Please note that this document is a non-binding convenience translation. Only the German version of the document entitled "PRÜFUNGSORDNUNG DER UNIVERSITÄT HEIDELBERG FÜR DEN MASTER-STUDIENGANG MOLEKULARE BIOTECHNOLOGIE", dated 9 February 2012 [published in the President's bulletin (Mitteilungsblatt des Rektors) of 29 February 2012, p. 145] has legal validity.

HEIDELBERG UNIVERSITY EXAMINATION RULES AND REGULATIONS FOR THE MASTER'S DEGREE PROGRAMME IN MOLECULAR BIOTECHNOLOGY

dated 9 February 2012

Preamble

All titles in this document, be they official, job, status or functions, are used in masculine form, however they refer to men and women equally and may also be used in the corresponding feminine form.

I. General information

§ 1 Purpose of the academic programme and examination

(1) The Master's degree programme in Molecular Biotechnology is a consecutive research-oriented degree programme which conveys in-depth specialist knowledge and an understanding of the scientific methods employed in Molecular Biotechnology.

(2) The purpose of the Master's examination is to assess whether students have an overview of the interconnections between individual disciplines, are able to apply academic methods and knowledge, and have acquired the specialist knowledge required to enter a profession or begin a doctorate programme.

(3) Admission to the academic programme is subject to separate admissions regulations.

§ 2 Master's degree

Heidelberg University, represented by the Faculty of Biosciences, awards the academic degree of "Master of Science" (abbreviated to "M.Sc.") to those who have passed the Master's examination.

§ 3 Standard period of study, programme structure and range of courses offered

(4) The standard period of study is four semesters, including the Master's examination.

(1) Major subjects in the degree programme are drug design research, bioinformatics and biophysical chemistry. Students must choose their major from these three subjects. The remaining two subjects are taken as minors. Lectures and courses run for three semesters; the Master's thesis is to be completed in the fourth semester. Lectures and courses offered include the modules listed in Appendix 1. Successful completion of the Master's degree programme requires successful completion of the programme's lectures and courses (compulsory and elective) and corresponding examination components amounting to 120 ECTS points (European Credit Transfer System).

(2) Examination prerequisites are determined in terms of credits in accordance with

the European Credit Transfer System. One credit corresponds to a workload of approximately 30 hours. Credits are awarded only for successfully completed modules. Successful completion of graded modules requires the grade "sufficient" (4.0) or higher.

(3) Lectures and courses in the degree programme and the corresponding examination components are mainly held in German, however, some are also held in English. In general, examination components must be taken in the language of instruction.

(4) A transcript of records is issued at the end of each semester, listing all module and sub-module examinations students have passed, including the corresponding credits and grades.

§ 4 Examinations board

(1) The examinations board organises examinations and tasks defined in these examination rules and regulations. It consists of four members of the academic staff who are primarily employed by the Faculty of Biosciences. Three members must be professors, one a representative of the research associates and tenured research staff, and one a student with an advisory function.

(2) The chairperson of the examinations board, deputy chairperson, other members and deputies are appointed by the faculty council based on proposals by the academic commission. The chairperson and the deputy must be professors. The student member of the examinations board is appointed by the faculty council based on a proposal from the departmental student committee.

(3) The members are appointed for four years; the student member is appointed for one year. Each term begins on 01 January. Members may be re-elected.

(4) The examinations board ensures that the examination rules and regulations are upheld. The board reports to the faculty regarding changes to examinations, study periods and grading on a regular basis. This report must be disclosed in a suitable form.

(5) The chairperson manages the business of the examinations board, prepares and chairs meetings and, in the event of a tie vote, has the deciding vote. The examinations board can confer further responsibility to its chairperson. Such a decision may be revoked at any time.

(6) Members of the examinations board have the right to attend examinations.

(7) Members of the examinations board and their deputies are subject to official secrecy. Members who are not civil servants are sworn to secrecy by the chairperson.

(8) All requests to the examinations board must be submitted via the Institute of

Pharmacy and Molecular Biotechnology's admissions and examination office.

§ 5 Examiners and observers

(1) Following consultation with the examinations board, the chairperson appoints the examiners and observers for all examinations. Examiners must be lecturers in the Bachelor or Master's degree programme in Molecular Biotechnology. The examinations board prepares a list of all authorised examiners.

(2) In general, examination components which are not completed during the course of study may only be examined by university professors, associate professors, lecturers, research associates or tenured research staff who have been granted the right to examine.

(3) Examinations held during the course of study are normally conducted by the instructor of the respective course.

(4) Observers, if required, must have sat the Master's examination or at least an equivalent final examination. They are appointed by the examiners.

