Academic Regulations and Procedures for Students of the Molecular Life Science Master Program at the University of Lübeck Awarding the Degree "Master of Science"

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§ 1
Area of Application

These academic regulations and procedures of the master degree program "Molecular Life Science", together with the examination rules and regulations (PVO) of the University of Lübeck, apply to students in the bachelor and master degree programs at the University of Lübeck.

§ 2
Program Objective

(1) The education in the "Molecular Life Science" master degree program prepares the graduate for work in manufacturing, teaching and research-related professions and lays the foundation for a doctorate. The program provides specific and sufficiently broad theoretical knowledge combined with hands-on education in the molecular biosciences. The focus is the study of molecular cell and structural biology, with the aim to identify molecular relationships in the fundamental processes of life and to apply these findings in research-based and clinical medicine and to use them for the development of biomolecular technologies and processes.

(2) The objective of the education is to enable the students, through transfer of knowledge and the practice of skills, to independently carry out complex bioscientific research and development tasks. Thus, a focus of the education is to provide the graduates with the ability to independently develop and apply methods in cell biology, structural biology and biomathematics. Therefore, the bioscientific lectures are supplemented by extensive internships in research laboratories and practice in the fields of biomathematics and bioinformatics. The master degree program is research-oriented.

(3) The education is in preparation for future interdisciplinary work in the future professional world. The introduction to clinic-oriented problems is therefore an integral part of the courses.

(4) Throughout the entire degree program, the pertinent design of the teaching modules creates a close interrelationship between the imparting of specialized knowledge and the teaching of transferable skills, such as the ability to use modern information technologies, the capacity for teamwork and the ability to use the English scientific language for the presentation of scientific data. Supplemental teaching modules for specific required courses, such as ethics of research, the critical study of scientific literature and bioinformatics or optional courses, for example, in the field of university didactics, will be offered.

§ 3
Admission Requirements

(1) The master program Molecular Life Science is consecutive to (a continuation of) the Molecular Life Science bachelor program of the University of Lübeck.

(2) Prerequisite for admission to the Molecular Life Science master degree is the particular suitability of the candidate, which he or she can prove by providing the following evidence:

1. Completion of a bachelor degree with the minimum grade of 2.7 in Molecular Life Science or an equivalent program of study, or in a closely-related program of study at a German university, or at a university which belongs to one of the Bologna signatory (Bologna Process / European Higher Education Area), or the completion of an equivalent degree acquired in a closely-related program of study from a foreign university. The equivalence of a foreign qualification will be determined in accordance with the assessment recommendations (aka Statement of Comparability) of The Standing Conference of the Ministers of Education and Cultural Affairs of the Länder (States) in the Federal Republic of Germany. The marks on the foreign proof of qualification are to be converted to the German marking system.
2. Proof of sufficient knowledge of English in accordance with CEFR B2 (proven by submission of a German Abitur certificate showing courses in the language were taken for at least seven years, or through appropriate language tests (e.g. TOEFL, IELTS)).

(3) The existence of the evidence and the compliance with the in paragraph 2 mentioned admission requirements will be determined by the Examination Board.

(4) At the time of application, if the qualifying degree program has not yet been completed, however the bachelor thesis has already been begun, submitted proof of examinations totaling at least 130 credits with an average grade of at least 2.7 will be sufficient to qualify for conditional admission. In this case, proof of the successful completion of the degree must be provided within three months after beginning the master degree program. Failure to do so will void the admission.

(5) Admission will be denied if the applicant has irrevocably failed an examination required by the examination regulations of the Molecular Life Science degree program at a university in Germany or is involved in an examination procedure in the Molecular Life Science degree program.

(6) Admission into the degree program can take place in both the winter and summer semesters.

§ 4
Curriculum

The degree program is comprised of modules, which predominantly serve the specialized qualifications and modules, which impart the particularly multidisciplinary content. Within the module canon, specializations can be pursued through the choice of pertinent courses within the fields of structural biology, neurosciences or clinical immunology. Exemplary study plans can be found on the website.

§ 5
Structure and Scope of the Degree Program

(1) The degree program courses comprise a total of 120 credit points (KP) according to ECTS standards, with a prescribed period of study of two years. Credit points earned per teaching module:

- in the subject-specific Molecular Life Science compulsory-section 70 KP (including internships worth 16 KP)
- in the interdisciplinary section 20 KP

The master thesis is worth 30 KP, with a final colloquium.

(2) Participation in further training modules offered by the university, which are beyond those specified in paragraph 2 of the module handbook, is possible and recommended. The results of such examinations can, upon request, be listed in the Diploma Supplement, provided they are specified in the module handbook.

