

**Examination Regulations
Master of Science (M.Sc.) in
Molecular and Developmental
Stem Cell Biology**

**Examination regulations ("Prüfungsordnung") for the Master of Science (M.Sc.) in Molecular and Developmental Stem Cell Biology at the Faculty of Medicine at Ruhr University Bochum,
Issued 2013**

Based on § 2 section 4 and § 64. section 1, North Rhine-Westphalia University Act ("Hochschulgesetz - HG") of October 31, 2006 (GV.NRW. p. 475), last edited by Article 2 of 8.10.2009 (GV.NRW S. 516), the Ruhr University Bochum issued the following statute:

Table of Contents

I. General Regulations

- § 1 Objectives
- § 2 Academic Grade
- § 3 International Orientation
- § 4 Intended Programme Duration, Course Start and Modularization
- § 5 General Admission Requirements
- § 6 Examinations and Other Contributions
- § 7 Definition of Examinations and Assessments of Assignments
- § 8 Grading System, Formation, and Weighting of Grades
- § 9 Admission to Module examinations and Examination dates
- § 10 Failure of and Repetition of Assignments and Examinations
- § 11 Internship abroad
- § 12 Assignment, Delivery, Grading and Repetition of Master's Thesis
- § 13 Extension of due dates, protection rules and disadvantage compensation
- § 14 Malicious Fraud and Violation of Regulations
- § 15 Crediting of Study Periods, Assignments, and Examinations
- § 16 Passing the Master's Examination
- § 17 Examination Board
- § 18 Examiners and Assessors
- § 19 Transcript of Records and Master's Certificate
- § 20 Invalidation of Master's Examination
- § 21 Insight in Examination Documents

II: Final Clauses

- § 22 Scope
- § 23 Effective Date and Publication

I. General Regulations

§ 1 Objectives

The international master program "Molecular and Developmental Stem Cell Biology" is a consecutive master course, which is built on bachelor degrees in life science majors and affine medical courses. The program serves the gain and distribution of in-depth specialised competences in the field of stem cell research that are based on knowledge in the life sciences or medicine and are applied in regard to the ethical and legal provisions in the Federal Republic of Germany. The students will be enabled to approach complex molecular and systemic issues independently that are needed for a transition to a research oriented professional career in universities, research facilities and industry.

§ 2 Academic Grade

The academic grade of "Master of Science" is awarded by the Medical Faculty upon passing of the Master-Examination.

§ 3 International Orientation

- (1) The master's programme is held in English
- (2) All examinations and contributions are in English
- (3) Within the programme, modules may be completed in universities abroad.

§ 4 Intended Programme Duration, Course Start and Modularization

- (1) The master's programme is a consecutive programme. The intended programme duration is 4 semesters. Courses start only in the winter semester. Admission is regulated by a "Numerus clausus".
- (2) The programme is modularised after appendix 1. Modules are based on classes after appendix 1. Classes are lectures together with seminars and practicals.
- (3) The proof of contributed accomplishments is gathered by the European Course Credit Transfer System (ECTS). Each examination or other contribution will be weighted according to the workload. The workload of an academic year is recognised as 1800 working hours and converted into 60 credit points (CP). 1 credit point (1 CP) corresponds to an estimated effort of 30 working hours.

§ 5 General Admission Requirements

- (1) As a precondition to enter the master's programme "Molecular and Developmental Stem Cell Biology", the candidate has to provide
 - a) a six semester bachelor's degree or an equivalent bachelor's degree in one of the subjects named in section 2,
 - b) knowledge of cell biology worth a minimum of 5 credit points in Lectures and 12 credit points in practical exercises, as well as molecular-genetic knowledge worth a minimum of 5 credit points in lectures and 12 credit points in practical exercises,
 - c) sufficient knowledge of the English language. This can be proven by TOEFL minimum scores of 550 (written), 215 (computer based), 79 (internet-based) or IELTS score of 6.0. The examination board rules on questions of equivalency.
- (2) Subjects according to section 1 are biology, biochemistry, biotechnology, molecular biology, biomedicine, molecular medicine, human medicine, veterinary medicine, dental medicine und equivalent specialized programs such as tissue engineering as long as the prerequisites for section 1 b) are fulfilled. The examination board decides on related subjects.