(5) The main examiner or reviewer of the Master's thesis must be an examiner in accordance with paragraphs 1 and 2 and must be a lecturer in the Bachelor or Master's degree programme in Molecular Biotechnology.

(6) For examiners and observers, § 4 paragraph 7 (official secrecy) shall apply accordingly.

§ 6 Recognition of study periods, course credits and examination results

(1) Study periods, course credits and examination results obtained in degree programmes at German universities or at a comparable institution of higher education will be recognised, provided there is equivalence. There is equivalence if the majority of the periods of study, course credits and examination results obtained, correspond to the Master's programme in Molecular Biotechnology at Heidelberg University in terms of their content, scope and requirements. Programmes are not compared schematically, but rather considered and assessed as a whole.

(2) When recognising periods of study, as well as course credits and examination results obtained outside the Federal Republic of Germany, Equivalency Agreements and agreements between partner universities approved by the Conference of German Ministers of Education (Kultusministerkonferenz, KMK) and German Rectors' Conference (Hochschulrektorenkonferenz, HRK) must be taken into account. Where there is doubt regarding equivalency, the Central Office for Foreign Education (Zentralstelle für ausländisches Bildungswesen) may be consulted.

(3) For study periods, course credits and examination results obtained at state-recognised distance learning institutions and other institutes of education, in particular at universities of cooperative education (state or state-recognised), paragraph (1) applies accordingly.

(4) If examination prerequisites and results are recognised, grades, provided that the grading systems are similar, must be transferred and used when calculating the overall grade in accordance with these examination rules and regulations. If grading systems are not comparable, examination prerequisites and results are graded as a "pass". This recognition can be indicated in the diploma. If more than 50 % of the examination components to be recognised are ungraded examination components completed during the course of study, or are examination components completed during the course of study graded according to an incomparable grading system, the examinations board shall make a decision regarding transferability.

(5) Course credits and examination results which were already gained as part of the undergraduate Bachelor's programme, or which were gained in extra courses and examinations taken in the undergraduate programme, cannot be recognised. The same applies for other degree programmes required for admission to this Master's programme.

(6) If a student requests recognition of more than half of all course credits, the final oral examination, or the Master's thesis, then recognition of individual portions of the Master's examination may be denied.

(7) Decisions on this matter are made by the examinations board in accordance with paragraphs 1 to 6, following advice from the departmental representative. Students must present the documents necessary for recognition.

§ 7 Unexcused absences, withdrawal, deception and breaches of regulations

(1) An examination is graded as "failed" (5.0) if candidates fail to appear without being able to state a valid reason for their absence, or if they withdraw after the examination has started. The same applies if the candidate fails to complete a written examination within the allocated time, unless the candidate is not at fault for exceeding the deadline.

(2) Plausible reasons for withdrawal or absence must be immediately addressed, in writing, to the examinations board. If the candidate, or a child for whom the candidate is generally the sole carer, is ill, a medical certificate must be provided within at least three working days following the examination. For the second medical certificate for the same examination date, or in case of doubt, the university may request a medical certificate from a doctor of its choice. If the reasons are accepted, a new date for the examination will be scheduled. In this case, examination results that are already available will be taken into account.

(3) When deciding whether the candidate is at fault for exceeding a deadline for

registration or taking an examination, the examinations board must respect the provisions stated in the Maternity Protection Act and the legal regulations concerning parental leave, and allow candidates to make appropriate use of these provisions.

(4) If the candidate tries to influence the examination results through deception, plagiarism or by using unauthorised aids, the examination component in question will be graded as "failed" (5.0). If a candidate disrupts the proper course of the examination, the examiner or examination supervisor may exclude the candidate from continuing the examination. In this case, the examination will be graded as "failed" (5.0). In serious cases, the examinations board may exclude the candidate from all further examinations.

(5) Within a period of fourteen days, the candidate may request that the decision be validated by the examinations board in accordance with paragraph 4 clauses 1 and 2. The candidate must be informed of negative decisions immediately and in writing; the reasons for the decision must be stipulated and information on the procedure for appeal must be provided.

§ 8 Types of examinations

(1) The examination components are:

1. oral examinations components
2. written examination components
3. the Master's thesis
4. the oral examination

(2) If candidates provide a medical certificate that plausibly proves that they are not able to take examinations in the form prescribed, whether completely or partially, due to permanent or chronic health problems, the examinations board may allow them to take an equivalent examination. The same applies for other course requirements.

§ 9 Oral examinations

(1) In oral examinations, candidates should be able to prove that they are able to identify interconnections within the examination subject matter and relate specified problems to these interconnections.

