

The Departmental Council of the Department of Biology at Philipps-Universität Marburg adopted the following Degree Program and Examination Regulations in accordance with §50(1) Hesse Higher Education Act (HessHG), as amended on 14 December 2009 (Law Gazette of the State of Hesse (GVBl.) I No. 22/2009, p. 666), last amended by Article 1 of the Act of 14 December 2021 (GVBl, p. 931) on 15 February 2023:

Degree Program and Examination Regulations

for the program in

“Molecular Biotechnology”

leading to the degree of

“Master of Science (M.Sc.)”

at Philipps-Universität Marburg

15 February 2023

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I. General

§1 Scope

These Examination Regulations supplement the General Regulations for Master's Degree Programs at Philipps-Universität Marburg of 13 September 2010 (Official Bulletin of Philipps-Universität Marburg, No. 52/2010), as amended from time to time – hereinafter referred to as the General Regulations – and regulate the objectives, content, structure and organization of the degree program as well as the requirements and procedures for the examination grades in the degree program “Molecular Biotechnology” with the degree “Master of Science (M.Sc.)”.

§2 Goals of the degree program

(1) Graduates of the master's program in Molecular Biotechnology have acquired advanced theoretical and methodological expertise in several subfields from the range of subjects of the Molecular Biotechnology degree program, building on the knowledge acquired in a biology-oriented bachelor's program.

(2) In addition to a deepening of the ability to work systematically and scientifically and the training of logical and analytical thinking, graduates have learned, in particular, independent research-oriented work. They are thus ideally trained for activities in application and development-oriented professional fields of the chemical-pharmaceutical industry.

Graduates of the degree program in Molecular Biotechnology

- possess in-depth molecular, microbiological and cell biological knowledge of the structure and function of biological macromolecules and cellular systems, which are important for biotechnological research and application,
- are familiar with very specific subject matter in individual subfields of molecular and cellular biotechnology,
- know state-of-the-art methods and working techniques, focusing on molecular, microbiological and cell biological methods,
- are familiar with applications of the theoretical and methodological foundations of bioinformatics, which are important for molecular biology, and are trained in the use of databases,
- have specific knowledge of upstream processing and downstream processing of biotechnological processes,
- know the applications of the processes important for the development, production and marketing of biotechnological products
- are capable of scientific work, i.e.: They are able to identify complex practical and/or scientific problems and develop strategies to solve them independently,
- are capable of collaborative, problem-oriented work with representatives of different fields and disciplines,
- can assess their actions in terms of social, economic and environmental impacts.

§3 Master's degree

(1) The master's degree examination is passed if all modules provided for in accordance with §6 have been passed.

(2) After successful completion of the degree program in accordance with paragraph 1, the Department of Biology awards the academic degree Master of Science (M.Sc.).

II. Program-related regulations

§4 Access requirements

(1) The general admission requirement for the master's degree program is the proof of completion of a relevant bioscience-oriented bachelor's degree program or the proof of a comparable national or foreign university degree that qualifies for professional purposes.

The professional bachelor's degree or comparable national or foreign university degree must have provided qualifications in biological disciplines. It must include proof at least 30 credits (Leistungspunkte, LP) in subjects that are found in the range of subjects in the basic, advanced and specialization modules of the bachelor's program in Biology at Philipps-Universität Marburg. In addition, at least 12 credits in the associated subjects of mathematics and physics, which impart methodological competence, must be demonstrated in the degree program completed.

If no degree certificate with an overall grade is available by the application deadline, enrollment may be conditional. The prerequisite for an underlying bachelor's degree with a scope of 180 credits is that proof of passed module examinations or partial module examinations to the extent of at least 80% of the credits required for the bachelor's degree in question is provided. The proof must contain an average grade which has been determined on the basis of the graded module examinations and partial module examinations within the scope of the proven 80% of the credits required for the bachelor's degree. Enrollment can only take place under the proviso that all coursework and examination grades of the bachelor's degree have been completed before the start of the master's degree (deadline 31 March if the master's degree program starts in the summer semester or deadline 30 September if the master's degree program starts in the winter semester) and that proof of the degree certificate is provided by the end of the lecture period of the first subject semester.

(2) The aptitude assessment committee appointed by the departmental council (Fachbereichsrat) pursuant to §3 Appendix 5 "Special admission requirements" will decide on the question of the subject-specific relevance of the previous degree program (Vorstudium) as defined in paragraph 1.

(3) The aptitude assessment committee appointed by the departmental council in accordance with §3 Appendix 5 "Special admission requirements" decides on the question of the comparability of the university degree within the meaning of paragraph 1.

(4) In addition, sufficient knowledge of the English language (at least level C1 in accordance with the Common European Framework of Reference for Language) must be demonstrated, which qualifies students to participate in the English-language degree program.

(5) The special access requirements are set forth in Appendix 5.

(6) In addition to the general admission requirements for the degree program, participation in individual modules or parts of modules may be made dependent on the fulfillment of specific module admission requirements.

In this case, the prerequisites are listed in the module list (Appendix 2) under "Prerequisites for Participation".

§5 Academic advising

(1) General academic advising is provided by the Central Academic Advising Service (Zentrale Allgemeine Studienberatung, ZAS) at Philipps-Universität Marburg. Subject-

specific academic advising is usually provided by the professors or by authorized persons.

(2) In organizational questions, the program advisers for the degree program in Molecular Biotechnology and the Biology Examination Office provide advice.

§6 Degree program: structure, contents, curriculum and information

(1) The master's degree program in Molecular Biotechnology is divided into the study areas Advanced, Specialization, Practical and Graduation.

(2) The degree program consists of modules that are assigned to the various study areas in accordance with paragraph 1. The program structure is as follows based on module assignments, the degree to which they are required, and the student's calculated workload in credits (Leistungspunkte, LP):

	<i>Compulsory course (Pflicht, PF) / Compulsory elective course (Wahlpflicht, WP)</i>	<i>Credits (Leistungspunkte, LP)</i>	<i>Comment</i>
Advanced		60	
Main topics in molecular biotechnology	PF	12	
Technologies and methods: bioanalytics and chemical analytics	PF	6	
Technologies and methods: cell engineering and analytics	PF	6	
Technologies and methods: computational biology	PF	6	
Management and business ¹⁾	PF	6	
Biotechnological production	WP	12	
Bioprocess engineering ²⁾	WP	6	2 of 3
Enzyme production and strain development in bioprocess engineering ²⁾	WP	6	
Bioanalytics import module as per Appendix 3 ²⁾	WP	6	
<i>Import modules in accordance with Appendix 3: Import module list</i>	WP	0-12	
Specialization		12	
Research project	PF	12	
Practical		18	
Internship	PF	18	
Graduation		30	
Master's thesis ³⁾	PF	30	
Total		120	

¹⁾ The module "Management and Business" is a commissioned module of the Department of Economics (Dept. 02) at Philipps-Universität Marburg.