§ 6 Examinations and Other Contributions

- (1) All study and course examinations are carried out during the courses. The examinations as well as the master thesis are allocated to individual modules according to their contents.
- (2) In oral examinations, the student should demonstrate that he or she has an appropriate fundamental knowledge corresponding to the course of study, recognizes coherences in the examined area and can identify special issues. Oral exams are usually held by two examiners or by one examiner in the presence of a competent assessor or a knowledgeable observer as individual examinations (one student). The time frame is usually between 15 and 45 minutes. The main topics and results of the examination shall be recorded in a protocol. The result is to be announced subsequently.
- (3) In written examinations, the candidate has to prove that he or she is able to solve tasks and issues on the basis of the necessary fundamental knowledge in a limited time, with limited resources and given the usual methods of the discipline. The time frame for written examinations is between 60 to 120 minutes. They are to be evaluated by an examiner and the results are to be announced to the students within three weeks.
- (4) The candidate can get insight into the grading process within three months after the exam date. The examiner can determine dates for insight, which are usually within a period of two weeks after the announcement of the examination results. A repeated written examination is evaluated by two examiners. In the latter case, the arithmetic mean from the two gradings are calculated, and the mark rounded to the next higher grade in accordance with § 8 section 1 and 2.
- (5) Seminar contributions are coursework, which will be presented to the participants of the seminar by a participant or a group of participants in a particular topic in the form of a talk or an elucidated graphical presentation. These will be evaluated by the course instructor or the instructor as examiner. The grading of the seminar contribution must be clearly documented on the basis of a protocol.

(6) Written reports need to state the essential facts, coherences and interpretations of the objects of a course, e.g. a lecture or a research practical. The grading of written reports by the examiner should be comprehensibly documented in the report.

(7) Contributions according to paragraph 5 and 6 may be allowed as group contributions by the course instructor, if an individual assessment of the participants is possible.

§ 7 Definition of Examinations and Assessments of Assignments

(1) The modules and respective credit points are specified in the curriculum (Appendix 1). Courses accepted for credit points are lectures (in Appendix 1 labelled with V), seminars (S) and research practicals (Pr). The respective hours are represented as semester weekly hours (SWS)

(2) Within module XIII (Language course), the participation in courses can be done during the semester or the semester holidays, with respect to course availability of the Centre for Foreign Language Acquisition (Zentrum für Fremdsprachenausbildung) of the RUB. English native speakers should attend German courses. Bilingual students (English, German) can choose another language.

(3) All modules are graded

(4) Admission requirement for Module XII ("Master Project") is the acquisition of at least 90 credit points for modules from the first to the third semester. The examination board decides on exceptions.

(5) According to Appendix 1, a total of 120 credit points are awarded in the master course "Molecular and Developmental Stem Cell Biology"

§ 8 Grading System, Formation, and Weighting of Grades

(1) The grades for individual assignments and examinations are determined by the respective examiner. The following grades are available:

1 = very good = an excellent performance (= sehr gut)

2 = good = a performance considerably above average (= gut)

3 = satisfactory = an average performance (= befriedigend)

4 = adequate = a performance which still meets the requirements despite shortcomings (= ausreichend)

5 = fail = a performance which no longer meets the requirements due to substantial deficits (= nicht ausreichend)

(2) For a more differentiated assessment of the examination performance, individual grades may be lowered or raised by 0.3; the grades 0.7, 4.3, 4.7, and 5.3 are excluded. In case a grade is derived from several graded contributions, the arithmetic mean is calculated and rounded to the next best grade.

(3) In each module only one examination will take place, unless professional knowledge and skills acquisition of the students is facilitated by having several exams. If a module consists of multiple graded examinations, the arithmetic mean of the scores shall be calculated and the result shall be rounded to the next higher grade. However, a module is only considered as passed if all module examinations are rated at least "adequate".

(4) To calculate the final grade for the master's degree the sum of the individual course grades weighted by the respective credit points (CP) according to attachment 1 is divided by the total number of credit points achieved.