(2) Generally, oral examination components are assessed by an examiner and a qualified observer. Oral examination components completed during the course of study are usually assessed by one examiner. A qualified observer may be consulted.

(3) An oral examination lasts between 15 and 45 minutes.

(4) The key topics and the result of the oral examination must be recorded in the minutes. Candidates must be notified of examination results immediately following the oral examination.

(5) Students intending to take the same examination at a later date may be allowed to observe the examination, provided that there is enough space available. The student observers may not be present for the assessment or announcement of the examination results. Upon the candidate's request, or for other valid reasons, observers may be prohibited from attending the examination.

§ 10 Written examinations

(1) In written examination components, candidates should show that they are able to recognise problems relating to their subject and find solutions for them using subject-specific methods with limited time and resources.

(2) A written examination lasts between 45 and 150 minutes.

(3) If a written examination component is taken as a term paper or as a working paper, it must be written under examination conditions. Furthermore, the candidate must assure that he is the author of his own work, and that no sources or aids other than those indicated have been used.

§ 11 Assessment of examinations

(1) Grades for the individual examination components are determined by the respective examiners. The following grades must be used for the assessment of examinations:

1 = very good	=	an outstanding performance;
2 = good	=	a performance which lies substantially above average requirements;
3 = satisfactory	=	a performance which corresponds to average requirements;
4 = sufficient	=	a performance which, despite deficiencies, still meets the requirements;
5 = failed	=	a performance which does not meet the requirements due to considerable deficiencies.

For a more detailed assessment of examination results, interim grades may be applied by increasing or decreasing the individual grades by 0.3; the grades 0.7, 4.3, 4.7 and 5.3 may not be applied.

(2) The assessment of examination components should be concluded as soon as possible after completion of the lecture or course.

(3) Students receive a passing grade in an examination component if it has been graded as "sufficient" (4.0) or higher.

(4) When calculating the overall grade, only the first digit after the decimal point is taken into account. The other digits are dropped without rounding.

(5) If grades are awarded in accordance with the European Credit Transfer System ECTS, the international assessment standard specified in Appendix 2 is applied.

§ 12 Retaking examination components

(1) If examination components are not passed or are considered not to have been passed, they may be retaken once.

(2) Retaking an examination that has been graded as passed is not permitted.

(3) If an examination component has been failed, it must be retaken at the next possible examination date. If candidates miss this deadline, they may not retake the examination component, unless they are not responsible for exceeding the deadline.

(4) If a module is failed at the final attempt, candidates lose their entitlement to take examinations. In accordance with Landeshochschulgesetz (LHG, Act on Higher Education of the Land of Baden-Württemberg) § 62 paragraph 2 no. 2, forfeiting entitlement to take examinations results in exmatriculation at the end of the semester in which the entitlement was lost.

II. Master's examination

§ 13 Scope, nature and organisation of the Master’s examination

(1) The Master's examination consists of:

1. examination components completed during the course of study for the modules in accordance with Appendix 1,
2. the Master’s thesis,
3. the oral examinations.

(2) Examinations as referred to in paragraph 1 no. 1 are taken as an integrated part of the lecture or course. They can be in written or oral form. The lecturer responsible for a lecture or course determines the nature and duration of the examination components in consultation with the examinations board. The lecturer must announce this information at the beginning of the lecture or course at the latest.

(3) Module examinations may consist of several sub-module examinations.

(4) If several lectures or courses are allocated to a module (compulsory elective modules), the grades for the examination components which are completed first shall be used to calculate the module grade.

§ 14 Admission requirements and procedure

(1) Admission to the individual examination components is only authorised for students who:

1. are enrolled in the Master's degree programme in Molecular Biotechnology at Heidelberg University;
2. have not lost their entitlement to take examinations in a Master's degree programme at the Faculty of Biosciences.

In addition, students must fulfil the following requirements to be admitted to the Master's thesis:

3. In accordance with Appendix 1, all practical courses and 90% of the theoretical lectures or courses in the modules must be successfully completed.

(2) The application for admission to the Master's thesis must be made in writing and addressed to the chairperson of the examinations board. The application must include:

1. evidence of fulfilment of the admission requirements in accordance with paragraph 1;

2. a declaration stating that the candidate has not lost their entitlement to take examinations in the Master's degree programme in Molecular Biotechnology or in other Master's degree programmes in the Faculty of Biosciences.

3. certificates proving fulfilment of the admission requirements stated in paragraph 1 no. 3.

4. proof that the Master's thesis shall be written in the examiner's department in accordance with the list of examiners (§ 5 paragraph 5).

(3) The decision on admission to the Master's thesis is made by the chairperson of the examinations board.