²⁾ The modules "Bioprocess Engineering", "Enzyme production and strain development in bioprocess engineering" and "Bioanalytics" form the set of compulsory electives in "Process engineering in biotechnology" from which students must take modules totaling 12 credits.

³⁾ The master's thesis should be prepared in the subject area in which the specialization module was also completed.

(3) In the Advanced area of study, students acquire further knowledge in several subdisciplines from the range of subjects of the course, building on the basic knowledge of the previous bachelor's degree program. In doing so, they fundamentally expand their theoretical and methodological competence spectrum, gain insights into current research fields and expand their skills for the presentation and critical discussion of research results in English.

(4) In the specialization area of study, students acquire the prerequisites under guidance that they need in the course of the subsequent master's thesis for the largely independent processing of a defined research topic. In addition to specific theoretical foundations and (sometimes complex) working methods of the respective subject area, they learn to critically evaluate their own results, to place them in relation to independently researched background literature and to discuss them with expertise.

(5) The Practical area of study serves as a vocational orientation and can be completed at national and international, university and profession-specific non-university institutions. Graduates of the program receive insights into various occupational fields and organizational structures within the pharmaceutical and biotechnology industry, but also into the working methods of academic research and teaching with molecular biological and biotechnological foci.

(6) The degree program is more research-oriented.

(7) The example sequence of the modularized studies is shown in the degree program plan (cf. Appendix 1).

(8) General information and regulations in their current form are available on the course-related website at

<https://www.uni-marburg.de/de/fb17/studium/master/msc-molecular-biotechnology>

In particular, the module handbook and the degree program curriculum can be viewed there. Furthermore, a list of the current import and export opportunities for the degree program is published there.

(9) The assignment of the individual courses to the modules of the degree program can be seen in the course catalog of Philipps-Universität Marburg, which is available on the homepage of the university.

§7 General standard period of study and start of studies

(1) The standard period of study for the master's degree program in molecular biotechnology is 4 semesters. On the basis of these Degree Program and Examination Regulations, the department will ensure a range of courses enabling students to complete all of the work required to pass the degree program, including preparing the master's thesis, within the general standard program duration.

(2) The degree program can be started only during the winter semester.

§8 Study abroad

(1) A voluntary study abroad of one semester can be integrated into the degree program without extending the study period. The 2nd or 3rd semester is provided for this. The modules planned for this period in accordance with the degree program curriculum (Appendix 1) are particularly well suited to be completed at foreign universities and are recognized for your degree program at Philipps-Universität Marburg.

(2) The study abroad advisory service of your department advises on various target universities and on internship opportunities abroad, the subject requirements, recognition opportunities and funding options in consultation with the study advisor for

the study program in Molecular Biotechnology as well as the departments at Philipps-Universität Marburg responsible for studying abroad.

(3) Students will conclude a learning agreement with their department and the foreign host university prior to their stay abroad. The degree program to be completed abroad as well as the credits to be earned upon successful completion of a module or course must be specified in this kind of learning agreement. The students will agree to complete the agreed degree program at the host university as an integral part of their studies and the department will recognize the credits earned. The learning agreement is binding on the parties involved. To conclude a learning agreement, it is essential that the targeted learning outcomes and skills largely coincide. It is not necessary that the content be the same.

(4) In justified exceptional cases, the learning agreement can be modified or adapted before and during the stay abroad at the request of the student in agreement with the department. The consent of the foreign host university is also required.

(5) Departures from the commitments made in the learning agreement will be permitted after the fact only if they are not the student's fault and appropriate documentation is provided.

§9 Structural variant of the degree program

The master's degree program in Molecular Biotechnology corresponds to the structural variant of a "one-subject degree program".

§10 Modules and credits

The rules under §10 General Regulations apply.

§11 Practical modules and profile modules

(1) Within the framework of the master's program in Molecular Biotechnology, a practical module is provided in accordance with §6 of these Degree Program and Examination Regulations. The practical module can be perceived as an internal or external practical module. If students do not find an external internship position despite their efforts, an external internship can be replaced by an internal internship at the Department of Biology or Department of Chemistry at Philipps-Universität Marburg.

In addition to the module handbook, more detailed provisions for the implementation of external practical modules are made by the internship regulations.

(2) In all other respects, the provisions of §11 General Regulations will apply.

§12 Module and course registration and module and course deregistration

(1) Modules or events generally require a binding registration.

Applications within the meaning of clause 1 may be provided as an implicit examination application. With the binding registration, an implicit registration for courses and/or examinations takes place.

(2) The registration and deregistration procedure as well as the registration and deregistration deadlines will be announced in a timely fashion on the degree program-related website in accordance with §6(8). In the event of limited capacity, module or course placements are allocated in accordance with §13 of these Degree Program and Examination Regulations.

§13 Access to compulsory elective modules or courses with limited participation options

(1) Registration caps may be set for compulsory elective modules and courses by means of a departmental council resolution, provided that this is absolutely necessary for the implementation of orderly teaching and degree program operations and for the achievement of the educational objective. Whenever the number of participants is fixed, this will be announced in an appropriate manner and in a timely fashion before the start of the compulsory elective module or course.

(2) For a compulsory elective module or a course with limited capacity, there is no entitlement to participate provided that there is open capacity to take at least one other alternative compulsory elective module or course.

(3) If the number of registrations for a compulsory elective module or course exceeds the number of available places, a selection must be made.

The selection will be conducted by lot.

In any case, it must be ensured that, within the framework of the available capacities, hardship cases are considered in advance, in particular those within the meaning of §26(1) and (2) (Priority Group 1) and students with a special interest in participation (Priority Group 2). A special interest exists in particular for students:

- for whom the required elective module or course is required due to an internal specialization,
- who did not receive a place in a previous semester despite having registered, even though the degree program curriculum provided for the compulsory elective module,
- who previously did not pass the compulsory elective module or course, if repeating the module or course is required to retake the examination.

If, in individual cases, the available places are not sufficient for consideration of the two priority groups, students from Priority Group 1 must have priority registration; within each group, the decision is then made by drawing lots.