(5) To obtain the final grade only the first decimal will be considered, all other decimals will be deleted without rounding. The following final grades may be achieved:

Average up to 1.5 = very good; average above 1.5 to 2.5 = good; average above 2.5 to 3.5 = satisfactory; average above 3.5 to 4.0 = adequate

§ 9 Admission to Module examinations and Examination dates

(1) Students may only be admitted to examinations, when enrolled in the Master's program "Molecular and Developmental Stem Cell Biology" at the Ruhr University, when registered for the exam and are neither enrolled for another university's examination, nor finally failed any similar examination at another university.

(2) Study contributions and examinations should usually be performed for the first due date in the semester specified in the curriculum (Appendix 1). Students have to be informed at the beginning of each lecture on the nature and number of contributions, examinations and dates by which they are to be provided.

(3) For each module, one examination date and a resit date are offered at the end of the semester and before the beginning of classes for the next semester.

- (4) The mode of the registration process will be given by the course instructor at the beginning of the course. The registration period must count at least 28 days and allow for registration seven days prior to the exam. A withdrawal from the exam is allowed for up to 6 days prior to the examination date. Otherwise, participation in the exam is binding. It is not required to give a reason for the withdrawal. An exam from which a student has withdrawn will be counted as not registered for.
- (5) For practicals, a registration is required; the mode is determined by the director of the internship and is to be announced through notice. The registration period must count at least 14 days. Cancellation should be possible until the start of the practical.
- (6) The internship of Module 12 in Appendix 1 has admission requirements after paragraph § 7 section 4
- (7) The admittance to an experimental partial performance (e.g., a laboratory experiment) can be suspended if the necessary knowledge for the proper and safe conduct is not present. In this case has to be ensured, if possible, that the missing contribution can be supplied otherwise as part of the same course.
- (8) The right to an examination expires with cancellation.

§ 10 Seminar Contributions and Written Reports

- (1) A module examination, course examination or coursework is passed if at least the grade of "satisfactory" (4.0) has been obtained. A module is passed if all parts of it have been passed.
- (2) An examination is rated "insufficient" (5.0), if the candidate has missed a binding test date, withdraws from an already started examination or fails to deliver a written examination within the specified timeframe. The rule does not apply if the candidate is not responsible for the failure.
- (3) Upon failure of a module or course examination, a registration needs to be done for the next available test date. If both tests fail, the corresponding module can be repeated in the following academic year again. Successful partial credit can be awarded. For resits, the time limits specified in § 9 shall apply *mutatis mutandis*. In exceptional cases, the examination board can follow a reasonable request of a student and allow a later examination date.
- (4) For improvement of the grade of a module, a one-time resit examination date will be permitted.
- (5) If a course is failed, it can be repeated in the following academic year.
- (6) If a module is repeated after section 3 and failed again, the right to an examination expires. The Master's examination is then finally failed.

§ 11 Internship

- (1) Within the programme it is suggested to complete an internship, equalling 480 hours of work (16 credit points). The internship is intended to be completed in the third semester. It is recommended to perform the internship abroad.
- (2) The internship can only be completed in institutions accepted by the examination board. The medical faculty ensures that sufficient internship positions are offered abroad by arrangement with cooperating universities.
- (3) The examination board rules over assignments of internships in consideration with the individual scientific relevance and availability. The student is entitled to make suggestions.

§ 12 Issuance, Delivery, Grading and Repetition of the Master's Thesis

- (1) The master's thesis shall show that the candidate is in a position to process a problem independently, within a specified time and according to scientific methods. The extent of work shall not exceed 100 pages.
- (2) The master's thesis can be supervised by any university teacher or any professor and any lecturer, if he or she is involved in the teaching in the master's program "Molecular and Developmental Stem Cell Biology". The examination board may grant exceptions after § 65 University & College Act.
- (3) The topic of the master's thesis is issued at the request of the candidate via the chairperson of the examination board. The candidate can make suggestions for the topic of the master thesis.
- (4) Requirement for the issuance of the master thesis topic is the proof of a total of 90 credit points including 16 credit points for module 11 (Lab Bench Project and Grant Writing) according to Appendix 1.
- (5) The processing time for the master's thesis, from the date of issuance, is six months. The topic and date of issuance are to be recorded. The subject can only be returned once and within two months of issuance. On reasoned request of the candidate, the examination board can extend the processing time by up to six weeks. The examination board rules over exceptions.

