Change of the Curriculum for the Master's Programme in Molecular Medicine at the Medical University of Innsbruck

In accordance with section 25 paragraph 1 sentence 10 Austrian University Act (Universitätsgesetz; UG), the Senate of the Medical University of Innsbruck passed the change of the curriculum for the Master's programme in Molecular Medicine at the Medical University of Innsbruck on 06 Mai 2026, which was announced in the Bulletin from 1 October 2013, academic year 2013/2014, issue 1, no. 2 in the versions of the bulletin

from 22 June 2015, academic year 2014/2015, issue 44, no. 190,
from 27 June 2017, academic year 2016/2017, issue 45, no. 187,
from 26 June 2018, academic year 2017/2018, issue 43, no. 193,
from 16 August 2018, academic year 2017/2018, issue 53, no. 225,
from 20 March 2019, academic year 2018/2019, issue 28, no. 121,
from 24 June 2020, academic year 2019/2020, issue 45, no. 165,
from 19 August 2020, academic year 2019/2020, issue 56, no. 199.
from 24 June 2021, academic year 2020/2021, issue 51, no. 169.
from 27 April 2022, academic year 2021/2022, issue 45, no. 131,
from 20 April 2023, academic year 2022/2023, issue 32, no. 127,
from 05 June 2024, academic year 2023/2024, issue 58, no. 207,
from 30 June 2025, academic year 2024/2025, issue 52, no. 209,

After the change, the curriculum reads as follows:

Curriculum
for the Master's Programme in Molecular Medicine

1 General Preliminary Remarks

The Master's programme in Molecular Medicine spans four semesters. This is equivalent to at least 120 ECTS points. The Master's programme in Molecular Medicine is organised as a full-time programme. The graduates are awarded with the academic degree 'Master of Science (Molecular Medicine)' (abbreviated as 'MSc').

The Master's programme in Molecular Medicine can be completed as the second part of a three-step educational process. The Medical University of Innsbruck offers a Bachelor's programme in molecular medicine spanning six semesters as well as a PhD programme spanning three years as parts of a comprehensive scientific education in the field of molecular medicine.

The number of university places is limited and is set by a decree for each academic year.

2 Educational Goals and the Graduates' Qualifications Profile

The Master's programme in Molecular Medicine is a postgraduate programme for students who have successfully completed a relevant Bachelor's programme. The programme deepens and completes the students' theoretical and practical knowledge and skills in the field of molecular medicine and aims to provide comprehensive subject-specific competence in modern molecular-oriented life sciences. Thanks to this competence, graduates are capable of independently conducting scientific work in basic medical research as well as of directly managing tasks in the applied fields of medicine, biotechnology, and development of molecular-based therapy concepts.

Due to the fact that the programme consists of mandatory modules and elective modules, the students can further specialise according to their scientific preferences and interests; additional options are available through project studies. As a result, graduates not only acquire mutual extensive knowledge in molecular medicine overall, but also further specialise individually in selected subject areas and thereby gain a competitive advantage in the labour market.

The modules offered in the Master's programme in Molecular Medicine are primarily aligned with the scientific foci of the Medical University of Innsbruck set out by its long-term development plan. This ensures that the education meets the highest scientific quality standards on an international level.

Graduates of the Master's programme in Molecular Medicine are capable of working in highly qualified occupations in the entire modern life sciences, particularly in research and development in the biotechnological/genetic engineering and pharmaceutical industry, in the entire field of theoretical medical and clinical research at universities and in research institutions as well as government authorities. Furthermore, graduating from the Master's programme creates the foundations for a PhD programme as the highest level of academic education.

In particular, graduates have subject-specific competencies in the following areas:

- Oncoscience
- Infection and immunity
- Neuroscience
- Genetics, epigenetics, genomics
- Molecular diagnostics
- Mechanobiology and medical biomechanics
- Biological information systems
- Molecular cell biology
- 3D bioprinting
- Metabolomics
- Stem cells
- Proteomics; Metabolomics
- Systems biology
- Gender medicine
- Ethics; Medicine and law
- Laboratory animal science and alternative methods (either with or without the qualification for

performing animal experiments)
- Fundamentals of intellectual property

3 Internationality

The layout and structure of the programme correspond with international standards. The international comparability and recognition of academic performance is ensured by using the 'European Credit Transfer System' (ECTS).

All lessons are conducted in English; the Master's thesis must be written in English as well.

The compulsory modules PM2, PM3, and PM4, elective modules, and the Master's thesis can also be completed at other domestic and foreign universities and research institutions, provided that the governing body responsible for study matters of the Medical University of Innsbruck agrees.