§14 Application of modules across degree programs

(1) Modules are planned that are based on the provisions of other degree programs (“import modules”) in terms of what they offer and their examination rules. More detailed information on these modules is summarized in Appendix 3.

(2) Modules offered in the master’s program in Molecular Biotechnology, which can also be completed in the context of other programs, are subject to the provisions of §20(4) of these Degree Program and Examination Regulations as well as §14(2) of the General Regulations.

§15 Academic grades

§15(1) General Regulations apply.

III. Examination-related provisions

§16 Examination committee

(1) The departmental council will appoint the examination committee.

(2) The members of the examination committee will consist of:

1. three members from among the professors,
2. one research assistant and
3. one member from among the students.

One substitute member will be elected for each member.

(3) The term of office, the chairship, the quorum and other aspects are governed by §16 of the General Regulations.

§17 Duties of the examination committee and examination administration

The rules under §17 General Regulations apply.

§18 Examiners and observers

The rules under §18 General Regulations apply.

§19 Recognition of academic grades and examination results

The rules under §19 of the General Regulations apply.

§20 Module list, import and export module list and module manual

(1) The modules to be completed as part of the degree program are summarized in the module list (Appendix 2) and in the list of import modules (Appendix 3). These lists as well as §6 provide the type of modules, their allocation to the various areas of the degree program, choices among modules and within modules, the prerequisites for participation in the modules as well as the credits to be earned, the form of examination, assessment and the expertise objectives. In the case of import modules, the original module lists of the offering degree program provide this information.

(2) The offer of import modules is subject to the provision that changes to the modules can be made by the offering academic units (e.g. in particular using accreditations). This does not require an amendment to these Degree Program and Examination Regulations. Such changes will be announced by the examination committee in a timely fashion on the program website. In addition, the examination committee may decide that in general or in individual cases upon a justified petition, additional modules may be allowed as import modules, provided that the offering department or institution agrees to this.

(3) Further information with detailed module descriptions as well as the current range of import modules will be published in a module handbook on the program website.

(4) The export modules are summarized in Appendix 4.

§21 Examinations

The rules under §21 General Regulations apply.

§22 Examination types and durations; test taking times; scopes

(1) Written examinations will take the form of:

- Written examinations (*Klausuren*), which may also be conducted in whole or in part as e-examinations (in accordance with Appendix 6 of the General Regulations) and in whole or in part as written multiple-choice examinations ("answer-choice examinations"; in accordance with Appendix 8 of the General Regulations).
- Project reports
- Internship reports
- Written analyses
- Test reports
- The master's thesis

(2) Oral examinations will take the form of:

- Presentations

Oral examinations may be conducted as electronic distance examinations in accordance with the Statutes for the Conduct of Electronic Distance Examinations of Philipps-Universität Marburg dated 12 October 2022, as amended.

(3) Additional examination forms include:

- Project proposals
- Posters

(4) The following durations or test-taking times and scopes are assigned to the examination forms mentioned above. In the case of written examinations that are not conducted under supervision, the total time available to take the tests should be longer. The duration of the individual examinations is 60 to 120 minutes for exams and 20 to 30 minutes for presentations (per student). Project reports, written papers and test reports include 5 to 30 pages with a processing time of up to four weeks. The scope of internship reports is usually 10-12 pages with a processing time of up to two weeks per completed four weeks of internship. The master's thesis consists of 25 to 70 pages per student. The working time for a poster is up to 2 weeks. The scope of a project proposal usually comprises 5 to 30 pages with a processing time of up to four weeks.

(5) The corresponding regulations of the Degree Program and Examination Regulations for the degree programs from which the modules are imported, as amended, will apply to the import modules in accordance with Appendix 3 or the examinations provided for in that appendix.

(6) Multimedia-based written examinations ("e-examinations") will take place in accordance with the provisions in the General Regulations, Appendix 6.

(7) Multiple-choice examinations will take place in accordance with the provisions in the General Regulations ("answer-choice examinations"), Appendix 8.

(8) In all other respects, the provisions of §22 General Regulations will apply.

§23 Master's thesis

(1) The master's thesis (graduation paper) is a mandatory component of the degree program. It forms a standalone graduation or final module. The master's thesis must be done in English.

(2) The master's thesis is an examination paper with which the candidate is to demonstrate the ability to independently work on a defined problem within a specified period of time from the subject area of the range of subjects of molecular, synthetic, cellular and technological biology that is eligible for the degree program according to scientific methods. It aims to ensure the candidate

- has acquired practical and methodological skills in the application of techniques from the subject area of the course,
- can engage in scientific argumentation,
- can adequately present and interpret scientific results,
- has acquired the ability to independently learn new, complex questions based on literature and to apply the acquired knowledge to the current state of the art in research.

The scope of the master's thesis is 30 credits.

(3) The master's thesis may be prepared as an individual thesis or in exceptional cases approved by the examination committee, as a group thesis. In this case, the

contribution of the individual candidate to be assessed as an examination performance must be clearly distinguishable and assessable on the basis of the specification of sections, page numbers or other criteria that allow a clear differentiation.

(4) Permission to start the master's thesis requires that at least 72 credits have been earned in modules of the degree program.

(5) The candidate will propose an adviser and a reviewer authorized as examiner as the first reviewer for the master's thesis. The candidate also has the right to propose the second reviewer. The adviser and the first reviewer may be the same person. These proposals do not establish an entitlement. The first reviewer must be appointed by the examination committee for the examination of master's theses. The topic of the master's thesis is submitted to the examination committee by the first reviewer and assigned by the examination committee. If the candidate does not find an adviser and a first reviewer, the chair of the examination committee will appoint the adviser and the first reviewer and ensure that a topic for the master's thesis is issued in a timely fashion.

(6) The master's thesis must be completed within a thesis-writing period of 6 months. The topic of the thesis must be such that it can be written within this period. An extension of the thesis-writing time up to a maximum of 20% (e.g. due to unforeseen problems in obtaining literature or data) is possible upon justified petition by the candidate; this does not lead to the award of additional credits. The thesis-writing time begins upon issuances of the topic; the issue date must be recorded. The topic should be issued in a timely manner such that, even if an extension of the thesis-writing time is granted, there is no extension of the program duration.

(7) The master's thesis must be submitted in a timely fashion to the examination committee or to an office designated by it in 3 printed copies as well as in digital form in accordance with the specifications of the examination committee. The time of submission must be recorded in the records. When submitting the thesis, the candidate must give written assurance that he or she wrote the thesis independently and did not use any sources or aids other than those indicated. If the master's thesis is not submitted on time, it will be graded as "insufficient" (0 points) in accordance with §28(2) of the General Provisions.