(4) The application for admission to an oral subject examination must be made in writing and be addressed to the chairperson of the examinations board. The application must include:

1. evidence of fulfilment of the admission requirements in accordance with

paragraph 1;
2. With the exception of the Master's thesis and the subsequent oral defence, all module examination components taken during the course of study as listed in Appendix 1 must be successfully completed.

(5) The application for admission to the oral defence must be made in writing and addressed to the chairperson of the examinations board. The application must include:

1. evidence of fulfilment of the admission requirements in accordance with paragraph 1;
2. All module examination components taken during the course of study as listed in Appendix 1 must be successfully completed.
3. The assessments of the Master's thesis must be available.

(6) The application for admission to the examination may only be rejected if

1. the conditions stated in paragraph 1 are not fulfilled, or
2. documents are not complete, or
3. the candidate has lost their entitlement to take examinations

§ 15 Master's thesis

(1) The Master's thesis is an examination component that concludes the academic programme. The purpose of the thesis is for candidates to show that they are able to work independently on a problem from the field of molecular biotechnology within a given period of time, using academic methods. The Master's thesis must be completed in the student's major subject.

(2) The Master's thesis may be assigned and supervised by any authorised examiner in accordance with the list of examiners (§ 5 paragraph 5). The thesis must be completed in the candidate's department in accordance with § 5 paragraph 5; decisions regarding exceptions to this rule shall be taken by the examinations board upon submission of a written request.

(3) The candidate must begin work on the Master's thesis no later than one semester after successful completion of the last examination completed during the course of study or must have submitted an application for assignment of a Master's thesis topic to the chairperson of the examinations board by this time.

(4) The topic of the Master's thesis will be determined by the thesis supervisor in consultation with the candidate. If an application for assignment of a topic is submitted, the chairperson of the examinations board shall ensure that the candidate receives a topic for their Master's thesis in due time. The candidate shall be given the opportunity to propose topics. However, this does not constitute a legal entitlement to a certain topic. The date on which the Master's thesis is started, as stated on the application, must be recorded.

(5) The deadline for submission of the thesis is six months after topic assignment. In exceptional circumstances, the examinations board may extend this deadline by up to one month. If the deadline is exceeded, the Master's thesis will be graded as "failed" (5.0), unless the candidate is not responsible for exceeding the deadline.

(6) The topic, task and scope of the Master's thesis must be limited in such a way that the candidate is able to complete the thesis within the given time frame.

(7) The thesis should contain a German and an English summary.

(8) The Master's thesis may be written in German or English.

§ 16 Submission and assessment of the Master's thesis

(1) One copy of the Master's thesis must be submitted to the examinations board and one to each of the examiners prior to the deadline; the submission date must be recorded. The examiners for the oral defence may also request a copy of the thesis.

(2) On submission of the Master's thesis, the candidate must assure in writing that they are the author of their own work and that no sources or aids other than those indicated have been used.

(3) The Master's thesis is assessed by two examiners in accordance with the list of examiners (§ 5 paragraphs 2 and 5). The candidate has the right to suggest an examiner; this does not, however, constitute a legal entitlement. The first examiner should be the thesis supervisor. The quality of the language used and formal requirements are taken into account when assessing the thesis. The assessment period should not exceed a period of four weeks.

(4) The grade is calculated as the mean of both assessments; § 11 paragraph 5 applies accordingly. Where the grades issued by the two examiners differ by more than one grade, the examinations board shall determine the final grade of the Master's thesis in consultation with the two examiners. In such cases, a third examiner may be consulted.

(5) If the Master's thesis is graded as "failed" (5.0), it may be retaken with a new topic; retaking the thesis with the previous topic is not possible.

(6) The Master's thesis may be presented to third parties if the candidate provides written consent.

§ 17 Oral examinations

(1) Oral examinations include the defence of the Master's thesis and the oral subject examinations.

(2) Candidates shall present and defend the findings of their Master's thesis in a discussion with the examiner. The examiners are appointed by the examinations board. The candidate has the right to suggest an examiner. The oral defence must be taken no sooner than two weeks, but no later than three months after the examinations office has received the examiners' assessments of the thesis. The date for the oral defence shall be set in consultation with the candidate. The oral defence lasts for approximately 30 minutes.

(3) The oral subject examination is carried out by three examiners in accordance with the list of examiners (§ 5 paragraph 1). The examiners must be staff members from the three subject areas. Each subject must be represented by one examiner. The examiners are appointed by the examinations board. The candidate has the right to suggest an examiner. The oral subject examination may be divided into sub-examinations for each subject; if so, the examination will be carried out by the examiners and an observer in accordance with § 5 (4). If the oral subject examination is divided into sub-examinations, the time between the first and the last sub-examination may not exceed four weeks. The examination schedule must be presented, and where necessary approved, when an application for admission to the oral subject examination is made. The oral subject examination must be taken before the Master's thesis is started. In exceptional cases, and upon written request, the oral subject examination may be taken after completion of the Master's thesis. Such a request must be approved by the examinations board and must be made before the Master's thesis is started.