4 Duration and Structure of the Programme

The Master's programme in Molecular Medicine spans four semesters; this corresponds to at least 120 ECTS points.

ECTS points include the attendance of courses as well as the entire performance of the students (preparation, follow-up) necessary for the successful completion of a course. For each academic year, at least 60 ECTS points are required, which corresponds to a total workload of 1500 hours. The Master's programme in Molecular Medicine consists of mandatory and elective modules. Mandatory modules award 15 ECTS points each; elective modules 7.5 or 15 ECTS points each. During the first three semesters, the students complete mandatory modules worth 60 ECTS points and elective modules worth 30 ECTS points, whereby one elective module with 7.5 ECTS points can also be substituted with one project study after an approval by the governing body responsible for study matters. Project studies are awarded 7.5 ECTS points.

Mandatory Modules:
PM1: Medical Interdisciplinary Courses and Mandatory Project Study
PM2: Oncoscience
PM3: Infection and Immunity
PM4: Neuroscience

Elective Modules (15 ECTS points):
WM1: Genetics, Epigenetics, Genomics
WM3: Molecular Diagnostics
WM4: Molecular Cell Biology

Elective Modules (7.5 ECTS points):
WM2: 3D Bioprinting and Prototyping in Biomedicine
WM5: Mechanobiology and Medical Biomechanics
WM6: Metabolomics
WM7: Computer and Systems Biology
WM8: Biological Information Systems
WM9: Protein Purification/Proteomics
WM10: Stem Cell-based Development and Disease Modeling

Additional elective modules worth 7.5 or 15 ECTS points can be included into the range of courses by the Executive Vice President for Teaching and Study Matters in coordination with the Curricular Commission and assigned to the semesters 2 and/or 3 at any time.

For the Master's thesis (conducting experimental work and writing a thesis during the fourth semester) 27 ECTS points are allocated and for the defense of the Master's thesis 3 ECTS credit points.

Due to the fact that there is only a limited number of students admitted to the programme for each academic year, it is possible to complete the programme within four semesters without delays, provided that the students successfully pass the respective module and/or course exams in a timely manner.

Admission to the programme is possible in the winter semester as well as the summer semester if the maximum number of university places allows to do so.

5 Organisation and Layout of the Programme

5.1 Course Types

- Lectures (Vorlesung; VO): They introduce students to the subject's fundamentals, convey general and specialised knowledge from the subject's current body of knowledge as well as the latest research findings. A lecture series is a special type of lecture where many lecturers prepare contributions to an overarching topic from their area of specialisation.

- Lectures with Practical Exercises (Vorlesung mit Übung; VU): In addition to being structured like a lecture, they teach practical skills by virtue of integrated exercises. This type of course is characterised by continuous assessment of the students' performance.

- Labs (Praktikum; PR): Their purpose is to practise already extensively taught methods and their application in complex experimental approaches. Labs are usually all-day courses with continuous assessment of the students' performance.

- Seminars (Seminar; SE): Seminars are courses which teach students to be proactive through their individual contributions (e.g. presentations). They are intended to sharpen the interpretation skills of students as well as practise their rhetorical skills. Seminars require a seminar presentation and/or writing a seminar paper in order to pass. This type of course is characterised by continuous assessment of the students' performance. A lecture series is a special type of lecture; here, an overarching topic is covered by several lecturers from their individual scientific perspective.

- Project Studies (Projektstudie): In a project study (7.5 ECTS points), students work on small research projects. The students propose a group in which they conduct the project study. This has to be approved by the governing body responsible for study matters. Before seeking approval, the students' proposition must be agreed to by the head of the work group as well as the head of the organisational unit. After completing the project study, the results must be presented in the form of a presentation; in addition, the results must be described in a written report.

5.2 The Interdisciplinary Field of Gender Medicine

Gender Medicine and gender-specific research topics are tied into the programme via courses in which the medical relevance of sex and gender-specific factors in basic medical research and clinical medicine are taught. They are incorporated over the entire duration of the programme. Being an interdisciplinary topic in medicine, aspects of gender medicine are an integral part of courses of all lecturers, taking into account the subject-specific problems.

5.3 Prerequisites for Attending Courses

The work on the Master's thesis can only be started after the mandatory modules PM1-4 and elective modules/project studies worth at least 30 ECTS points have been completed and passed successfully. Attendance of the students is necessary for a successful completion of all courses.

5.4 Maximum Number of Course Participants

Practical courses, labs, and seminars have a maximum of 4-8 participants.