(8) The master's thesis is not passed if the overall grade is not at least 5 points ("sufficient") in accordance with §28(2) General Regulations; it can be repeated once. The examination committee will ensure that the candidate receives a new topic within six weeks of notification of the failure. A return of the topic within the period specified in §23(7)(1) of the General Regulations is permitted only if the candidate did not make use of this option when writing the master's thesis for the first time. A second repetition of the master's thesis is excluded.

(9) Grade compensation for a failed master's thesis is not permitted.

(10) Otherwise, the regulations of §23 General Regulations will apply.

§24 Examination dates, examination registration and examination deregistration

(1) The examination committee will announce the periods of examinations and repeat examinations. Dates for written examinations (*Klausuren*) and other examination dates that are equally valid for all participants of a module are announced in the course catalog. Examination dates to be agreed upon individually (such as presentations) will be listed in the course catalog with the note "n. V." (by arrangement).

(2) Examinations will be administered within the framework of the respective module courses or immediately thereafter. If examinations take place after module courses, they should generally be offered in a two- to three-week examination period at the end of the lecture period or at the beginning or end of the subsequent lecture-free period. As a rule, written examinations (*Klausuren*) should take place on the same day of the week and at the same time as the corresponding module course. The examiner should also provide for the preparation of examinations, such as term papers, during the lecture-free period.

(3) For the repetition of examinations, the first repetition date will be set in such a way that, in the case of successful participation, continued study in the following semester is guaranteed.

(4) Binding registration is required for participation in an examination. The examination committee will announce the deadlines and the form of registration in an appropriate manner no later than 4 weeks before the start of the registration period. Permission to take the examination will be denied if the registration deadline is not met or if examination permission requirements are not met.

(5) A binding examination registration can be withdrawn without giving reasons, provided that this is done within the deadline set for this by the examination committee. These deadlines as well as the format for the withdrawal will be announced together with the corresponding regulations for registration.

(6) Upon application with justification to the examination committee, alternative dates will be set for examinations that cannot be taken due to limitations on work for religious reasons. Proof of membership in the appropriate religious community must be submitted with the application. The application must be submitted no later than four weeks before the examination date.

(7) In the case of a failed examination, an application will be made ex officio for the next available date. §27 remains unaffected by this.

§25 Time requirements to earn credits

The rules under §25 of the General Regulations apply.

§26 Family support, accommodations for hardships and informal part-time study

(1) In courses and examinations, consideration must be given to the stress caused by pregnancy and raising children, by caring for relatives in need, and by a student's disability or chronic illness. The type and severity of the hardship must be demonstrated by the student(s) in a timely fashion to the person responsible for the event or to the chair of the examination committee using appropriate documents. In cases of doubt, the examination committee will decide upon written petition. In cases of illness, the examination committee may require a medical certificate from a public health officer. It must be made possible for students to utilize statutory maternity protection periods and parental leave.

(2) If a student can credibly demonstrate that he or she is unable to take the examination in whole or in part in the scheduled form due to a disability, a chronic illness, the care of dependents in need, pregnancy, or the raising of children, the examination committee will provide accommodations for these by taking appropriate measures, such as an extension of the test-taking time or a different arrangement of the examination procedure.

(3) In accordance with the applicable legal regulations, the degree program may, upon petition, be conducted in whole or in part as an informal part-time program. In the case of an approved informal part-time study, there is no entitlement to the provision of special teaching and study opportunities. In all cases, academic advising is strongly recommended before initiating informal part-time study.

§27 Absence, withdrawal, fraud, violation of regulations

(1) Coursework will be deemed failed, or an examination will be graded as “insufficient” (0 points) in accordance with §28(2) of the General Regulations if the candidate misses an examination date that is binding on him or her without good reason or if he or she withdraws without good reason from a course or examination which he or she has already started. The same applies if a course or examination is not completed within the specified completion time.

(2) Notice of the cause asserted for the failure or withdrawal must be given in writing without delay and must be credible. In the case of illness, a medical certificate must be submitted. The examination results already available will be recognized in this case.

(3) If a candidate attempts to influence the result of a course or examination by deception or the use of unauthorized aids, the course or examination in question will be deemed failed (“nicht ausreichend”, 0 points) in accordance with §28(2) of the General Regulations. A candidate who disrupts the proper performance of a type of coursework or an examination may be excluded from continuing the performance of the type of coursework or examination by the respective examiner or supervisor; in this case, the respective coursework will also be deemed failed, or the examination will be graded as “insufficient” (“nicht ausreichend”, 0 points) in accordance with §28(2) of the General Regulations. In serious cases, the examination committee can exclude the candidate from taking further examinations such that the examination entitlement in the degree program expires.

(4) Decisions in accordance with paragraphs 1 to 3 must be communicated to the candidate in writing without delay, they must be substantiated and they must be accompanied by instructions on how to appeal.

§28 Grading and grade composition

The rules under §28 General Regulations apply.

§29 Nonbinding examination option

There is no provision for a nonbinding examination option.

§30 Repeating examinations

(1) Passed examinations cannot be repeated.

(2) Examinations that have not been passed may be repeated twice.

(3) The one-time change of an elective module that has not been successfully passed is permissible.

(4) §23(12)(1) and (2) General Regulations (Master’s thesis) and §21(3)(4) General Regulations (balanced partial module examinations) remain unaffected.

§31 Loss of the right to take the examination and final non-passing

(1) The right to take examinations in the degree program for which the student is enrolled is definitively lost in particular if

1. an examination has not been passed after exhausting all repetition attempts, unless it is an examination in a module pursuant to §30(3);
2. there has been a serious case of deception pursuant to §27(3)(3).

(2) A notice of final failure and the associated loss of the right to retake the examination will be issued, which will be accompanied with instructions on how to appeal.

§32 Invalidity of examination results

The rules under §32 General Regulations apply.

§33 Certificate

The rules under §33 General Regulations apply.

§34 Diploma (Urkunde)

The rules under §34 General Regulations apply.

§35 Diploma supplement

The rules under §35 General Regulations apply.

§36 Transcript of records and complete grade record

The rules under §36 General Regulations apply.

IV. Final provisions

§37 Inspection of the examination documents

The rules under §37 General Regulations apply.

§38 Entry into force and transitional provisions

(1) These regulations come into force on the day after their publication in the Official Bulletin of Philipps-Universität Marburg.

