

Education and Examination Regulations 2023-2024

Master Biology

Radboud Universiteit



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PART I GENERAL PROVISIONS MASTER

Section 1. General Provisions

Article 1.1 Applicability of these regulations

1. These Education and Examination Regulations (hereinafter EER) apply to the Master's programmes (the degree programme in which the student is enrolled is hereinafter referred to as 'the programme'), including all their components, of the Faculty of Science. These EER outline the applicable procedures, rights and obligations concerning teaching, interim examinations and final examinations.
2. The present regulations apply to all students enrolled in the programme in the 2023-2024 academic year. Students who started the degree programme before 1 September 2016 and have been continuously enrolled in this programme may appeal to the EER that were active at the time of their initial enrolment in the programme.
3. Course components provided by other faculties or institutions are subject to the rules applicable at the faculty or institution in question. Components offered by the Faculty of Science are subject to the regulations described in at least one of the EER of the Faculty of Science at all times.
4. The faculty offers the following 120 EC Master's programmes:
 - a. Biology;
 - b. Computing Science;
 - c. Mathematics;
 - d. Medical Biology;
 - e. Molecular Sciences
 - f. Physics and Astronomy;
 - g. Science Education
5. The faculty offers the following 60 EC Master's programmes:
 - a. Information Sciences.
6. The degree programmes are offered exclusively as full-time programmes.
7. The programmes are taught in English, The exception to this is the education components of the Science and Education specialisations in the Master's programmes Biology, Mathematics, Medical Biology, Molecular Sciences and Physics and Astronomy and the Master's programme in Science Education, which are provided in Dutch.

Article 1.2 Executive Board Guidelines

1. The Executive Board has laid down the following guidelines with a view to the organisation and coordination of the provisions in these regulations: The guidelines can be found in the Appendix:
 - a. Distinction Regulations.
 - b. Fraud Regulations

Article 1.3 Definition of terms

1. The terms used in these EER that are also used in the Higher Education and Research Act (*Wet op het hoger onderwijs en wetenschappelijk onderzoek*, hereinafter, 'the Act') will have the same meaning as in the Act.
2. Apart from the terms referred to in paragraph 1, the terms below are understood to have the following meanings:
 - a. Degree programme: the Master's programme, as referred to in Article 7.3a, paragraph 1 of the Act;
 - b. Component: an educational unit as referred to in Article 7.3, paragraphs 2 and 3 of the Act;
 - c. Student: anyone enrolled at Radboud University for participation in a degree programme or in the partial examinations or final examinations of a programme;
 - d. Academic year: the period from 1 September in a given year until 31 August of the following year;
 - e. Practical: a practical exercise as referred to in Article 7.13, paragraph 2 under D of the Act;
 - f. Interim examination: an examination testing the knowledge, understanding or skills of the student in relation to a certain unit of study, as well as the assessment of the results of this examination, which is administered by at least one examiner designated by the Examining Board. For the purpose of these regulations, a partial examination or a resit is also considered an interim examination;
 - g. Partial examination: an examination of the knowledge, insight and skills of the student, as well as the assessment of the results of the examination, which, in conjunction with one or more other partial examinations, constitute the interim examinations as referred to under paragraph f. In these regulations, when the term 'examination' is used, this can also be read as 'partial examination', unless explicitly indicated otherwise;
 - h. Resit: an opportunity to retake a particular examination as referred to in Article 7.10, paragraph 1 of the Act. In these regulations, when the term examination is used this can also be read as resit, unless explicitly indicated otherwise;
 - i. Final examination: an assessment, on the basis of which the Examining Board determines whether all the components pertaining to the Master's programme have been completed successfully. The Examining Board may decide that the final examination also includes an investigation by the Examining Board into the knowledge, insight and skills of the candidate, as well as the assessment of the outcomes of that investigation (in accordance with Article 7.10 WHW);
 - j. Final paper: The final paper is an academic aptitude test with respect to the study programme's specific discipline. The programme-specific part of the EER defines what combinations of products and/or assessments are involved in the study programme's final paper. Final papers involve two examiners.
 - k. fraud: any behaviour or negligence on the part of the student that, by its nature, is directed toward making it partly or entirely impossible to properly assess the knowledge, insights and skills of the student or of another student.

- l. examining Board: the examining board of a degree programme, established in accordance with Article 7.12 of the Act. Also see the Radboud University Structural Regulations;
- m. examiner: the person designated by the Examining Board to administer the interim examinations, in accordance with Article 7.12 of the Act;
- n. EC: European Credits, i.e. the study load unit in accordance with the European Credit Transfer System;
- o. specialisation: a coherent programme within the Master's programme that has been approved as such by the faculty board;
- p. work day: Mondays to Fridays, with the exception of official holidays and any other days designated by Radboud University as collective holidays;
- q. awarding of the degree certificate: the formal confirmation that all the final examination requirements have been met;
- r. Study guide: the guide containing specific information about one of the Faculty of Science's Master's degree programmes;
- s. The University: Radboud University;
- t. The faculty: The Faculty of Science;
- u. The education institute: the organisational unit responsible for the degree programme;
- v. free elective: a freely-selected, academic, assessable component;
- w. Rules and regulations: the rules in which the Examination Board explain how it works in accordance with the Education and Examination Regulations.