(6) The Master's thesis is to deliver to the examination board in written form in duplicate and in electronic form; the submission is to be recorded. Upon submission, the candidate must certify in written form that the work was done independently and no other than the sources and aids given were used and citations are marked in an appropriate form.

(7) The Master's thesis is to be evaluated by two examiners or auditors independently and in writing. Among them must be the supervisor of the master's thesis. The second examiner is determined by the chairperson of the examination board. The evaluation procedure shall not exceed four weeks.

(8) From the two marks in accordance with § 8, section 1 and 2 the arithmetic mean is calculated and the grade is made according to § 8 section 2. If the difference of the two marks is more than 1.0 or the mean is greater than 4.0, the chairperson of the examination board appoints a third examiner. From the three reviews the arithmetic mean is calculated and the mark is formed under § 8, section 1 to 4. The Master's thesis can only be graded as "adequate" (4.0) or better if at least two ratings are "adequate" (4.0) or better.

(9) A failed master's thesis at a grading that is worse than "adequate" (4.0), may be repeated once. A return of the topic of the master's thesis after section 4 shall be allowed only if the candidate has not utilised this possibility in the first attempt.

§ 13 Extension of Due-dates, Safeguarding Provisions and Disadvantage Compensation

(1) If a candidate withdraws from, or misses an exam without the fault of the candidate, the alleged reason must be announced and made credible to the examination office within one week.

(2) If the announced reason is sickness, a medical certificate has to be handed in. In doubtful cases, an official medical certificate can be requested. From the second cancellation of the same test an official medical certificate is required. Moreover, the legal maternity protection periods, the periods of parental protection and the time due to the care and education of children as defined in § 25 Section 5 of the Federal Education Assistance Act, as well as due to the care of the spouse or husband, registered civil partner or the registered domestic partner, or a lineal relative or first degree by affinity are to consider.

(3) If the reason for the absence or withdrawal is approved by the examination board, usually the exam is to be taken the next exam date. If this regulation leads to an unreasonable delay in the course of the study, the examination board can set compensation.

(4) If a candidate makes credible by an official doctor's testimony that he or she is partially or completely unable to perform exams or coursework due to long-term or permanent physical or mental disability, the examination board can set replacements.

(5) Section 4 applies, taking into account the legal safety requirements *mutatis mutandis*, with consideration of protection provisions of the Maternity Leave Act and the terms of the Federal Child Benefit Act on parental leave and for the consideration of downtime with the care of relatives. The use of protection rules is to be announced to the examination board and made credible.

§ 14 Malicious Fraud and Violation of Regulations

(1) If the candidate tries to influence the result of a study contribution or examination by cheating or using unauthorized aids, the performance is to be rated as "not sufficient" (5.0). The same applies if the examiner excludes a candidate from continuation of the examination due to a disturbance. In serious cases, the examination board excludes the candidate or candidates from other examinations or demands the payment of a fine, according to § 63 section 5 of the Higher Education Act.

(2) The candidate may, after section 1 and within a period of six weeks, demand that decisions are reviewed by the examination board. Incriminating decisions immediately have to be announced to the candidate in written form, made credible and instructions on rights to appeal are to be included.

§ 15 Crediting of Study Periods, Assignments, and Examinations

(1) Periods of study, study contributions and examinations in the same course of study at other universities within the scope of the constitution shall be counted without equivalence examination *ex officio*.

(2) Periods of study, study contributions and examinations in other majors or at other universities as well as within the scope of state or state-approved vocational academies in the scope of the constitution are to be recognized if the equivalence is established. Periods of study and examinations, which were performed at universities outside the scope of the Basic Constitutional Law, will be counted on application provided that equivalence is assessed. Equivalence is to be assessed if periods of study, study contributions and examinations in content, scope and requirements of the admitting University

essentially correspond to those of the master's program "Molecular and Developmental Stem Cell Biology". It is not only a formal comparison, but an overall consideration should be carried out. The equivalence of periods of study and examinations at universities abroad, the Standing Committee of the German ministers of culture and the German Rectors' Conference as well as agreements within the framework of university partnerships must be observed. Equivalence of study, study and examination at foreign universities will also be presumed when these are completed as part of an exchange program, in which the respective course of a department participates. This applies to all mobility programs for which there are agreements on the part of the faculty, as well as for university partnerships and centrally coordinated mobility programs. When in doubt about the equivalence, the Central Office for Foreign Education can be heard. Upon request, the university can give credit based on other knowledge on qualifications or on the basis of submitted documents.

