Science (BSc)	• Single-Subject	6 Semesters	Winter semester



Molecular Biomedicine



Faculty of Mathematics and Natural Sciences

B	B
M	M
E	E
L	L

Bachelor
► Bachelor of Science (BSc)

Master

Staatsexamen | Kirchliches Examen

Lehramt



Molecular Biomedicine

Molecular Biomedicine examines the molecular and cytological fundamentals of life, including pathological changes. The cross-disciplinary program combines methods and molecular understanding of natural sciences with relevant healthcare topics. The aim is to identify and understand mechanisms and functionalities of complex vital processes on a molecular level as well as pathological changes in body functions. This also forms the basis for the development of new approaches in diagnostics and therapy which are to combat human diseases.

At the beginning of the program, students acquire specialized competences in basic areas of the natural sciences (biology, chemistry, physics) and medicine (histology, physiology, biochemistry). This is followed by a specialization in a chosen focus area (e.g. developmental biology, human genetics, immunobiology and microbiology, toxicology or pathobiochemistry).

Students receive theoretical and practical training as well as support and guidance from a mentor throughout the course of the program.



Molecular Biomedicine in Bonn

The cross-disciplinary Molecular Biomedicine degree program is a joint offer by the University of Bonn’s Faculty of Mathematics and Natural Sciences and Faculty of Medicine. Students of the program learn about the molecular and cytological fundamentals of life as well as pathological changes, connecting methods and molecular understanding of natural sciences with relevant medical topics. The aim is to gain an understanding of mechanisms and functionalities of complex vital processes as well as of pathology of human diseases on a molecular level. This also forms the basis for the development of new approaches in diagnostics and therapy aimed at combating human diseases.

Fundamental fields and subdisciplines of general biomedicine are:

- › Principles of physics
- › General chemistry and biochemistry
- › Combinatorial chemistry
- › Genetics
- › Developmental biology
- › Anatomy and cell biology
- › Reconstructive neurobiology and physiology
- › Pathology and pathology of tumors

- › Molecular medicine
- › Microbiology and immunology
- › Pharmacology and toxicology
- › Medical chemistry
- › Experimental medicine

In a combination of practical and theoretical training, students are prepared for various professions in the field of life sciences as well as consecutive master/doctoral programs at the LIMES Institute and other related national and international master degree programs.

Additional Information

Department of Molecular Biomedicine

🔗 www.limes-institut-bonn.de

CONTENTS AND COURSE OF STUDIES

The standard period of studies in the BSc Molecular Biomedicine program is 6 semesters. The program consists of teaching units (modules) that are completed by passing the module exam.

All modules in the first two years of the program are compulsory. In year 3, students deepen their studies by choosing compulsory elective modules in which they acquire key skills and competences in biomedical research. By choosing a topic for their bachelor’s thesis in a specific subdiscipline of biomedicine, students can establish their individual research focus.

At the beginning of the program, students gain knowledge in all basic subjects of the natural sciences and medicine:

- › Biology
- › General and inorganic chemistry
- › Organic chemistry
- › Physics
- › Biochemistry
- › Cell biology/histology
- › Physiology
- › Developmental biology & genetics
- › Microbiology and virology
- › Immunobiology

- › Bioinformatics
- › Biomathematics/Medical statistics
- › Bioethics

In year 3, students establish an individual research focus by choosing compulsory elective modules. These modules offer courses in the following fields: “Bench to bedside – from developmental genetics to molecular diagnostics and beyond”, “Chemical biology and medical chemistry”, “Immunology and microbiology”, “Immunoregulation”, “Pharmacology and toxicology”, “Genomics and gene targeting” as well as “Cell biology and molecular biology”.

PROGRAM REQUIREMENTS

Courses and exams are held in German and English. In addition to level C1 German (according to the Common European Framework of Reference for Languages, CEFR), students must provide proof of English skills at level B2 or higher by submitting a recognized language certificate (e.g. TOEFL, IELTS) or equivalent certificate (e.g. Abitur).

Students are furthermore expected to have sound skills in chemistry, biology, physics and mathematics.

INDUSTRY COOPERATION

The University of Bonn offers special seminars in cooperation with renowned German organizations in the fields of biomedicine and pharmaceuticals in which students may gain initial experience in industrial research and development. Acquired skills can be augmented through field trips to and internships at the organizations’ research and development departments.

PROGRAM ORIENTATION AND APTITUDE

Online Orientation Portal

🔗 www.studienorientierung.uni-bonn.de

Online Self-Assessment (orientation test)

🔗 www.selbsttest.uni-bonn.de

APPLICATION AND ADMISSION

Updated information on degree programs and admissions at:

🔗 www.studienangebot.uni-bonn.de

🔗 www.bewerbungsportal.uni-bonn.de

POSTGRADUATE STUDIES

Master of Science (MSc)

- › Biochemistry
- › Immunobiology: from molecules to integrative systems

Additional Information

🔗 www.limes-institut-bonn.de/studium-lehre/