(3) The teaching modules of the individual sections and the optional courses are listed in the appendix and described in detail in the module handbook. Compulsory and optional modules already taken and successfully completed in the preceding bachelor degree program may not be selected in the master program.

(4) The instruction and examination language is English. Within the subject-specific optional courses, sessions may also be conducted in German, however an English-language alternative will always be offered.

§ 6
Internship

For the master examination, an internship module with two different training sessions for a total of 22 weeks is to be completed, whereby one training session must be at least 3 months in length. The internships are for practical training and to prepare for future jobs. For this purpose, working in a business enterprise is just as suitable as that in non-university or university research institutions, provided that the activity conducted there has to do with ongoing research and development issues of the respective department and satisfies the demands made on a graduate of the master program in Molecular Life Science. The decision on this is made on an individual basis by the Examination Board.

§ 7
Master Examination and Examination Prerequisites

(1) The master examination consists of course-related subject examinations for the individual teaching modules and the master thesis with a final colloquium. Examinations in accordance with § 12 paragraph 1 in conjunction with §§ 13 ff. PVO lead to category A and B performance certificates.

(2) The application for permission to do the master thesis is, in accordance with § 11 paragraph 5 PVO, to be made separately in writing to the chairperson of the Examination Board.

(3) In principle, admission to the course-related subject examinations occurs, in accordance with § 11 PVO, with the enrollment in the Molecular Life Science master program. For admission to a subject examination, according to § 11 paragraph 2 PVO, there could be specific prerequisites defined in the module handbook which should be scheduled before beginning that module. Prerequisites must be completed and proof submitted before the time of the examination; they are not included in the module grade.

§ 8
Prerequisites for the Master Thesis

The authorization to commence work on the master thesis can only be given to those who have fulfilled the requirements according to § 11 of the Examination Regulations, are at least in the third semester and have fully completed all but one of the modules of the first two semesters and at least one training session of the Internship Module.

Appendix 1 to the Academic Regulations and Procedures for the Molecular Life Science Master Program of the University of Lübeck

The Module Catalog

1. Preliminary remarks

In the following tables, the teaching modules (LM) are listed for which performance certificates (LZF) must be earned in order to pass the master examination, divided into the various fields of study. For each teaching module the amount of average contact hours per week (SWS), the type – lecture (V), laboratory (Ü), internship (P) or seminar (S) – the number of credit points (KP) according to the European Credit Transfer System, and the type of performance certificate – category A (with a grade) or B (without a grade) – are indicated. Further details, such as learning objectives and content, the required coursework or the type of examination are described in the module handbook (MHB).

2. General instructions and rules for the selection of teaching modules

Taking into account the examination rules and regulations guidelines, students have freedom of choice concerning modules.
The following rules must be observed:

- Teaching modules cannot be counted more than once.
- Teaching modules, which have already been specified in the examination certificate or Diploma Supplement of the qualifying bachelor degree program, cannot be selected.
- Other teaching modules or module combinations may be accepted by the Examination Board if the request has been properly justified.
- Of the optional courses, only a limited number of teaching modules and only with sufficient demand can be offered in each academic year.

3. Teaching modules from the subject-specific field

Module number	Teaching modules Molecular Life Science	SWS	KP	Type LZF
LS4010-KP06	Basics of Cell and Molecular Biology for Virology	4V	**6**	**A**
LS4030-KP06	Molecular Pathomechanisms and Therapeutic Strategies	4V	**6**	**A**
LS4020-KP06	Bioanalysis (a course from A and B and another from A-D are to be selected)	4V	**6**	**A**

MZ5111-KP06 MZ5115-KP06 MZ5117-KP06	Immunology **or** Neurosciences **or** Frontiers in Metabolic Medicine Research	2V+2S	**6**	**A**
LS4110-KP06	Drug Research	4V	**6**	**A**
LS4101-KP08	Molecular Biomedicine (freedom of choice for 3 courses)	6V	**8**	**A**
MZ 4121-KP06 MZ4125-KP06 MZ4127-KP06	Infection Biology **or** Neurosciences 2 **or** Clinical Immunology 1	2V+2S	**6**	**A**
LS4131-KP04 LS4135-KP04	Membrane Biophysics **or** Protein Biophysics	2V+1Ü	**4**	**A**
LS5200-KP06	Consolidation in Molecular Life Science (choose 2 courses)	4S	**6**	**B**
LS5111-KP16	Internship MLS	24P	**16**	**A**
	Summe		**70**	

