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### **University Medical Centre:**

Following the resolution of the Faculty Council of the Faculty of Medicine on 22.05.2023, the Executive Committee of University Medical Centre Göttingen approved the fourth amendment of the examination and study regulations for the international consecutive master's degree programme "Molecular Medicine" on 22.08.2023, in the version published on 28.09.2015 (Official Announcements I No. 44/2015, p. 1239), last amended by the statute on 16.08.2022 (Official Announcements I no. 37/2022 p. 714) (§ 44 section 1, sentence 2 NHG in the version published on 26.02.2007 (Nds. German legal and regulatory code, p. 69), last amended by Article 7 of the Act of 23.03.2022 (Nds. German legal and regulatory code, p. 218); §§ 37 section 1, sentence 3, no. 5 b), 44 section 1, sentence 3 NHG in conjunction with § 63 b sentence 3 NHG).

## **Examination and study regulations**

### **to the international consecutive master's degree programme "Molecular Medicine" at the University of Göttingen**

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## **I. Miscellaneous**

### **§ 1 Scope**

(1) The "General examination regulations for bachelor's and master's degree programmes as well as other courses and degrees offered at the University of Göttingen" (APO) apply in their respectively valid forms to the master's degree programme "Molecular Medicine" at the Georg-August-Universität Göttingen.

(2) These regulations stipulate the additional provisions for the master's degree programme "Molecular Medicine".

### **§ 2 Objectives of the academic programme, purpose of the examinations**

(1) <sup>1</sup>The aim of the master's degree programme is to provide students with an advanced academic education in the field of molecular medicine, based on a university undergraduate degree in natural sciences. <sup>2</sup>Its purpose is to enable students to engage in independent and creative research on the cutting edge between medicine and natural science. <sup>3</sup>Completion of the master's degree programme ensures that graduates are able to apply a broad spectrum of methodologies belonging to the field of molecular medicine within the context of actual research issues. <sup>4</sup>Moreover, they receive advanced insight into scientific methodologies applies within the wider field of medical research. <sup>5</sup>The master's degree programme in molecular medicine applies a natural sciences and medical approach to qualify graduates for a broad range of activities and professions in the practical area of molecular medicine, medical research as well as upstream and downstream fields of molecular medicine. <sup>6</sup>Graduates of the master's degree programme mainly work in:

- scientific research (e.g. at universities, Max Planck Institutes or other major research institutions),
- the industrial sector (e.g. bio-medical engineering, production, quality control, marketing, administrative areas, basic research and development),
- fields of publication and publishing,
- private laboratories (e.g. molecular diagnosis and analysis, environmental protection),
- clinics (e.g. molecular and bio-chemical diagnosis, clinical research),
- government agencies (e.g. criminal investigation departments, public health authorities, labour inspectorates, in environmental protections and for medical councils),
- other institutions (e.g. ministries, research funding organisations, technology transfer organisations).

(2) <sup>1</sup>In order to achieve the designated goals, well-founded theories are merged with questions of application within molecular medicine and developments in medical research and diagnosis, hence meaning that the students are provided with a scientific qualifications and professional skills. <sup>2</sup>General and subject-related objectives of the academic programme are, among other things, the acquisition of:

- advanced knowledge of molecular medicine, its methods and approaches;
- profound knowledge of scientific methodology and theory, as well as skills that enable the acquisition of capabilities in a wide variety of occupational fields;
- the ability to apply methods of natural sciences to approach medical issues in an independent capacity;
- the ability to apply experimental and other empirical methods in an independent capacity and to suitably interpret their results and to present and represent them in a scientifically adequate manner;
- the ability to use and assess literature, statistics and other forms of documentation in the area of research into molecular medicine;
- the ability to present research results in a written, oral and graphic form, and the ability to present these results in scientific discussions;
- the ability to independently recognise and formulate scientific issues, and to resolve and analyse these issues appropriately through the use suitable methods;
- the ability to develop and implement concepts for the diagnosis and treatment of diseases on a basis of molecular medicine;
- the qualification as an entry requirement to doctoral studies in natural sciences.