5.5 The Executive Vice President for Teaching and Study Matters can order courses to be temporarily held in another format (e.g. labs as seminars) in case of external influences such as force majeure (e.g. fire, destruction, natural disasters).
If courses cannot be held at all or cannot be held in the time allocated for them in the semester curriculum due to risk of infection (e.g. during an epidemic/pandemic), the Executive Vice President for Teaching and Study Matters can order a complete switch to virtual teaching formats and/or order parts of practical courses or labs to be suspended and substituted by virtual teaching formats.

6 Structure and Contents of the Programme with ECTS Points

6.1 Mandatory Modules

	Course Type	Attendance (h)	Preparation/ follow-up (h)	ECTS points
Mandatory module PM1: Medical Interdisciplinary Courses and Mandatory Project Study				
Basics in Oncology	Lecture (VO)	12	13	1.0
Gender and Diversity in Medicine	Lecture/ seminar (VO/SE)	30	20	2.0
Ethics Fundamentals of intellectual property, Good scientific practice	Lecture/ seminar (VO/SE)	36	39	3.0
Animal Experiments	Lecture/ seminar (VO/SE)	24	13	1.5
Animal Experiments*	Lab (PR)	18	7	1.0
Replacement and Complementary Methods for Animal Experimentation	Lecture/ seminar (VO/SE)	9	4	0.5
Replacement and Complementary Methods for Animal Experimentation*	Lecture with practical exercises (VU)	18	7	1.0
Mandatory project study	Lab (PR)	108	79	7.5
Total		**237**	**175**	**16.5**
Module prerequisites: none * The two courses must be completed alternatively				

	Course Type	Attendance (h)	Preparation/ follow-up (h)	ECTS points
Mandatory modules PM2-4: Oncoscience, Infection and Immunity, Neuroscience				
Theoretical and Practical Fundamentals	Lecture (VO)	48	52	4.0
Practical Laboratory Course	Lab (PR)	120	55	7.0
Seminar and Journal Club	Seminar (SE)	36	64	4.0
Total		**204**	**171**	**15.0**
Module prerequisites: none				

6.2 Elective Modules (15 ECTS points each)

	Course Type	Attendance (h)	Preparation/ follow-up (h)	ECTS points
Elective modules worth 15 ECTS points each: Genetics, Epigenetics, Genomics, Molecular Diagnostics; Molecular Cell Biology				
Theoretical and Practical Fundamentals	Lecture (VO)	48	52	4.0
Practical Laboratory Course	Lab (PR)	120	56	7.0
Seminar and Journal Club	Seminar (SE)	36	64	4.0
Total		**204**	**172**	**15.0**
Module prerequisites: none				

6.3 Elective Modules (7.5 ECTS points each)

	Course Type	Attendance (h)	Preparation/ follow-up (h)	ECTS points
Elective modules worth 7.5 ECTS points each: 3D Bioprinting and Prototyping in Biomedicine; Mechanobiology and Medical Biomechanics; Metabolomics; Computer and Systems Biology; Biological Information Systems; Protein Purification/Proteomics; Stem Cell-based Development and Disease Modeling				
Theoretical and Practical Fundamentals	Lecture (VO)	24	26	2.0
Practical Laboratory Course	Lab (PR)	60	28	3.5
Seminar and Journal Club	Seminar (SE)	18	32	2.0
Total		**102**	**86**	**7.5**
Module prerequisites: none				

Each semester, the Executive Vice President for Teaching and Study Matters determines which modules take place and which do not take place due to the number of applicants being too low as soon as the applicant numbers for all courses are available. This is done to ensure a sufficient number of participants for the elective modules worth 7.5 ECTS points.

6.4 Brief Content Overview of Mandatory Modules PM1-4:

PM1: Medical Interdisciplinary Courses and Mandatory Project Study. Basics in oncology, gender medicine, ethics, legal basics (e.g. medical law, patent law), fundamentals of intellectual property, laboratory animal science, replacement and complementary methods for animal experimentation, project study.

PM2: Oncoscience. Tumour histopathology, cell cycle control, oncogenes, DNA damage, genomic instability, phenomena of senescence, cell death, tumour suppressors, tumour immunology, inflammation and cancer, animal model systems, metabolism of the cancer cell, autophagy, angiogenesis, epigenetics, hormone receptors, migration, metastasis, stem cells, tumour treatment, therapy resistance, development of therapies, individual therapy.

PM3: Infection and Immunity. Molecular and cellular defence mechanisms, innate and adaptive immunity, antigen presentation, T cells, activation of T cells, cytokines, B cells, antibodies, viruses, bacteria, fungi, parasites, infectiology, immune system and cancer, tumour immunology, autoimmunity, inflammatory diseases, clinical immunology, clinical infectiology, therapy concepts, prevention.