(4) The oral subject examination lasts for approximately 60 minutes. Each of the three subjects is examined for approximately 20 minutes.

(5) The grade for the oral subject examination and the grade of the oral defence are calculated as the mean of the individual assessments, § 11 paragraph 2 applies accordingly.

§ 18 Passing the examination and overall grade

(1) The Master's examination is passed when all examination components completed during the course of study, the Master's thesis, and the oral examinations have been graded as "sufficient" (4.0) or higher.

(2) § 11 applies for assessment of all examination components and the overall grade.

(3) The overall grade for the Master's examination is calculated as follows:

Grade for examination components completed	30%
Grade for the oral subject examination	20%
Grade for Master's thesis	25%

Grade for oral defence	25%

§ 19 Diploma

(1) Once the Master's examination is passed, a diploma will be issued within four weeks. This will list all individual modules with their respective grades and credits, and the overall grade. The diploma will be dated with the date of the last examination component. It must be signed by the dean and the chairperson of the examinations board.

(2) A Diploma Supplement in German and English is included, which contains additional information about the course content and period of studies.

§ 20 Master's certificate

(1) A Master's certificate in German and English is issued with the diploma, bearing the same date. It certifies the conferment of the academic degree.

(2) The Master's certificate is signed by the dean of studies and the chairperson of the examinations board. It bears the faculty seal.

(3) If the candidate has failed the Master's examination, a certificate will be issued on request and on presentation of relevant proof, listing passed examination components and the corresponding grades as well as the missing examination components. It is signed by the chairperson of the examinations board and includes a note about the Master's examination not having been passed. The same applies for the Master's examination, if it is failed on the final attempt.

III. Final provisions

§ 21 Invalidity of examinations

(1) If a candidate cheats in an examination and is only discovered after the diploma has been issued, the examinations board may correct the examination results affected by the deception accordingly, and may declare the examination partially or completely failed.

(2) If the requirements for admission to the examination were not fulfilled without any intent to deceive on the candidate's part, and it is only discovered after the diploma has been issued, the passed examination is considered a compensation for this shortcoming. If the candidate intentionally deceived in order to gain admission to the examination, the examinations board will make a decision on the matter.

(3) Before the decision is made, candidates will be given the opportunity to provide

an explanation.

(4) Fraudulent examination diplomas will be confiscated and, if necessary, a new diploma will be issued. If the examination has been graded as "failed" due to cheating or deceit, the Master's certificate will be confiscated along with the fraudulent examination diploma. In accordance with paragraph 1 and paragraph 2 clause 2, a decision may not be taken more than five years after the date on the examination diploma.

§ 22 Access to examination documents

Within a year after the examination procedure has been completed, the candidate can request access to written examination documents, examiner reviews and the examination minutes. The chairperson of the examinations board will decide when and where such access will be granted.

§ 23 Coming into force

(1) These examination and degree programme rules and regulations will come into force on the first day of the month following publication in the President's bulletin (Mitteilungsblatt des Rektors). At that time, the examination and degree programme rules and regulations of 22 July 2010 (President's bulletin (Mitteilungsblatt des Rektors from 30 August 2010, p.1293)) will cease to apply.

(2) For those students who were already enrolled in the Master’s degree programme in Molecular Biotechnology at Heidelberg University at the time that these examination rules and regulations came into effect, the previous degree programme rules and regulations for the Master’s degree programme will, upon request, remain applicable for a period of up to 2 years. The request must be made to the examinations board within a month after the beginning of the lecture period following implementation of these examination rules and regulations.

Appendix 1:

Compulsory (elective) modules, incl. certification of successful participation and grading

Modules	Teaching method	CP
Special aspects and extended basics of molecular biotechnology	S, Lab, L	22
Theory of drug design research (compulsory elective)*	S, L	8/4
Experimental drug design research (compulsory elective)*	Lab	20/10
Algorithms of bioinformatics (compulsory elective)*	S, L	8/4
Applying methods of bioinformatics (compulsory elective)*	Lab	20/10
Theory of biophysical chemistry (compulsory elective)*	S, L	8/4
Experimental biophysical chemistry (compulsory elective)*	Lab	20/10
Total credits for examination components completed during the course of study		78

* The major must be chosen from the following three subjects: drug design research, bioinformatics and biophysical chemistry. The remaining two subjects are taken as minors. If the module is taken as a major, 20 credits must be gained in practical modules, and 8 credits in theoretical modules. If the module is taken as a minor, 10 credits must be gained in practical modules, and 4 credits in theoretical modules.