(3) <sup>1</sup>In addition to specialised knowledge, the master's degree programme conveys key competencies for a successful start in the professional sphere and also for progression to doctoral studies. <sup>2</sup>Moreover, the degree programme forms the basis for the more advanced doctoral studies.

(4) <sup>1</sup>In addition, key competence modules are planned which specifically promote civic commitment and personal development. <sup>2</sup>The Students should develop their personality and understand how their specialist knowledge is relevant to current issues, develop an understanding of society and diversity and thus be able to make a sustainable contribution to society. <sup>3</sup>Lecturers are called upon to consider and encourage areas of activity, opportunities and the importance of civic commitments within the curriculum. <sup>4</sup>Students are thus motivated not to limit the application of their professional ability to act and judge acquired during their academic programme only to the scientific or professional areas of activity, but also to use it in society.

### **§ 3 Recommended prior knowledge**

<sup>1</sup>Knowledge of scientific thinking and working methods is recommended for a successful course of studies. <sup>2</sup>Student applicants whose knowledge differs distinctly from the abilities of graduates in the bachelor's degree programme of "Molecular Medicine" are advised to acquire the theoretical knowledge they lack in self-study before beginning the master's degree programme or to obtain the practical skills through voluntary completion of laboratory internships.

### **§ 4 Academic degree**

Once the master examination is passed, Georg-August-Universität Göttingen awards the university degree "Master of Science", abbreviated "M.Sc.".

### **§ 5 Structure of the academic programme**

(1) The master's programme starts with the winter semester.

(2) The standard course length is three semesters.

(3) The degree programme cannot be done part-time.

(4) <sup>1</sup>The academic programme comprises 120 credits for the successful completion of the master examination (European Credit Transfer and Accumulation System (ECTS) credits; abbreviated: C), which are distributed as follows:

- a) Specialist studies 72 C,
- b) Area of professionalisation (including key competencies) 18 C,
- c) Master's thesis (30 C).

<sup>2</sup>The academic programme is divided into study sections as follows:

- a) the intensive year with a scope of 90 C,
- b) the master's thesis with a scope of 30 C.

<sup>3</sup>The study and examination components of the intensive year must be completed in modules.

<sup>4</sup>These modules are specified in the module overview (appendix I). <sup>5</sup>The module index is published separately. It forms a part of this regulation as far as the modules are listed in the module overview (appendix I).

(5) The language of instruction and examination is English.

## **§ 6 Intensive course of study**

(1) <sup>1</sup>The academic programme is organised as an intensive course in the first study year. <sup>2</sup>The ability to complete the academic programme is guaranteed by spreading the curriculum evenly over 46 weeks instead of the announced period of lecture.

(2) The curriculum is divided into compulsory modules in a scope of 76 C in total, also optional modules in a scope of at least 14 C, as stated in the module overview (appendix I).

(3) <sup>1</sup>Theoretical teaching for the modules M.MM.101, M.MM.102 and M.MM.103 is held in blocks, each lasting 7 weeks. <sup>2</sup>Half-day seminar courses and lectures are held from Monday to Thursday during these blocks. <sup>3</sup>Examinations take place at the end of a theoretical block. <sup>4</sup>There will be no lectures or seminars in the last week before these examinations in order to enable ideal preparation; refresher lessons and question and answer sessions will take place instead. <sup>5</sup>The remaining time in these theoretical blocks is used for optional modules and self-study. <sup>6</sup>During the blocks for modules M.MM.102 and M.MM.103, module M.MM.104 takes place on Fridays. <sup>7</sup>The laboratory internships for the modules M.MM.101, M.MM.102 and M.MM.103 are whole-day events lasting eight weeks each, held between the respective blocks. <sup>8</sup>There will be no teaching during these periods. <sup>9</sup>The laboratory training includes independent research projects, each of which takes place in a research laboratory of the working groups involved in the degree programme and is individually supervised. <sup>10</sup>The students are integrated within scientific laboratory routines and, on average, will spend around six hours per day in the laboratory; teaching staff are scheduled to spend, on average, approximately one hour per day to provide one-on-one project support. <sup>11</sup>Students will draft a scientific report on each of the research projects they attend. <sup>12</sup>The final week of an 8-week period is used to prepare the internship report. <sup>13</sup>The topics of the internships and the laboratory periods in which the research projects are completed can be selected from an extensive list.