(3) If study contributions and examinations are credited, evaluations and grades are to be taken over and included into the calculation of the overall grade - so long the assessment and grading systems are comparable. With no comparable assessment and grading systems – except being subject to more specific agreements between faculties and their professional representatives and representatives of the subject - the specifications of the ECTS (European Course Credit Transfer System) of the European Union are applied. The credit is displayed on the certificate. Is a recognized equivalent examination not provided with a graded assessment, then the words "credited" are added to the certificate. The calculation of the final grade in these cases consists only of the assessed coursework and examinations.

(4) Responsible for credits according to sections 1 to 2 is the examination board.

(5) If the requirements of sections 1 to 2 are met, it is legally binding to give credit. The student has to submit the necessary documents for the credit. After submission of all necessary documents the ruling is issued within 6 weeks.

§16 Passing the Master's Examination

(1) The master's examination is passed by accumulating 120 credit points in accordance with § 7 section 5 and Appendix 1.

(2) The master's examination is irrevocably failed if a single module is irrevocably failed or a master's thesis has been graded below "adequate" („ausreichend"; 4.0), taking into account a possible second attempt.

(3) After passing the master's examination all pending assessments are terminated.

(3) Students who fail the master's examination may submit a request to receive a transcript of records. This transcript lists the assignments and examinations and their grades as well as missing assignments and examinations. This transcript of records must show that the master's examination was not passed. It is handed out on proof that the student has signed off the students register.

§ 17 Examination Board

(1) To organize the module examinations and the tasks assigned by these examination regulations the Faculty of Medicine amongst the other involved faculties of the Ruhr-Universität Bochum forms a cooperative Examination Board, of which the chairperson or its representative should be members of Medical Faculty. The Examination Board is a public authority according to German administrative law.

(2) The examination board consists of

- the chairperson,
- their deputy or deputies,
- two other members from the group of professors
- a member of the group of academic staff and
- two members of the group of students.

(3) The members of the examination board shall be elected by the faculty board of the Medical Faculty on proposal from the respective groups or departments. The term of the members of the group of professors and from the group of academic staff counts three years, the term of student members a year. Re-election is possible.

(4) The examination board shall ensure that the provisions of the examination regulations are adhered to and ensure the proper implementation of the examinations. It has also the decision on appeals against decisions taken in the examination procedure. The examination board has to report to the faculty at least

once during the academic year on the development of the tests and study course as well as the distribution of grades. The report is to be properly disclosed by the faculty.

(5) The examination board can transfer execution of its tasks on rules to the chairperson. This does not apply to decisions on appeals and the report to the Faculty Council.

(6) The examination board shall have a quorum if, in addition to the chairperson or his or her deputy, two other members of the group of professors and at least two other voting members are present. It acts by a simple majority. In a tie, the vote of the chairperson decides.

(7) In the assessment of studies and examinations, the setting of examination issues and the order of examiners and associate judges and assessors, the student members do not participate.

(8) The members of the examination board have the right to observe the examination procedures.

(9) The examination board meetings are not public. The members of the examination board are bound to secrecy. If they are not public servants, they are to be bound to secrecy by the chairperson of the examination board.

§ 18 Examiners and Assessors

(1) The Examination Board appoints the examiners and the assessors. Eligible as an examiner are only those university teachers involved in teaching the respective course in the master's programme. In addition, State Higher Education law (HG-NRW) specifies in § 65 section 1 that an examiner must have completed a master's degree in the in § 5 section 2 named topics, or completed an equivalent examination. The chair of the Examination Board ensures that the names of the examiners and assessors are published on the examination office public announcement board at least three weeks prior to the examination.

(2) The examiners assess the examinations independently.

(3) For examiners and assessors, § 17 section 7 sentence 2 and 3 apply accordingly.