(2) These Degree Program and Examination Regulations will apply to all students who commence their studies from the winter semester 2023/24.

Marburg, 17 April 2023

signed

Prof. Dr. Robert Junker
Dean of the Department of Biology
at Philipps-Universität Marburg

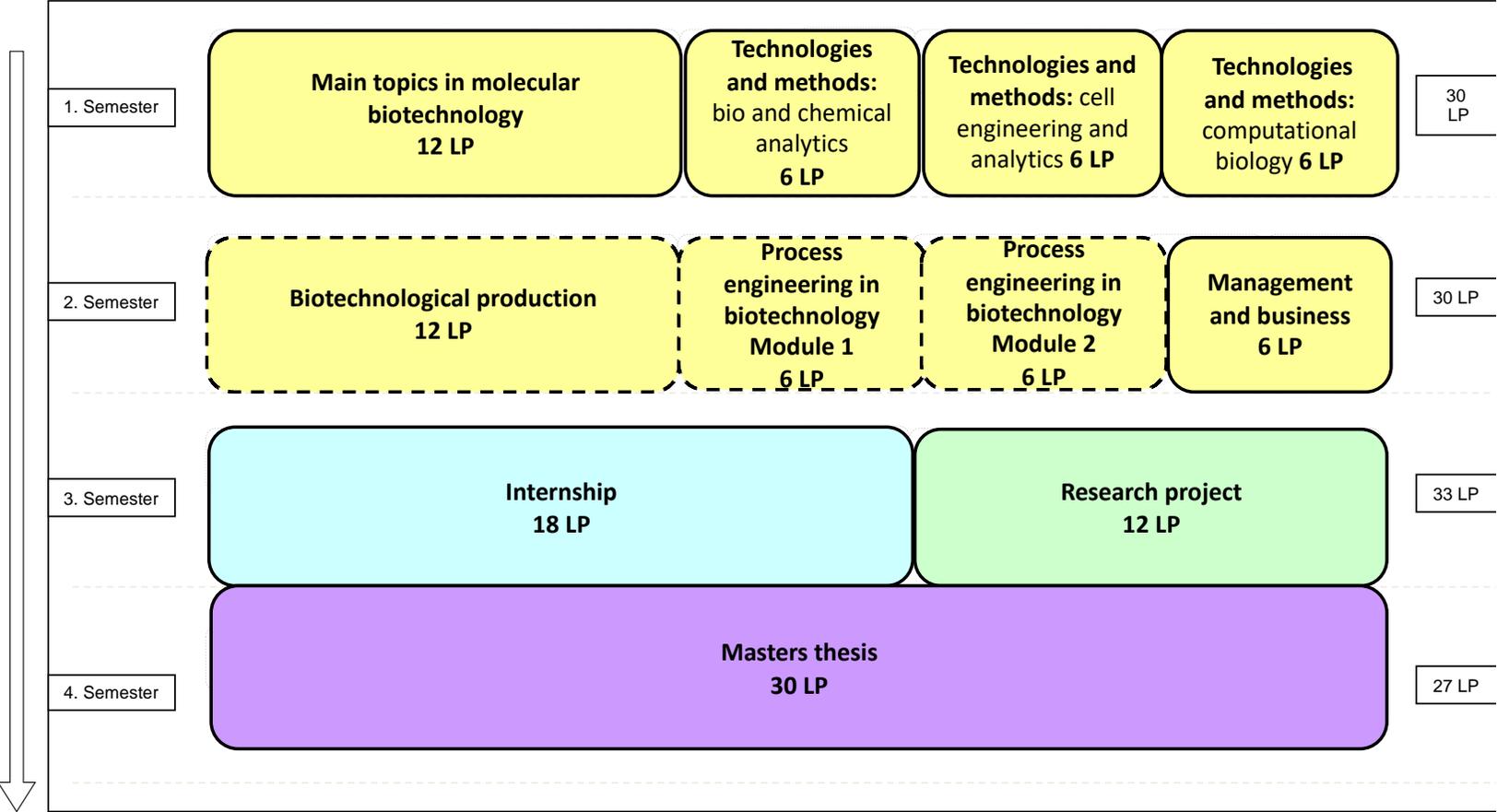
Appendix 1: Example degree program curriculum

Exemplarischer Studienverlaufsplan

Curriculum Molecular Biotechnology: Masterstudiengang
 Beginn nur zum Wintersemester

Legende

	Basis	Aufbau	Vertiefung	Praxis	Abschluss	Profil
Pflichtmodule	 	 	 	 	 	
Wahlpflicht	 	 	 	 	 	



Appendix 1: Example degree program curriculum	Appendix 1: Example degree program curriculum
Example degree program curriculum	Example degree program curriculum
<i>Curriculum Molecular Biotechnology:</i> Master's degree program begins only in winter semester	<i>Curriculum Molecular Biotechnology:</i> Master's degree program begins only in winter semester
Legend	Legend
Compulsory module	Compulsory module
Compulsory Elective	Compulsory Elective
Basic	Basic
Advanced	Advanced
Specialization	Specialization
Practice	Practice
Profile	Profile
Degree	Degree
1. Semester	1. Semester
Main topics in molecular biotechnology 12 LP	Main topics in molecular biotechnology 12 LP
Technologies and methods: Bioanalytics and Chemical Analytics 6 LP	Technologies and methods: Bioanalytics and Chemical Analytics 6 LP
Technologies and methods: Cell Engineering and Analytics 6 LP	Technologies and methods: Cell Engineering and Analytics 6 LP
Technologies and methods: Computational Biology 6 LP	Technologies and methods: Computational Biology 6 LP
30 LP	30 LP
2. Semester	2. Semester
Biotechnological production 12 LP	Biotechnological production 12 LP
Process Engineering in Biotechnology Module 1, 6 LP	Process Engineering in Biotechnology Module 1, 6 LP
Process Engineering in Biotechnology Module 2, 6 LP	Process Engineering in Biotechnology Module 2, 6 LP

Management and Business 6 LP	Management and Business 6 LP
30 LP	30 LP
3. Semester	3. Semester
Internship 18 LP	Internship 18 LP
Research Project 12 LP	Research Project 12 LP
33 LP	33 LP
4. Semester	4. Semester
Master's Thesis 30 LP	Master's Thesis 30 LP
27 LP	27 LP