Appendix 2: Grading in accordance with ECTS

In addition to the German-style grades, students who have passed the examination components will also be awarded a relative grade according to the following scale:

A	the top 10%
B	the following 25%
C	the following 30%
D	the following 25%
E	the following 10%

The grades achieved by at least two previously graduating year groups may also be taken into account when calculating the relative grades for the current graduating year group, depending on the size of the graduating cohort. For degree grades, the ECTS grade must be included. For individual modules, the ECTS grade may be listed when possible and necessary.

Appendix 3: Module descriptions

Module Special aspects and extended basics of molecular biotechnology (compulsory):

a) *Module content and qualification objectives*
Students will gain deeper theoretical and practical knowledge, as well as specialised knowledge of current research in the field of molecular biotechnology. The student gains insight into special problems and research foci in molecular biotechnology. Writing scientific summaries / abstracts is practised with regard to the requirements of scientific publications. Planning research projects will also be practised. The language of instruction in this module may be English.

b) *Teaching methods*
Lecture / seminar / lab course

c) *Requirements for participation*
None
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d) *Applicability of module*
Molecular Biotechnology (Master)

e) *Requirements for awarding credits*
Certificate of attendance for the module component Biotechnological Topics and Methods, successful participation in the module components:
Project proposal, Basic Course in Biotechnology and Current topics of Molecular Biotechnology (45 presentations from the module component “Current Topics of Molecular Biotechnology” must be attended, 30 presentations must be summarised in individual abstracts). The lecturer determines the nature of the examination component in consultation with the examinations board.

f) *Credits and grades*
22 credits are awarded. The module grade is calculated using the grades for the module components weighted according to the credits. Ungraded module components are not taken into account.

g) *Course offered*
every semester

h) *Workload*
The workload is 660 hours.

i) *Duration*
One to three semesters

Module Theory of Drug Design Research (compulsory elective):

a) *Module content and qualification objectives*
Students will gain specialised knowledge from the research areas in drug design. The focus is on molecular causes of disease, the identification of molecular and biochemical drug targets, searching for drugs, the production of drugs (medicinal chemistry, biotechnology), testing the function of drugs, and formulating drugs for therapy. This will be complemented with specific topics of molecular cell biology, bioanalysis, biotechnology and molecular biology, functional genome analysis, biopharmacy, pharmacology, and pharmaceutical chemistry. Students gain, deepen and build on specialised knowledge. This is combined with learning about various presentation techniques and developing media literacy. Independently producing and giving presentations, and discussing the results, will help to improve and develop students' communication and language skills. The language of instruction in this module may be English.

b) *Teaching methods*
Lecture, seminar

c) *Requirements for participation*
The lecturer may define special entry requirements such as successful completion of certain modules or lectures and courses.

d) *Applicability of module*
Molecular Biotechnology (Master)

e) *Requirements for awarding credits*
As a major, lectures or seminars from the range of compulsory elective modules offered, amounting to 4 WCH (weekly contact hours) must be successfully completed. As a minor, one lecture, course or seminar from the range of compulsory elective modules offered, amounting to 2 WCH (weekly contact hours) must be successfully completed. The lecturer determines the nature of the examination component in consultation with the examinations board, and announces this information at the beginning of the lecture or course at the latest. The module grade is calculated as the mean of the examination components.

f) *Credits and grades*
8 credits are awarded in the major subject, 4 credits are awarded in the minor subject. 2 credits are awarded for each weekly contact hour.

g) *Course offered*
Lectures and courses for this module are offered each semester, however it cannot be guaranteed that a specific course will be offered.

h) *Workload*
The workload is 240/120 hours.

i) *Duration*
One to three semesters

Module Experimental Drug Design Research (compulsory elective):

a) *Module content and qualification objectives*
The aim of the module is to gain practical skills based on questions specific to drug design research. The acquisition of skills such as time management (qualitative and operational), self-responsibility and goal-orientated behaviour is integrated in the module. In preparation for independent scientific work, problem solving strategies and networked thinking will be conveyed and developed.
The language of instruction in this module may be English.

b) *Teaching methods*
Lab course, seminar

c) *Requirements for participation*
The lecturer may define special entry requirements such as successful completion of certain modules or lectures and courses.