(4) The standard group size of courses held in the degree programme is:

- a) for lectures and seminars courses: 20,
- b) for laboratory internships: 1 (one-on-one support).

## **§ 7 Study and examination advice**

(1) The faculty study advisory service has the task of supporting individual planning of the degree programme. The students are advised to consult the study advisory service, especially at the start of the programme and before decisions on changes to their study plan; furthermore, it should also be consulted when planning to study abroad and after failing any examination.

(2) All lecturers in the appropriate research area and their colleagues are available during their consulting hours to provide study advice relating to special research areas.

(3) Individual (optional) study advice by a faculty member is also offered if the student only has one opportunity to repeat the examination of a compulsory module.

(4) In examination matters and for questions regarding transfer of credits for programme and examination components, advice is offered especially by the study advisory service in the course of study.

(5) Besides study advisory service of the faculty, the students have access to the Central Student Advisory Office of the University of Göttingen. As a general study advisory service, it provides information in case of interdisciplinary issues as well as study opportunities, contents, structure and requirements of an academic programme and advises in case of study-related personal difficulties.

## **II. Examination procedure**

### **§ 8 Types of examination**

(1) Besides the examination components permitted according to the provisions of APO, the following subject-specific examination components can be planned:

- a) A written report: Candidates are required to keep a written report to document the contributions they made to the planning, implementation and evaluation of the projects and to keep records of the results in a technically suitable form. The written report will be assessed by the examiner leading the project.
- b) A research journal (laboratory log): Reflective account of the preparation, execution and evaluation of an independently planned and executed research project.

#### **§ 8 (a) Requirement of attendance as examination prerequisite**

<sup>1</sup>If regular or active participation in a course is defined as an examination prerequisite, then in deviation from § 14 section, sentences 2 and 5 APO, the following applies: Absences without giving reasons are permitted up to 20% of the total attendance time of the course in question; the granting of substitute academic achievements is only permitted for courses organised as practical training if absences do not exceed 70% of the planned total attendance time.

<sup>2</sup>Implementation and documentation of the attendance check is the responsibility of the head of the course that must be attended or of the teaching staff commissioned by him or her to carry it out.

## **§ 9 Registration and admission to module examinations**

(1) <sup>1</sup>In deviation of § 10(b) section 1 to 5 APO, oral and written module examinations shall be registered electronically by the deadline set by the examination board. <sup>2</sup>Withdrawal without giving reasons (deregistration) is possible up to the end of the third day 24 hours before the examination date and must be notified to the Examination Office and the module coordinators in text form via the examination management system or electronically. <sup>3</sup>Notwithstanding the responsibility of the Dean of Studies and the examination board pursuant to § 14, the office of the Dean of Studies of the Faculty of Medicine at the University of Göttingen fulfils the function of the Examination Office and is responsible for the organisation of the examination procedure.

(2) Deviating from section 1, sentence 1, papers can be cancelled until the issue of the topic of the term paper, presentations and joint presentations up to one week before the date of the presentation.

### **§ 9 (a) Pass marks for performance reviews and partial evaluation**

Deviating from § 15 section 14 (e), sentence 2, APO, the following applies to written performance reviews or partial evaluations that are carried out exclusively in multiple choice or single answer procedures, so that the application of the escalation clause

- a) taking into account all participating students (including students of other study programmes),
- b) cannot lead to an examination component being passed unless at least 50 percent of the multiple choice tasks set have been answered correctly or at least 50 percent of the total achievable points have been achieved, and
- c) only takes place if more than 15 first-time participants who have not yet exceeded the standard course length are taking part in the performance review or the partial evaluation.

## **§ 10 Repeatability of examinations**

(1) Failed module examinations, submodule examinations and partial exams on modules can be repeated twice.