§ 19 Transcript of Records and Master's Certificate

(1) After passing the master's examination, the graduate receives a master's certificate within four weeks. The master's certificate shows the topic of the master's thesis, the grade achieved for the thesis, the focal point programme and the final grade of the master's examination. In addition, a second sheet (Master's Transcript of Records) lists the courses credited together with the respective grades and credit points. The graduate furthermore receives a Diploma Supplement that explains the scientific level, contents, international comparability, and job relevance of the degree achieved.

(2) Simultaneously with the master's certificate the graduate will receive the master's diploma that carries the date of the master's certificate. With this document, the bestowal of the degree Master of Science (M.Sc.) is authenticated. The master's diploma will be signed by the chair of the Examination Board and includes the seal of the Faculty of Medicine.

(3) The Master's Certificate carries the date on which the last grade required for fulfilling the curriculum was received. In case of the master's thesis it will be the date of submission.

(4) Master's certificate, master's diploma, master's transcript of records and diploma supplement will be issued in English and in German.

§ 20 Invalidation of Master's Examination

(1) In case of malicious fraud in an assignment or a module examination that is only realized after handing out the master's certificate, the grade may be corrected. In severe cases the examination may be graded "fail" ("nicht ausreichend"; 5.0). The same holds for the master's thesis.

(2) If the preconditions for participation in an assignment or a module examination were not fulfilled, without any liability or attempt of fraud by the graduate, and if this fact is only realized after handing out the master's certificate, this deficiency is considered cured by passing the assignment or module examination.

(3) Prior to a decision based on sections 1 and 2 the graduate will have the opportunity to explain the case.

(4) An incorrect master's certificate has to be withdrawn. If applicable, a new master's certificate will be issued. If the master's examination is deemed failed due to malicious fraud, the master's diploma has to be withdrawn as well. A decision based on sections 1 and 2 is excluded when at least one year has passed since the disclosure of all relevant circumstances.

II. Final Provisions

§ 21 Scope

These examination regulations are applicable to students enrolled at the date of issuance in the master's programme "Molecular and Developmental Stem Cell Biology" of the Ruhr University Bochum.

§ 22 Effectiveness and Publication

(1) These examination regulations become effective on the day of their disclosure.

(2) These examination regulations will be published in the "Amtlichen Bekanntmachungen" (AB) of the Ruhr-Universität Bochum.
Bochum.

Issued, based upon decisions of the Medical Faculty Board on 30.01.2013.

The Rector Ruhr University Bochum
University Professor Dr. Elmar Weiler

Master of Molecular and Developmental Stem Cell Biology

Semesters	Module components	V	S	Pr	Modul	Modul	KP
1. Semester (WS)	Stem Cell Physiology I	2	1		req	I	5
	Stem Cell Lecture Series	1				VIII	2
	Bioinformatics	2	1		req	II	5
	4x Stem Cell Practical Courses		4	16	op	III	16
	Language Course I		1			XIII	2.5
28 (SWS)	Sum: 1. Semester	5	7	16			30.5
2. Semester (SS)	Stem Cell Physiology II	2	1		req	I	5
	Stem Cell Lecture Series	2				VIII	3
	Molecular Tracing Methods		1	3	req	VII	5
	Molecular Genetic Methods	2	1		req	IV	5
	Tissue Engineering	2	1		req	V	5
	Lab Rotation		1	8	op	X	5
	Language Course II		1			XIII	2.5
25 (SWS)	Sum: 2. Semester	8	6	11			30.5
3. Semester (WS)	Advances in Stem Cell Research Stem Cell Lecture Series	1	1		req	XI	2
	Pathology of Degenerative Diseases	2	1		req	VI	5
	Course in Animal Care and Handling	2		1.5	req	IX	5
	Bioethics including legal aspects		2		req	IX	3
	Lab Bench Project & Grant Writing		1	13	op	XI	14
24,5 (SWS)	Sum: 3. Semester	5	5	14.5			29
4. Semester (SS)	Master Project		1			XII	30
77,5 (SWS)	Total:	18	18	41.5			120

V =	Lecture
S =	Seminars (Studenten)
Pr =	Practical Work
KP =	Credit Points
req =	Required Module
op =	Elective Subject
Modul=	Module Nr. / Modules are color coded

Effective 29.01.2013