

Anhalt University of Applied Sciences

DEGREE PROGRAM AND EXAMINATION REGULATIONS

for obtaining the academic degree of

MASTER

for the degree program

MOLECULAR BIOTECHNOLOGY

dated **MM.TT.JJJJ**

(Part 2: Program-specific regulations)

The following degree program and examination regulations have been approved in accordance with § 67, clause 3, no. 8 and § 77, clause 2, no. 1 and § 13, clause 1 of the Saxony-Anhalt Higher Education Act (*Hochschulgesetz Sachsen-Anhalt*), version dated December 14, 2010 (GVBl. LSA no. 28/2010, p. 600) and in conjunction with the Degree Program and Examination Regulations for master's degree programs at Anhalt University of Applied Sciences (General Regulations) dated **XX.XX.XXXX** [*Datumswiedergabe im Format: MM.TT.JJJJ*] as amended.¹

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¹ To facilitate readability only the masculine form is used for denoting individuals, job titles and official office titles.

§ 1

Admission requirements and starting the program

- (1) The General Degree Program and Examination Regulations for Master's degree programs at Anhalt University of Applied Sciences apply. Admission is open to students with a university degree in biotechnology, pharmaceutical engineering, molecular biology or related fields.
- (2) Applicants must have proof that their English language proficiency is equivalent to TOEFL®/iBT score of 90 or equivalent.
- (3) Courses start on the first day of the winter semester / summer semester.

§ 2

Goals and structure of the program

- (1) One credit point according to the European Credit Transfer System (ECTS) is equivalent to a full academic workload of 25 hours.
- (2) Based on their fundamental knowledge of molecular biology and biotechnology, students enrolled in the degree program in **Molecular Biotechnology (MOB)** will acquire knowledge and skills in the field of cellular processes. This includes the analysis of such processes, the cultivation of cells and the planning and the execution of experiments for the (genetic) manipulation of cells for metabolite and protein production or as detection systems. The courses cover methods of cell culture technology, genetic engineering, genome analysis, molecular diagnostics and biotechnological production. The module courses offered in the degree program are highly focused on practical application. The individual modules are listed in Appendix 1.

In accordance with the program's academic objectives, graduates are likely to find employment in a variety of fields such as basic research in molecular biology, biotechnological production areas, the pharmaceutical industry, the food industry, research and development institutions, the environmental sector to biomedical areas including molecular diagnostics.

- (3) For obtaining the Master's degree, a minimum of 90 credit points must be earned with compulsory and elective modules (cf. Appendix 1), with the Master's thesis and Master's thesis colloquium.

§ 3

Master's degree

Once the Master's degree examination has been passed, the Department of Applied Biosciences and Process Engineering awards the academic degree

Master of Science

(M.Sc.).

The Anhalt University of Applied Sciences will also issue a certificate bearing the date of the last examination.

§ 4

Normal program length

The normal program length, including the Master's degree examination, is three semesters. Both the program sequence and the module structures (cf. Appendices 1 and 2) have been designed so that the Master's degree examination can be completed in the third semester. Examinations may also be taken earlier than stipulated.

§ 5

Credit transfer

- (1) The examinations committee may, based on a proposal submitted by the degree program advisor and, if applicable, in consultation with the person responsible for the module, approve the crediting of individual examination results in accordance with § 13 of the General Regulations. On the Master's examination certificate, the module in question is to be marked with a superscript "A" next to the module grade and a corresponding footnote reading "Examination result recognized by examinations committee or accepted non-academic competences".
- (2) No marking according to clause 1 is required if the examination prerequisite has been credited and if the graded examination has been taken in this degree program.
- (3) In cases of incomparable grading systems, the module is to be credited without a grade as 'passed'. The module is not included in the calculation of the overall grade of the Master's degree examination according to § 27 of the General Regulations.

§ 6 Types of examinations

The examinations (module completion and, if applicable, examination prerequisite) are listed in Appendix 1. The following types of examinations are used (in accordance with § 15 General Regulations)

Module completion:

K	Written examination (<i>Klausur</i>)	cf. General Regulations, § 15, clause 4
M	Oral examination (<i>mündliche Prüfung</i>)	cf. General Regulations, § 15, clause 5
PRO	Project	cf. General Regulations, § 15, clause 10
H	Term paper (<i>Hausarbeit</i>)	cf. General Regulations, § 15, clause 6
E/B	Design concept/paper (<i>Entwurf/Beleg</i>)	cf. General Regulations, § 15, clause 7
R	Research paper on an assigned topic (<i>Referat</i>)	cf. General Regulations, § 15, clause 8
Ex	Experiment description (<i>experiment. Arbeit</i>)	cf. General Regulations, § 15, clause 9
P	Presentation	cf. General Regulations, § 15, clause 11
C	Colloquium	cf. General Regulations, § 15, clause 15 and § 33
oP	Module completion without examination/grade (<i>Abschluss ohne Prüfung/Note</i>)	cf. General Regulations, § 2, clause 2

Examination prerequisite:

LNW	Ungraded Assessment (<i>Leistungsnachweis</i>)	Module description handbook stipulates type and scope of assessment
TN 80	Proof of attendance 80% (<i>Teilnahmenachweis 80%</i>)	

§ 7

Registration for and admission to Master's thesis

- (1) As a rule, the application for admission to the Master's thesis is to be submitted to the examinations committee by the end of the 2nd (= last but one) semester. Admission will be denied if, at the time of application, more than three modules of the total number of modules to be completed have not been successfully passed.
- (2) The examination committee grants admission and confirms the topic of the Master's thesis according to § 29 of the General Regulations.