PM4: Neuroscience. Neuronal cell biology, glial cells, neural stem cells, Neuronal membranes, basics of electrophysiology, synaptic transmission, exocytosis, channels, transmitter systems, neuropeptides, myelination, inhibition of axon growth, peripheral nervous system, nociception, development of the central nervous system, comparative neuroanatomy, neural networks, seeing, acute neural injuries, microglia, inflammation, demyelination, motor system, hippocampus, memory, neurodegeneration, fear.

6.5 Overview of semesters 1-4:

1. Semester:
Mandatory module PM1(Medical Interdisciplinary Courses and Mandatory Project Study)
Mandatory module PM2 (Oncoscience)

2. Semester:
Mandatory module PM3 (Infection and Immunity)
1 elective module worth 15 ECTS points or 2 elective modules worth 7.5 ECTS points each

3. Semester:
Mandatory module PM4 (Neuroscience)
1 elective module worth 15 ECTS points or 2 elective modules worth 7.5 ECTS points each

4. Semester:
Master's thesis (prerequisite: successful completion of the mandatory modules and of elective modules and/or project studies worth 30 ECTS points)
Defence of the Master's thesis

7 Examinations

7.1 The programme is completed successfully after all courses and modules in the curriculum as well as their examinations have been passed and the Master's thesis has been evaluated successfully.

7.2 The examinations are designed to be objective, reliable, and valid.

7.3 The type and the method of conducting the examination must be announced not later than the exam registration date for each course and module.

7.4 The assessment of the students' performance in courses conducted as lectures with practical exercises (Vorlesung mit Übung; VU), labs (Praktikum; PR) or seminars (Seminar; SE) is made constantly through contributions and participation of the students (continuous assessment) as well as through supplemental tests or theses, where appropriate.

7.5 The assessment of the students' performance in courses conducted as lectures (Vorlesung; VO) is made through either written or oral examinations or a combination of both written and oral examinations. There must be four examination dates for these examinations in each semester.

7.6 A module is only completed successfully after successful completion of and/or participation in all of its courses. It must be defined and announced to what extent (as a percentage) the individual grades affect the overall module grade.

8 Master's thesis

The fourth semester is devoted exclusively to the experimental work on the Master's thesis. The work on the Master's thesis can only be started after all mandatory modules and 30 ECTS points worth of elective modules and/or project studies have been completed successfully. The name of the supervisor, the topic of the planned Master's thesis as well as its exposé signed by the student and his/her Master's thesis supervisor must be presented to the governing body responsible for study matters for approval before any work can be started. Conducting any experimental work for the Master's thesis is only permitted after it has been approved by the governing body responsible for study matters. If the approval is declined, the governing body responsible for study matters must issue a written explanation.
The Master's thesis is awarded with 27 ECTS credit points. Please see the regulations concerning the Master's thesis which are announced in the 'Study Act' part of the statutes (Studienrechtliche Bestimmungen).

After completing the Master's thesis, it must be submitted to the governing body responsible for study matters for assessment. The governing body responsible for study matters forwards the Master's thesis to a university's internal and an external evaluator. Assessment by the supervisor of the Master's thesis is permitted. The student is entitled to propose evaluators of his/her choice.

The public defence of the Master's thesis is held within three weeks after acquiring two positive assessments. The defence must consist of a brief presentation in English (around 30 minutes) with a subsequent discussion. The defence is assessed by a Senate appointed by the governing body responsible for study matters; it consists of the supervisor as well as two other specialists on the subject, usually habilitated employees of the university. The Senate grades the student's performance during the scientific presentation and the subsequent discussion. The defence is worth 3 ECTS points.

9 Evaluation Measures

9.1 Course Evaluation

The Medical University of Innsbruck conducts regular course evaluations in accordance with the guidelines defined in its statutes in collaboration with the responsible service institution.

9.2 Semester Assessment

At the end of each semester, the Head of the Programme shall invite students and lecturers of a semester to an informal meeting to exchange ideas and give feedback. A written protocol signed by a student representative as well as the Head of the Programme must be submitted to the governing body responsible for study matters.Supplementary Provisions

In order to attend any courses and examinations, students are required to register electronically in a timely manner without any exception. Attendance during preliminary meetings and during the allocation of lab places is mandatory.

If the number of applicants for a course is higher than the maximum number for the respective group, additional courses must be organised depending on the possibilities, upon agreement and according to the demand also during semester breaks.

In order to compensate for possible subject-specific deficits of students who did not complete their Bachelor's programme in Molecular Medicine at the Medical University of Innsbruck, the governing body responsible for study matters can impose the successful completion of relevant courses (bridging courses) on students for the purpose of the admission.

10 Implementation

This curriculum comes into force on 1 October 2026.

For the Senate:

Univ.-Prof. Dr. Michael Grimm
Chairman