4. Teaching modules from the interdisciplinary field

Module number	Name of module	SWS	KP	Type LZF
LS4040-KP04	General Virology and Biosafety	2V+1P	**4**	**A**
MA3400-KP05 CS4440-KP05 EW4170-KP05	Biomathematics **or** Molecular Bioinformatics **or** Systems Biology	2V+2Ü	**5**	**A**
ME5050-KP05 ME5055-KP05	Biophysics of Ionizing Radiation and Radiation Safety **or** Animal Models and Animal Protection	2V+2P	**5**	**B**
PS4610-KP06	Ethics in Research and Scientific Writing Separate examinations: One examination for the Ethics in Research part and a separate one for the Scientific Writing part.	1V+1S+ 2S	**6**	**B**
	Summe		**20**	

5. Master Project

Master Project: Molecular Life Science	**KP**
LS5990-KP30 Master Thesis	**30**

Appendix 2 to the Academic Regulations and Procedures for the
Molecular Life Science Master Program
of the University of Lübeck

The following table describes the recommended course of studies.

Blue: Compulsory-, Orange: Optional-Modules

Semester	Zellbiologie, Strukturbiologie, Neurowissenschaft und Klinische Immunologie			Querschnittkompetenzen			ECTS / SWS
1.	LS4010-KP06 Basics of Cell- and Molecular Biology for Virology (Cell Biology) (Molecular Virology)		LS4030-KP06 Molecular Pathomechanisms and Strategies of Therapy	MA3400-KP05 Biomathe-matics	CS4440-KP05 Moleculare Bioinforma-tics	EW4170-KP05 System Biology	
				WP: 1 aus 3 wählen			
ECTS	6		6	jeweils 5			
V/Ü/P/S	2 / 0 / 0 / 0	2 / 0 / 0 / 0	4 / 0 / 0 / 0	jeweils 2 / 2 / 0 / 0			
	LS4020-KP6 Structure Analytics: A Crystallography B NMR-Spectroscopy C Single Molecule Methods D Microscopy: techniques and applications		MZ5111-KP06 Immunology / MZ5115-KP06 Neuroscience 1 / MZ5117-KP06 Frontiers in Metabolic Medicine Research	LS4040-KP04 Basic Virology and Biosafety			
	WP: 2 aus 4 wählen		WP: 1 aus 3 wählen				
ECTS	6		jeweils 6	4			33
V/Ü/P/S	jeweils 2 / 0 / 0 / 0		jeweils 2 / 0 / 0 / 2	2 / 0 / 1 / 0			23
2.	MZ4121-KP05 Infection Biology / MZ4125-KP05 Neuroscience 2 / MZ 4127-KP05 Clinical Immunology 1		LS4110-KP06 Drug Research (Pharmacology and Toxicology) (Rational Drug Design)	ME5051-KP05 Biophysics of Ionizing Radiation and Radiation Saftey	ME5055-KP05 Animal Models and animal protection		
	WP: 1 aus 3 wählen			WP: 1 aus 2 wählen			
ECTS	Each 6		6	jeweils 5			
V/Ü/P/S	jeweils 2 / 0 / 0 / 2		2 / 0 / 0 / 0 / 2 / 0 / 0 / 0	jeweils 2 / 0 / 2 / 0			
	LS4101-KP8 Mol. Biomedicine A, B, C, D, E, F, G		LS4131-KP04 Membrane-Biophysics / LS4135-KP04 Protein-Biophysics				
	WP: 3 aus 7 wählen		WP: 1 aus 2 wählen				
ECTS	8		jeweils 4				29
V/Ü/P/S	jeweils 2 / 0 / 0 / 0		jeweils 2 / 1 / 0 / 0				21/22
3.	LS5111-KP16 Practical Course MLS						
ECTS	16						
V/Ü/P/S	0 / 0 / 24 / 0						
	LS5200-KP06 Consolidation in Molecular Life Science [Wahlpflicht; 2 Veranstaltungen sind zu wählen]						
ECTS	6						
V/Ü/P/S	jeweils 0 / 0 / 0 / 2						
	Beginn der Master Thesis MLS						28
	6						28
4.	LS5990 Master Thesis MLS			PS4610-KP07 Ethics in Sciences / Scientific Writing			
ECTS	24			6			30
V/Ü/P/S				2 / 0 / 0 / 0	0 / 0 / 0 / 2		4
1. – 4.						ECTS SWS	120 >76

V = Vorlesung, Ü = Übung, P = Praktikum, S = Seminar, ECTS = Credit Points nach dem European Credit Transfer System, SWS = Semesterwochenstunden

LS4101- KP8: A Molecular Oncology, B Molecular Endocrinology, C Molecular Biology of the Cardiovascular System, D Tissue Regeneration, E Molecular Neurobiomedicine, F Clinical Immunology 2, G Neuroendocrinology

Pflichtmodule sind blau, Optionale Module sind orange