(2) A master's thesis which has been failed may be repeated once.

(3) The examination board may impose conditions before the final repeat of an examination (in particular to attend the courses in a module once more), which must be satisfied before the examination is attempted.

(4) Reassessment of passed examinations with a view to improving the grade is not allowed.

## **§ 11 Admission to the master's thesis**

(1) Admission to the master's thesis shall only be granted upon successful completion of the compulsory modules in the degree programme in a scope of at least 52 C.



(2) <sup>1</sup>Admission to the master's thesis must be applied for in writing to the Examination Office no later than four weeks before the intended start of the processing time. <sup>2</sup>The following material must be enclosed with the application:

- a) Evidence of compliance with the requirements referred to in section 1, unless it is stored in the examination management system,
- b) the proposed topic for the master's thesis as well as a proposal for the start of the processing time,
- c) a proposal regarding the supervisor,
- d) a proposal regarding the second assessor,
- e) written confirmation of the supervisor,
- f) a declaration that the master examination in the same or a comparable master's degree programme at a university in Germany or abroad has ultimately not been failed or is not deemed to have been ultimately failed.

<sup>3</sup> The proposal under (b) and (c) and the proof under (d) are not required if the student declares that he or she has not found a supervisor. <sup>4</sup>In this case, the examination board appoints the advisor and specifies the topic of the master's thesis. <sup>5</sup>The candidate's view should be considered in choosing the topic. <sup>6</sup>The right to propose the topic does not constitute any legal right.

(3) <sup>1</sup>The examination board shall decide on admission. <sup>2</sup>This will be refused if the qualifications for entry are not fulfilled or the master examination in the same or comparable master's degree programme at a domestic or foreign university has been definitively failed.

## **§ 12 Master's thesis**

(1) <sup>1</sup>A scientific master's thesis must be completed as part of the master's degree programme. <sup>2</sup>With the written master's thesis, the candidate should prove that he or she is in a position to process a problem using scientific methods by the specified deadline, develop an independent, scientifically established judgement, arrive at scientifically underpinned statements and illustrate the results in a linguistically as well as formally appropriate manner. <sup>3</sup>30 C are awarded for successful completion of the master's thesis.

(2) <sup>1</sup>The examination office issues the topic for the master's thesis. <sup>2</sup>The time of issue must be recorded.

(3) <sup>1</sup>The processing time for the master's thesis is 6 months; the start of the processing time shall be determined by the supervisor, taking into account the proposal in accordance with § 11 section 2, sentence 2 (b) and the availability of necessary resources (e.g. laboratory workstation), and shall be notified to the office of the Dean of Studies. <sup>2</sup>Upon application of the candidate, the examination board can extend the processing time for the thesis by a maximum

one month in the event of an important reason that cannot be attributed to the candidate. <sup>3</sup>An important reason exists, among others, in case of illness. Notification must be provided without delay to the Examination Office, and a medical certificate must be provided.

(4) <sup>1</sup>The topic can be returned only once and only within the first 10 weeks of the processing time. <sup>2</sup>A new topic should be promptly agreed, at the latest within 4 weeks. <sup>3</sup>In the event that the master's thesis is repeated, the topic may be returned only in accordance with sentence 1 if the examinee has not resorted to this option in the first submission of the master's thesis.

(5) <sup>1</sup>The master's thesis must be submitted to the responsible examination office by deadline in PDF format only (unprotected); the submission has to take place via the examination management system. <sup>2</sup>The time of submission is to be recorded. <sup>3</sup>Upon submission, the candidate has to declare in writing that he or she has independently compiled the work and has not used any sources or tools other than those specified. <sup>4</sup>A reviewer may require that the candidate additionally submit the master's thesis in written form; in this case, a claim to evaluation arises only after submission of the written form; the candidate must affirm that the written form and the version submitted in accordance with sentence 1 are identical. <sup>5</sup>If there is a request according to sentence 4, the candidate is obliged to submit the paper in printed form to the reviewer no later than three working days after the date of submission according to sentence 2.