d) *Applicability of module*
Molecular Biotechnology (Master)

e) *Requirements for awarding credits*
Active participation in the lectures or courses, writing minutes in the form required for scientific publications, as well as passing the examination components are required if students are to be awarded credits
As a major, two lab courses, each lasting for at least six weeks, from the range of compulsory elective modules offered, must be successfully completed. As a minor, one lab course, lasting at least six weeks, from the range of compulsory elective modules offered, must be successfully completed.
The lecturer determines the nature of the examination component in consultation with the examinations board, and announces this information at the beginning of the lecture or course at the latest. The module grade is calculated as the mean of the examination components.

f) *Credits and grades*
20 credits are awarded in the major subject, 10 credits are awarded in the minor subject.

g) *Course offered*
Lectures and courses for this module are offered each semester, however it cannot be guaranteed that a specific course will be offered.

h) *Workload*
The workload is 600/300 hours.

i) *Duration*
One to three semesters

Module Algorithms of Bioinformatics (compulsory elective):

a) Module content and qualification objectives
Students gain specialised knowledge of current research in bioinformatics. Special focus is placed on data processing, sequence analysis, gene expression analysis, as well as evaluation of data from diagnostic imaging processes and cellular biological analysis.
Students gain, deepen and build on specialised knowledge. This is combined with learning about various presentation techniques and developing media literacy. Independently producing and giving presentations, and discussing the results, will help to improve and develop students' communication and language skills. The language of instruction in this module may be English.

b) *Teaching methods*
Lecture, seminar

c) *Requirements for participation*
The lecturer may define special entry requirements such as successful completion of certain modules or lectures and courses.

d) *Applicability of module*
Molecular Biotechnology (Master)

e) *Requirements for awarding credits*
As a major, lectures or seminars from the range of compulsory elective modules offered, amounting to 4 WCH (weekly contact hours) must be successfully completed. As a minor, one lecture, course or seminar from the range of compulsory elective modules offered, amounting to 2 WCH (weekly contact hours) must be successfully completed.
The lecturer determines the nature of the examination component in consultation with the examinations board, and announces this information at the beginning of the lecture or course at the latest. The module grade is calculated as the mean of the examination components.

f) *Credits and grades*
8 credits are awarded in the major subject, 4 credits are awarded in the minor subject. 2 credits are awarded for each weekly contact hour.

g) *Course offered*
Lectures and courses for this module are offered each semester, however it cannot be guaranteed that a specific course will be offered.

h) *Workload*
The workload is 240/120 hours.

i) *Duration*
One to three semesters

Module Applying Methods of Bioinformatics (compulsory elective):

a) *Module content and qualification objectives*
The aim of the module is to equip students with practical qualifications based on questions specific to bioinformatics. The acquisition of skills such as time management (qualitative and operational), self-responsibility and goal-orientated behaviour is integrated in the module. In preparation for independent scientific work, problem solving strategies and networked thinking will be conveyed and developed.
The language of instruction in this module may be English.

b) *Teaching methods*
Lab course, seminar

c) *Requirements for participation*
The lecturer may define special entry requirements such as successful completion of certain modules or lectures and courses.

d) *Applicability of module*
Molecular Biotechnology (Master)

e) *Requirements for awarding credits*
Active participation in the lectures or courses, writing minutes in the form required for scientific publications, as well as passing the examination components are required if students are to be awarded credits
As a major, two lab courses, each lasting for at least six weeks, from the range of compulsory elective modules offered, must be successfully completed. As a minor, one lab course, lasting at least six weeks, from the range of compulsory elective modules offered, must be successfully completed.
The lecturer determines the nature of the examination component in consultation with the examinations board, and announces this information at the beginning of the lecture or course at the latest. The module grade is calculated as the mean of the examination components.

f) *Credits and grades*
20 credits are awarded in the major subject, 10 credits are awarded in the minor subject.

g) *Course offered*
Lectures and courses for this module are offered each semester, however it cannot be guaranteed that a specific course will be offered.

h) *Workload*
The workload is 600/300 hours.

i) *Duration*
One to three semesters

Module Theory of Biophysical Chemistry (compulsory elective):

a) *Module content and qualification objectives*
Students gain specialised knowledge from current research areas in biophysical chemistry. The focus is on surface chemistry, protein mechanics, structural biology, microscopic structural techniques and imaging.
Students gain, deepen and build on specialised knowledge. This is combined with learning about various presentation techniques and developing media literacy. Independently producing and giving presentations, and discussing the results, will help to improve and develop students' communication and language skills. The language of instruction in this module may be English.

b) *Teaching methods*
Lecture, seminar

c) *Requirements for participation*
The lecturer may define special entry requirements such as successful completion of certain modules or lectures and courses.