Curriculum and examination schedule for the degree program Molecular Biotechnology

The curriculum specifies the number and allocation of the modules for each individual semester within the normal program length and the number of credits required. Parts of the Master's degree examination entail both compulsory and elective module examinations, the Master's thesis and the Master's thesis colloquium. Examination requirements are the prerequisites according to this appendix.

Semester	Hours per week per semester 15 weeks			Examination prerequisites	Type of examination	Length of examination	Credits	
	V	Ü	P					
1st semester								
Compulsory modules								
Special Methods in Cell Culture and Tissue Engineering	2	0	2	LNW	K	90 min	5	
Genetics and Advanced Genetic Engineering	2	0	2		K	90 min	5	
Cellular Signal Transduction	0	3	1	LNW	M	30 min	5	
Project Work 1	0	0	4		PRO		5	
2nd semester								
Compulsory modules								
Pharma Biotechnology	3	1	0		M	30 min	5	
Recombinant Protein Production	2	1	0		K	90 min	5	
Project Management	2	2	0		M	30 min	5	
Project Work 2	0	0	4		PRO		5	
3rd semester								
Master's thesis					§ 30	H	25	
Master's thesis colloquium					§ 32	C/P	45 min	5
Degree program total							90	
Elective modules (4 are to be chosen in total)								
"OMICS" Technologies	2	1	0		K	90 min	5	
Enzyme development	2	1	0		K	90 min	5	
Ethics in Life Sciences	2	1	0	TN 80	H		5	
Molecular Diagnostics	2	0	1	LNW	K	90 min	5	
Next Generation Sequencing, Databases and Bioinformatics	3	0	1	LNW	K	90 min	5	
Vaccines	2	1	0	LNW	M	30 min	5	
Project Work 3	0	0	4		PRO		5	

<u>Module completion:</u>	K	Written examination	<u>Examination prerequisite:</u>	LNW	Ungraded Assessment
	M	Oral examination		TN 80	Proof of attendance 80%
	PRO	Project			
	H	Term paper			
	E/B	Design concept/paper			
	R	Research paper on an assigned topic			
	Ex	Experiment description			
	P	Presentation			
	C	Colloquium			
	oP	Module completion without examination/grade			

<u>Course types:</u>	V	Lecture (<i>Vorlesung</i>)
	Ü	Practical course (<i>Übung</i>)
	P	Lab/studio class (<i>Praktikum</i>)

Standard course progression²

1st semester	(15) weeks - lectures, practical courses, lab/studio classes, excursions	(4) weeks internships, practical courses, projects, excursions - examinations	30 Credits
2nd semester	(15) weeks - lectures, practical courses, lab/studio classes, excursions	(4) weeks internships, practical courses, projects, excursions - examinations	30 Credits
3rd semester	20 weeks - Master's thesis and colloquium		30 Credits

Module examinations should ideally be scheduled during designated examination period and may also take place during term time.

Module names English-German

Module names - English	Modul names - German
CM 1 Special methods in cell culture and tissue engineering	<i>PM 1 Spezielle Methoden in Zellkultur und Tissue Engineering</i>
CM 2 Advanced genetics and genetic engineering	<i>PM 2 Genetik und Gentechnik für Fortgeschrittene</i>
CM 3 Cellular signal transduction	<i>PM 3 Zelluläre Signaltransduktion</i>
CM 4 Pharmaceutical biotechnology	<i>PM 4 Pharmabiotechnologie</i>
CM 5 Recombinant protein production	<i>PM 5 Rekombinante Proteinproduktion</i>
CM 6 Project Management	<i>PM 6 Projektmanagement</i>
CM 7 Project work 1	<i>PM 7 Projektarbeit 1</i>
CM 8 Project work 2	<i>PM 8 Projektarbeit 2</i>
EM 1 "OMICS" technologies	<i>WPM 1 "OMICS"-Technologien</i>
EM 2 Enzyme development	<i>WPM 2 Enzymentwicklung</i>
EM 3 Ethics in the life sciences	<i>WPM 3 Ethik in den Lebenswissenschaften</i>
EM 4 Molecular diagnostics	<i>WPM 4 Molekulare Diagnostik</i>
EM 5 Next Generation sequencing, databases and bioinformatics	<i>WPM 5 Next Generation Sequenzierung, Datenbanken und Bioinformatik</i>
EM 6 Vaccines	<i>WPM 6 Vakzine</i>
EM 7 Project work 3	<i>WPM 7 Projektarbeit 3</i>

² To be adapted according to the normal program length. Generally, the 15+3-weeks cycle applies, the exception being cooperative degree programs in cases of individual semesters affected by internships.