(6) <sup>1</sup>The master's thesis will be assessed by two reviewers. <sup>2</sup>The examination board appoints both reviewers. <sup>3</sup>The academic advisor for the thesis is usually appointed first reviewer. <sup>4</sup>At the same time, the examination board appoints another reviewer from the group of authorised examiners. <sup>5</sup>The candidate has the right to make a proposal in this respect. <sup>6</sup>This right to submit a proposal does not constitute any legal entitlement.

(7) <sup>1</sup>The grade for the master's thesis is the arithmetic average of the assessment by the two reviewers. <sup>2</sup>If the difference is more than 1.0 or if an assessment is "insufficient" but the other is "sufficient" or better, a third reviewer will be appointed by the responsible examination board to assess the thesis, the assessment of which alone represents the examination grade. <sup>3</sup>He or she may decide on one of the previous assessments or on an assessment lying in between.

(8) The duration of the assessment procedure shall not exceed 4 weeks.

### **§ 13 Overall result; grade point average**

(1) The master examination is passed, if at least 120 C were acquired and all of the required module examinations as well as the master's thesis have been passed.

(2) <sup>1</sup>In addition to the provisions of § 16 b section 2 APO, the right to an examination is finally extinguished if, by the end of the 6th subject semester, all credits that are required to pass the

master examination have not been acquired.<sup>2</sup> A deadline may be exceeded if the student is not responsible for the missed deadline.<sup>3</sup> The examination board decides on this upon application by the student.<sup>4</sup> If the student has disproved the presumption to the examination board that he or she was responsible for exceeding a deadline according to sentence 1, the examination board may, taking into account the circumstances presented by the student, set a later date for providing evidence of the same performance and extend the deadline further, pursuant to sentence 1.

(3) The grade point average "with distinction" is awarded if the master's thesis is graded 1.0 and the grade point average is better than 1.3.

### **§ 14 Examination board**

<sup>1</sup>The Faculty of Medicine forms a joint examination board for the bachelor's degree programme "Molecular Medicine" and the consecutive master's degree programme "Molecular Medicine".

<sup>2</sup>The most recent version of the examination and study regulations for the bachelor's degree programme "Molecular Medicine" defines the details.

### **III. Entry into force**

#### **§ 15 Entry into force; interim regulations**

(1) This regulation enters into force following its promulgation in the Official Announcements I of the University of Göttingen as per 01.10.2015.

(2) At the same time, the examination regulations for the master's degree programme "Molecular Medicine" in the version contained in the announcement dated 07.01.2010 (Official Announcements I no. 1/2010 . p. 1) and the additional study regulations introduced for the master's degree programme "Molecular Medicine" in the version contained in the announcement dated 07.01.2010 (Official Announcements I no. 1/2010 p. 15) shall cease to be effective.

(3) <sup>1</sup>Students who began their course of studies before an amendment to the present examination and study regulations came into force and who have been enrolled in this course of study without interruption will be examined according to the present examination and study regulations. <sup>2</sup>In respect of examinations still to be taken, this also applies to the module overview and module descriptions, unless a student's protection of legitimate expectation requires a different decision by the examination board. <sup>3</sup>A different decision can be reached especially in cases where an examination component can be repeated, or a compulsory or optional required module has changed significantly or been cancelled. <sup>4</sup>The examination board can draw up general rules for this purpose. <sup>5</sup>Examinations based on a version valid prior to the coming into force of an amendment to the existing examination and study regulations will be conducted for the last time in the fourth semester following the amendment has come into force. <sup>6</sup>Upon application, students shall generally be examined, pursuant to sentence 1, in accordance with the provisions applicable before the amendment of the regulation.

## Appendix I Module overview for the master's degree programme "Molecular Medicine"

Accomplishments totalling 120 C must be successfully completed.