Appendix 2: Module list

Name of module	LP	Degree of obligation	Level	Qualification goals	Prerequisites for participation	Prerequisites to earn credits (LP)
Advanced						
Main topics in molecular biotechnology	12	Compulsory module	Advanced	After completing the module, students will have comprehensive theoretical knowledge of technologies for the purification, synthesis, analysis and modification of biological metabolites, macromolecules, metabolic pathways and the genetic manipulation of cells. Furthermore, they are able to conduct independent literature searches and to give a presentation on scientific publications in English. This prepares them for active participation in meetings.	None	<i>Module exam</i> Written exam
Biotechnological production	12	Compulsory Elective	Advanced	After successfully completing this module, students will have a detailed overview of the quality and qualification requirements for biotechnological drugs, the associated diverse scientific, technological, and regulatory requirements for research and development work. In particular, an understanding of the differences, contents and requirements that exist in the biotechnological industry – extending beyond the academic, scientific and basic knowledge taught at the university – should be given to the students here. This enables students to relate the relevance of academic education (here biotechnology) to scientific development and documentation in industrial research and development. Students are also empowered to recognize the complex relationships and high demands on science, technology, education, and product and process quality for the successful development and approval of biotechnological drugs. Finally, the important networking of primary biotechnological activities with other	None	<i>Partial module examinations</i> 1. Presentation or poster or written analysis (6 LP) and 2. Written examination (<i>Klausur</i> , 6 LP)

				<p>essential fields of work and requirements within biotechnological product chains and the resulting individual communicative, interpersonal and intercultural competencies are taught.</p> <p>After completing the module, students will have basic knowledge of manufacturing and quality assurance requirements in the pharmaceutical industry. This module also enables the participants to find their way through the acquired knowledge in the later environment of a pharmaceutical company and to classify and connect the processes within the company.</p> <p>The course provides students with a broad overview of various aspects of industrial biotechnology. In addition to classic applications, they also know the latest biotechnological approaches. In particular, the students will have learned about the path from idea to product using selected examples. The module introduces the important topics of the use of renewable raw materials, the circular economy, and the contribution of biotechnology to avoiding greenhouse gases. In addition, the module provides an impression of the diverse tasks and corresponding job profiles in the field of industrial biotechnology.</p>		
Technologies and methods: Bioanalytics and Chemical Analytics	6	Compulsory module	Advanced	<p>After completing the module, students will have basic theoretical and practical knowledge of a self-chosen range of methods in biological and chemical analysis. Building on the previous individual training, the participants have expanded their range of methods precisely to fit their needs. They can use the acquired methodological knowledge to plan and prepare practical experiments and apply them with expertise. They are able to analyze, critically evaluate and document the results of the tests they have obtained. They can work on scientific facts from the field of key methods of biological and chemical analysis, communicate them to a</p>	None	<p><i>Coursework</i> Presentation</p> <p><i>Module exam</i> Test report</p>

				specialist audience in the context of a presentation and discuss them. They can understand and use current English-language literature on methodological approaches in biological and chemical analysis.		
Technologies and methods: Cell Engineering and Analytics	6	Compulsory module	Advanced	After completing the module, students will have basic theoretical and practical knowledge of a self-chosen range of methods for manipulating a wide range of cell-based systems. Building on the previous individual training, the participants have expanded their range of methods precisely to fit their needs. They can use the acquired methodological knowledge to plan and prepare practical experiments and apply them with expertise. They are able to analyze, critically evaluate and document the results of the tests they have obtained. They are able to review scientific facts from the field of key methods of manipulating cell functions, communicate them to a specialist audience in the context of a presentation and discuss them. They can understand and use current English-language literature from the fields of genetic engineering of cells and synthetic biology.	None	<i>Coursework</i> Presentation <i>Module exam</i> Test report
Technologies and methods: computational biology	6	Compulsory module	Advanced	After completing the module, students will have basic theoretical and practical knowledge of a self-chosen range of methods for the mathematical and bioinformatic analysis of biological systems and sequences. Building on the previous individual training, the participants have expanded their range of methods precisely to fit their needs. They can use the acquired methodological knowledge to plan and prepare practical experiments and apply them with expertise. They are able to analyze, critically evaluate and document the results of the tests they have obtained. They are able to review scientific facts from the field of key methods of manipulating cell functions, communicate them to a specialist audience in the context of a	None	<i>Coursework</i> Presentation <i>Module exam</i> Test report

				presentation and discuss them. They can understand and use current English-language specialist literature from the fields of biomathematics and bioinformatics.		
Management and business (Commissioned module)	6	Compulsory module	Advanced	Students learn basic theories, concepts and the processes for founding their own company. Since many start-ups fail not because of specialist knowledge but because of personal difficulties, focal “soft skills” for personality training and training of creativity are also included in this offering. This thus puts real applied relevance in focus. This is ensured by in-depth exercises and the involvement of practitioners with experience in founding them.	None	<i>Coursework</i> Work on exercises <i>Module exam</i> Presentation
Bioprocess engineering	6	Compulsory Elective	Advanced	In this module, students learn basic theories and concepts of biotechnological manufacturing processes based on the cultivation of prokaryotic and eukaryotic cells. After completing the module, the students will have mastered methods for quantitative recording of cell growth and metabolism. They have basic knowledge of bioreactor types, process control and process monitoring and will be able to apply this knowledge and develop strategies for process design in biotechnological production.	None	<i>Coursework</i> Presentation in the seminar and internship report <i>Module exam</i> Written exam
Enzyme production and strain development in bioprocess engineering	6	Compulsory Elective	Advanced	The successful completion of the module will enable students to use modern high-throughput-based methods to identify and quantitatively describe constraints in the efficiency of production strains and to develop and implement strategies for improving production capacities. The students will have mastered methods of experimental evolution and can successfully implement them to optimize the metabolic and physiological properties of production strains for fermentation processes and the biochemical properties of the produced proteins.	None	<i>Coursework</i> Presentation in the seminar and internship report <i>Module exam</i> Written exam
Specialization						