d) *Applicability of module*
Molecular Biotechnology (Master)

e) *Requirements for awarding credits*
As a major, lectures or seminars from the range of compulsory elective modules offered, amounting to 4 WCH (weekly contact hours) must be successfully completed. As a minor, one lecture, course or seminar from the range of compulsory elective modules offered, amounting to 2 WCH (weekly contact hours) must be successfully completed.
The lecturer determines the nature of the examination component in consultation with the examinations board, and announces this information at the beginning of the lecture or course at the latest. The module grade is calculated as the mean of the examination components.

f) *Credits and grades*
8 credits are awarded in the major subject, 4 credits are awarded in the minor subject. 2 credits are awarded for each weekly contact hour.

g) *Course offered*
Lectures and courses for this module are offered each semester, however it cannot be guaranteed that a specific course will be offered.

h) *Workload*
The workload is 240/120 hours.

i) *Duration*
One to three semesters

Module Experimental Biophysical Chemistry (compulsory elective):

a) *Module content and qualification objectives*
The aim of the module is to equip students with practical qualifications based on questions specific to biophysical chemistry. The acquisition of skills such as time management (qualitative and operational), self-responsibility and goal-orientated behaviour is integrated in the module. In preparation for independent scientific work, problem solving strategies and networked thinking will be conveyed and developed.
The language of instruction in this module may be English.

b) *Teaching methods*
Lab course, seminar

c) *Requirements for participation*
The lecturer may define special entry requirements such as successful completion of certain modules or lectures and courses.

d) *Applicability of module*
Molecular Biotechnology (Master)

e) *Requirements for awarding credits*
Active participation in the lectures or courses, writing minutes in the form required for scientific publications, as well as passing the examination components are required if students are to be awarded credits
As a major, two lab courses, each lasting for at least six weeks, from the range of compulsory elective modules offered, must be successfully completed. As a minor, one lab course, lasting at least six weeks, from the range of compulsory elective modules offered, must be successfully completed.
The lecturer determines the nature of the examination component in consultation with the examinations board, and announces this information at the beginning of the lecture or course at the latest. The module grade is calculated as the mean of the examination components.

f) *Credits and grades*
20 credits are awarded in the major subject, 10 credits are awarded in the minor subject.

g) *Course offered*
Lectures and courses for this module are offered each semester, however it cannot be guaranteed that a specific course will be offered.

h) *Workload*
The workload is 600/300 hours.

i) *Duration*
One to three semesters

Module Master's thesis:

a) *Module content and qualification objectives*
The academic thesis should cover a topic from the field of study. Students should use academic methods and work independently. The results shall be presented in written form in the Master's thesis, which may be written in German or English. The thesis must include a summary in German and English. The findings of the Master's thesis are presented and defended in an oral examination – the oral defence.

b) *Teaching methods*
Guidelines for scientific work

c) *Requirements for participation*
The Master's thesis may be started after all examination components completed during the course of study and the subject examinations* have been successfully completed. The Master's thesis must be submitted and assessed by the examiners before the oral defence.
*For exceptions, see § 17 paragraph 3

d) *Applicability of module*
Molecular Biotechnology (Master)

e) *Requirements for awarding credits*
The thesis will be assessed by two examiners; the thesis supervisor should be the first examiner.
The module must be started one semester following completion of the last examination component completed during the course of study at the latest.
The Master's thesis may be retaken once.
The oral defence is carried out by two examiners. It lasts for approximately 30 minutes.

f) *Credits and grades*
30 credits are awarded. The overall grade of the Master's thesis is calculated as the mean of the examiners' evaluations. The overall grade of the oral defence is calculated as the mean of both individual assessments.

g) *Course offered*
every semester

h) *Workload*
The workload is 900 hours.

i) *Duration*
Six months, in exceptional cases, however, and upon request, an extension of one month may be granted.

Module Oral subject examination:

a) *Module content and qualification objectives*
The purpose of the oral subject examination and the sub-examinations for each subject is for candidates to show that they have broader context knowledge in molecular biotechnology. An understanding and knowledge of the interconnections in the subject of study should be demonstrated comprehensively. Knowledge in all three subject is required.

b) *Teaching methods*
not applicable

c) *Requirements for participation*
For the oral subject examination, all examination components completed during the course of study, with the exception of the Master's thesis and the oral defence, must be successfully completed.

d) *Applicability of module*
Molecular Biotechnology

e) *Requirements for awarding credits*
The oral subject examination is carried out by three examiners. It lasts for approximately 60 minutes.

f) *Credits and grades*
12 credits are awarded. The overall grade of the oral subject examination is calculated as the mean of the three examiners' assessments.

g) *Course offered*
every semester

h) *Workload*
The workload is 360 hours.

i) *Duration*
The oral subject examination lasts for approximately 60 min.

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