### I. Mandatory modules

The following 4 modules totalling 76 C must be successfully completed:

#### 1. Subject-specific studies:

M.MM.101	„Biomolecules and Pathogens“	24 C, 23 WLH
M.MM.102	„From cells to disease mechanisms“	24 C, 24 WLH
M.MM.103	„The disease-affected organism“	24 C, 23 WLH

#### 2. Professionalisation area:

M.MM.104	„Current Topics in Molecular Medicine“	4 C, 3 WLH
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(thereof 4 C KC)

### II. Elective modules (professionalisation – key competencies):

For the acquisition of key competencies, elective modules totalling at least 14 C must be successfully completed. The following modules may be chosen:

#### 1. Modules at the Faculty of Medicine

M.MM.001	„Epidemiology“	4 C, 3 WLH
M.MM.005	„English for Scientists“	4 C, 2 WLH
M.MM.007	„Inflammatory Response of the Liver“	2 C, 1,5 WLH
M.MM.008	„Organ Fibrosis“	2 C, 1,5 WLH
M.MM.009	„Molecular Imaging in Biomedical Research“	3 C, 2 WLH
M.MM.010	„State-of-the-Art Methods in Biomedical Research“	2 C, 1,5 WLH
M.MM.011	„Drug Discovery and Project Management in the Pharmaceutical Industry“	2 C, 2 WLH
M.MM.012	„Tumor Genetics“	2 C, 1 WLH
M.MM.015	„Human Genetics in Research and Diagnostic“	4 C, 2 WLH
M.MM.017	„Auditory Neuroscience“	3 C, 2,5 WLH
M.MM.018	„Modelling and Targeting Pancreatic Cancer Subtypes“	4 C, 3 WLH
M.MM.019	„Modern Aspects of Human Genetics“	2 C, 1 WLH
M.MM.020	„Genetic Epidemiology“	2 C, 2 WLH
M.MM.021	„Experimental, epidemiological and clinical approaches in dermatology“	3 C, 2 WLH
M.MM.022	„Committee work in student or academic self-administration“	2 C

## ***2. Modules from the university-wide module catalogue of key competencies***

In addition to the modules listed in No. 1, students may also choose modules from the university-wide module catalogue of key competencies. Furthermore, they may choose modules totalling up to 9 C from the module catalogue as part of the examination and study regulations for the courses offered by the Zentrale Einrichtung für Sprachen und Schlüsselqualifikationen (ZESS) (Center for Languages and Key Competencies) in the version that is currently in force.

## **III. Master's thesis**

The successful completion of the master's thesis amounts to 30 C.

## Appendix II Exemplary schedule for the master's degree programme „Molecular Medicine“

### a.) time schedule

		Wintersemester						Sommersemester																	
							Weihn.						Ostern												
		Oktober	November	Dezember	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober - März											
<b>Master</b>																									
08.15 - 09.00	<b>M.MM.101</b> Biomolecules and Pathogens Immunology + Virology + Mikrobiology + Pharmacology	Laborpraktikum					M.MM.102 From cells to disease mechanisms Oncology + Pathology + Molecular and Cell Biology + Human Genetics + Dermatology					Laborpraktikum					M.MM.103 The disease-affected organism Neurology + Neuropathology + Pharmacology + Cardiology + Nephrology					Laborpraktikum		M.MM.201 Master Thesis	
09.15 - 10.00																									
Pause																									
10.15 - 11.00																									
11.15 - 12.00	Laborpraktikum														Selbststudium, Wahlmodule										
12:15 - 18:00	Wahlmodule Selbststudium					Wahlmodule Selbststudium					Wahlmodule Selbststudium														

**b.) semester-oriented schedule**

Semester	Module	Module	Module	Module	Module
1. Σ 45 C	M.MM.101 „Biomolecules and Pathogens“ (mandatory) 24 C / 23 WLH	M.MM.102 „From cells to disease mechanisms“ (mandatory) 24 C / 24 WLH	M.MM.103 „The disease-affected organism“ (mandatory) 24 C / 23 WLH	M.MM.104 „Current topics in Molecular Medicine“ (mandatory) 4 C / 3 WLH	Elective modules 14 C
2. Σ 45 C					
3. Σ 30 C	Master's thesis 30 C				
Σ 120 C					