Research Project	12	Compulsory module	Specialized	<p>After completing the module, students will have specialized theoretical and practical analytical and molecular biology knowledge in the research area of the selected working group and can combine this with the knowledge they have already acquired.</p> <p>They are able to recognize and present complex microbiological relationships. They can apply microbiological, biochemical and molecular biological techniques with expertise in various experimental contexts and plan test series in a guided manner. They are also able to quantitatively evaluate the results of the tests obtained and to critically consider them.</p> <p>They are able to review scientific facts from the fields of microbiology, biochemistry and molecular biology, present them to a specialist audience and discuss them in a lecture. They can understand, critically evaluate and use current English literature from the fields of microbiology, biochemistry and molecular biology.</p>	<p>At least 36 credits must have been successfully completed in the Advanced area of study, which must be allocated as follows:</p> <p>At least 2 of the 3 modules</p> <ul style="list-style-type: none"> • Technologies and methods: Bioanalytics and Chemical Analytics, • Technologies and methods: Cell Engineering and Analytics, or • Technologies and methods: computational biology <p>must have been completed.</p> <p>At least 6 credits must have been completed in the compulsory set of electives in Process Engineering in Biotechnology.</p> <p>The main topics in molecular biotechnology module must have been passed.</p> <p>The Management and Business module must have been passed.</p>	<p><i>Coursework</i> Laboratory log</p> <p><i>Partial module examinations</i> Presentation (6 LP) and Project report (6 LP)</p>
Practical						

Internship	18	Compulsory module	Practice	The students have practiced the steps for a job application. In the internship, which should relate to the molecular cell biological study contents, they have gained an insight into a potential professional field, ideally with the opportunity to apply and test acquired competencies within the scope of their first professional degree. If necessary, they have expanded their specialist knowledge or acquired relevant specialist knowledge in the internship, and/or have developed or learned special techniques with reference to the study contents. They have knowledge of work processes and techniques that do not occur within the scope of the modules of the study program but can complement the degree program in a meaningful way and/or prepare for the step into the profession. They are able to adequately document their experiences in a report. The students have developed perspectives for further studies and/or subsequent professional activities.	<p>Prior to the start of the internship, the consent of a self-chosen supervisor must be obtained at the Department of Biology who will evaluate the internship report.</p> <p>At least 2 of the 3 modules</p> <ul style="list-style-type: none"> • Technologies and methods: Bioanalytics and Chemical Analytics, • Technologies and methods: Cell Engineering and Analytics, or • Technologies and methods: computational biology <p>must have been completed.</p> <p>The main topics in molecular biotechnology module must have been passed.</p>	<i>Module exam</i> Internship report or Project application
Graduation						
Master's thesis	30	Compulsory module	Degree	The students have substantially improved their theoretical, methodological and practical knowledge in a specialist field of molecular and cellular biology to the latest state of knowledge. They are able to work on a defined topic in a specified time and to face a critical scientific discussion using scientific findings and methods.	<p><i>Binding condition</i></p> <p>Modules of the degree program with at least 72 credit must have been completed.</p> <p>If not all advanced modules have been</p>	<i>Module exam</i> Master's thesis

					<p>completed, a consultation with the Office of the Dean Studies is mandatory before starting the master's thesis.</p> <p><i>Recommended Prerequisite</i></p> <p>The master's thesis should be prepared in the subject area in which the specialization module was also completed.</p>	
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Appendix 3: Import module list

The degree programs listed below can be selected at the time of the adoption of these Degree Program and Examination Regulations. Pursuant to §14(1) of the General Regulations, the specifications of the Degree Program and Examination Regulations within the framework of which the modules are offered (in particular with regard to qualification objectives, prerequisites, credits (LP) and examination modalities) apply to these modules. Options for combining modules are set forth by the learning unit that offers them, as applicable.

The catalog of selectable degree programs can be changed or supplemented by the examination committee especially if the range of degree programs offered by the departments at Philipps-Universität Marburg changes. Such changes will be published by the examination committee on the respective program website. In individual cases or in general, the utilization of the following degree programs can be made dependent on the prior attendance of a degree program advising session or a binding registration. In case of enrollment caps, the corresponding regulations of the Degree Program and Examination Regulations apply. Otherwise, no guarantee is given that the courses listed below will actually be offered and can be taken.

Upon justified request by the student, it is permissible to approve additional import modules beyond the regular opportunities in individual cases; this requires that the offering department or institution also agree.

The current import opportunities are always published on the program website of the department offering the module as an export option. Students should take note of the corresponding information and advising offerings in the department offering the module before starting coursework.

Any prerequisites or recommendations for participation as well as combination rules must be observed. If the department offering a module has specified combination rules and created export packages, depending on the scope of their own import window, only limited module course offerings will in fact be available.

At the time of the last resolution by the departmental council on the present Degree Program and Examination Regulations, an agreement existed on the following modules:

Subsequent modules can be used for Offerings in the Degree Program	Study area "Advanced" (compulsory elective)	LP
Molekularbiologie zellulärer Systeme (Molecular Biology of Cellular Systems)	Synthetische Mikrobiologie // (Synthetic Microbiology)	12
	Molekulare Mikrobiologie: Von Proteinen zur zellulären Organisation // (Molecular Microbiology: from Proteins to Cellular Organisation)	12
	Methoden der Molekularbiologie und Proteinbiochemie: Vom Gen zur Struktur // (Methods in Molecular Biology and Protein Biochemistry: from Gene to Structure)	12
	Aktuelle Methoden der genetischen Analyse // (Current Methods of Genetic Analysis)	12
	iGEM Projekt // (iGEM Project)	12
M.Sc. Chemistry	Bioanalytik // (Bioanalytics)	6

Appendix 4: Export module list

The current export opportunities is always published on the program website of the department offering the module as an export opportunity.

Any prerequisites or recommendations for participation as well as combination rules must be observed. If the department offering a module has specified combination rules and created export packages, depending on the scope of their own import window, only limited module course offerings will in fact be available.

The degree programs listed below can be selected at the time of the adoption of these Degree Program and Examination Regulations. The catalog of export opportunities can be changed or supplemented by the examination committee especially if the export opportunities change. Such changes will be published by the examination committee on the degree program website in accordance with §8.

§1 Export of curricular modules to other degree programs

The following modules as listed in Appendix 2 may also be taken as part of other degree programs, as long as this is agreed upon with the department(s) in whose degree program(s) these modules are elective.

Main topics in molecular biotechnology
Technologies and methods: Bioanalytics and Chemical Analytics
Technologies and methods: Cell Engineering and Analytics
Technologies and methods: computational biology

Appendix 5: Special access requirements and aptitude assessment procedures

§1 Special access requirements

(1) Only those who meet the general admission requirements of §4(1) of these Degree Program and Examination Regulations can be admitted to the master's program in Molecular Biotechnology.

(2) In addition, applicants must have demonstrated their personal technical suitability in the context of an aptitude assessment procedure to be carried out in accordance with the following requirements.

§2 Application for participation in the aptitude assessment procedure

The application must be submitted on the form provided by the university. The following documents must be attached to the application:

1. Proof of a completed bachelor's degree or at least an equivalent national or foreign university degree or proof of the preliminary overall grade from the services performed up to that point in accordance with §4(1) of the Master's Degree Program Regulations.
2. Proof of basic biological knowledge following completion of a degree program with bioscientific content in accordance with §4(1) of the Master's Degree Program Regulations, i.e. in the course of study completed at least 30 credits should have been earned in biology subjects and 12 credits in the associated auxiliary sciences of mathematics and physics, which impart methodological competence.
3. Proof of knowledge of the English language in accordance with language level C1 of the "Common European Framework of Reference for Languages of the Council of Europe".
4. Resume in table format on one DIN-A 4 page. The resume must be written in English.
5. A letter in English on approximately 2 DIN-A4 pages where the applicant presents his or her subject-related qualifications, in particular explaining why he or she is choosing a master's degree in Molecular Biotechnology in Marburg.
6. Where appropriate, evidence of the reasons for eligibility referred to under point 5.

§3 Aptitude assessment committee

(1) The implementation of the aptitude assessment procedure for the determination of personal subject-related suitability is the responsibility of the aptitude assessment committee appointed by the departmental council.

(2) The commission is composed of at least two professors jointly.

(3) After the completion of the procedure, the aptitude assessment committee reports to the departmental council of the department about the experiences and makes suggestions for the further development of the procedure.

§4 Aptitude assessment procedure

(1) Anyone who has submitted an application in accordance with §2 will participate in the aptitude assessment procedure. Applications that are not received in full, in due form or in due time will not be accepted in the aptitude assessment procedure.

(2) The determination of suitability is based on the following criteria:

- a) Overall grade according to §2(1): Points are awarded for the overall grade in the following way (15-point grading scale, 4-point decimal grade equivalent, and numerical grade):
- 15.0 to 13.0 points (decimal grade 0.7 to 1.3) = 4 points
 - 10.9 to 12.9 points (decimal grade 1.4 to 2.0) = 3 points
 - 8.6 to 10.8 points (decimal grade 2.1 to 2.8) = 2 points
 - 7.0 to 8.5 points (decimal grade: 2.9 to 3.3) = 1 point
 - 5.0 to 6.9 points (decimal grade 3.4 to 4.0) = 0 points
- The data are based on the grading scale per §28 General Regulations of Philipps-Universität Marburg.
- b) Supplementary subject-related qualifications from the first vocational qualification degree.
- Proof of bioscientific and biotechnological knowledge from successfully completed relevant specialization modules and/or final modules (maximum 3 points). Points are awarded as follows:
 - 30 or more credits (LP) = 3 points
 - 24 to 29 credits (LP) = 2 points
 - 18 to 23 credits (LP) = 1 point
- c) Letter (maximum 1 point).
- In the letter with an associated resume or CV, the applicant should state his or her subject-related and personal qualifications and expectations when taking up a master of science degree program in Molecular Biotechnology in the Department of Biology at the Philipps-Universität Marburg.

(3) The aptitude assessment committee invites all applicants who have achieved at least 6 points in the written aptitude assessment procedure according to paragraph 2 to a telephone or personal aptitude assessment interview lasting 15 to 30 minutes. The subject of the discussion are technical questions. In addition, the aim is to find out whether the applicant can successfully complete this master's degree program. Up to 15 points can be awarded for this.

(4) Candidates who achieve at least 12 points out of 15 points in the aptitude assessment interview are considered suitable.

(5) A report must be drawn up on the essential criteria that led to the result of the evaluation in §4(2). Minutes shall also be kept on the essential questions and answers of the interview in accordance with paragraph 4 and on their evaluation. The minutes shall indicate the date and place of the interview, the names of the committee members, the name of the candidate and the essential criteria that led to the outcome of the evaluation.

§5 Completion of the procedure

(1) Applicants who are admitted will receive a written letter of admission from the university. The notice will specify a deadline by which the applicant must register. If the registration is not completed on time, the admission notice will become void.

(2) Applicants who are not admitted will receive a rejection notice. Rejected applicants may apply twice more to participate in the aptitude assessment procedure.

Appendix 6: Internship regulations

Order for the practical modules in the “M.Sc. Molecular Biotechnology”

§ 1 General information

- (1) The students independently endeavor to find the positions for the practical modules.
- (2) In the practical module, 18 credit points (*Leistungspunkte*) are earned. The total duration of the internship is at least 12 weeks.

§2 Goals of the internship

The following objectives are pursued with the internship:

- To practice the steps for an application,
- To acquire direct insights into a potential future employment field,
- To apply and expand the technical and methodological knowledge already acquired in a possible professional field,
- To acquire additional occupational and key qualifications,
- To develop perspectives for further studies and subsequent professional activities,
- To practice the linguistically and graphically correct documentation in the form of a scientific report.

§3 Internship positions

(1) The internship is to be completed at companies or public institutions in Germany or abroad whose fields of activity are related to the course contents and professional fields of the master's degree program in Molecular Biotechnology. This includes internships in research laboratories at universities, university hospitals or other research institutions (e.g. the Max Planck Institutes). The internship can be shared and completed at different locations. A maximum of three parts may be divided for at least four weeks per part. Participation in a biotechnologically oriented ideas competition can also be recognized as an internship contribution. Depending on the scope of the competition, the number of internship weeks recognized for this purpose must be agreed with the responsible specialist representative.

(2) Before starting the internship, the students consult a specialist representative of the course, who takes over the supervision internally and evaluates the internship report to be prepared.

(3) The specialist representative decides on the recognition of the internship position, or in case of doubt the examination committee.

(4) Before starting the internship in a company or public institution at home or abroad, the supporting specialist representative must be presented with a statement of reasons, which must be explained on 1–2 pages, based on what motivation this internship position was selected and what the students expect from the practical module.

§4 Status of students in the internship

(1) During the internship period at Philipps-Universität Marburg, students remain enrolled with all rights and obligations of ordinary students. They are not interns as defined by the Vocational Training Act.

(2) Furthermore, students are bound by their internship position, in particular the accident prevention regulations, the working hours regulations and the regulations on confidentiality.

§5 Recognition and proof

(1) Proof of successful completion of the internship is provided by a written certificate from the institution confirming the completion of internship activities and periods and which must be added to the internship report to be prepared by the student (usually 10 to 12 pages per four weeks completed).

(2) The internship report is considered a module examination and is graded.

(3) The internship report outlines the internship facility, the formal course and the main areas of activity in terms of content. The report is intended to reflect on the experience gained and to link it with the contents of the degree program.