PART II GENERAL PART

Section 2. Admission to the degree programme and education

Article 2.1 Admission and admission requirements

1. Decisions regarding admission are made by the education institute on behalf of the dean.
2. The programme-specific part of these EER lists the admission requirements students must meet to be admitted to the degree programme.

Article 2.2 Language requirements

1. Sufficient command of the English language is required to participate in the programme and to sit examinations in English. This requirement is met if the student:
 - a. comes from one of the following countries: Australia, Canada (with the exception of Quebec), Ireland, New Zealand, Singapore, the United Kingdom, the United States or South Africa; or
 - b. is in possession of a pre-university education (VWO) diploma; or
 - c. is in possession of a pre-university education diploma obtained at an English-language institution in the Netherlands or elsewhere; or
 - d. has a pre-university education diploma obtained at a German secondary education institution, with English as Grundkurs/Hauptfach; or
 - e. has a Bachelor's diploma from a university of applied sciences (HBO); or
 - f. has a Bachelor's diploma from a Dutch university; or
 - g. meets the requirements in the opinion of the programme; or
 - h. has passed one of the following assessments:
 - i. the TOEFL with a score of 575 or higher for the paper version;
 - ii. the TOEFL with a score of 90 or higher for the Internet version with none of the sub-scores below 20;
 - iii. the IELTS with a score of 6.5 or higher, where none of the sub-scores are below 6.0;
 - iv. the Cambridge CAE or CPE with a score of C or higher.
2. Sufficient command of Dutch is required to participate in the programme and to sit examinations in Dutch. Non-Dutch students have met the language requirement for sufficient proficiency in Dutch if they have passed the state examination of Dutch as a second language, level 2. In certain cases, the education institute may assess whether a student is sufficiently proficient in Dutch.

Section 3. Structure and design

Article 3.1 Final examination, degree and distinctions

1. The Master's programme is concluded with the Master's exam.

2. Students who pass the study programme's Master's exam will be awarded a Master of Science degree.
3. The degree referred to in paragraph 2 is awarded exclusively if the student has earned at least half of the EC for their degree programme at this University.
4. The Examining Board can award distinctions to students who have successfully passed the degree programme examination. The rules for awarding distinctions can be found in the annex in the Distinction Regulations.

Article 3.2 General learning outcomes

The degree programme has the following learning outcomes for students:

1. Acquire knowledge, skills and insights in the relevant field of study;
2. Develop academic competences;
3. Prepare for further study or a future career;
4. Strengthen qualifications in the area of independent academic research.

Article 3.3 Curriculum

1. The programme comprises the total of the components as described in the programme-specific part of these regulations and is aimed at the realisation of well-defined objectives regarding the knowledge, understanding and skills that students are expected to possess upon successful completion.
2. For each section, the lecturer should make a course guide available prior to the course, which includes a description of the course, assessments with weighting factors and deadlines of (partial) exams. Contrary to the above provisions, the course description, weighting factors and course deadlines completed in periods 3 and 4 may still be changed until the start of period 2 with the permission of the programme coordinator. The information in the study guide takes precedence.
3. Some modes of instruction have attendance/participation requirements. If this is the case, this will be mentioned in the course description of the study guide. Regular lectures and seminars do not have attendance/participation requirements.
4. The programme has research specialisations and societal specialisations. The specialisations are described in the programme-specific part.
5. Each degree programme includes a component that is philosophical in nature with a minimum study load of 3 EC, a free elective space of 6 EC and a component to aid reflection on study performance, study planning, and professional orientation with a study load of 1 or 2 EC.
6. The electives cannot have substantial overlap in content with other components in the nominal space of the study programme. It is not possible to receive an exemption for the elective component based on a Bachelor's course.
7. The composition of the Master's programme compiled by the student must be presented to the Examining Board for approval no later than three months before the expected examination date. The Examination Board will decide whether to grant approval within a month of receiving the submitted programme.

8. Students can only participate in components provided by the Radboud Teachers Academy of Education after the disciplinary internship has been completed. Students can only participate in the Science, Management and Innovation final research project after the student has passed the thematic components and NWI-FMT019 Methods in Societal Research: Science, Management & Innovation. A student can only participate in the Science in Society research project after 12 EC has been obtained from the SiS curriculum.
9. Students can add components to the examination programme. If these components mean that the student exceeds the total study load of 120 EC of the Master's programme, these components are always regarded as extracurricular. This is not an issue if courses have to be split for this purpose. Extra-curricular components do not count towards the determination of the distinction.
10. If a student has a choice between components within the curriculum and the student has passed more than one of these components, then the student can decide which components will count toward their distinction if one or more of the components are extra-curricular.
11. Extracurricular components are admissible if, in the opinion of the Examining Board, the course is testable at an academic level.

Article 3.4 Types of interim examination

1. Each component of the degree programme is concluded by an interim examination. Interim examinations may comprise more than one modular partial examination and may consist of the following assessment forms:
 - a. Written test and/or;
 - b. Oral test and/or;
 - c. Presentation and/or;
 - d. Skill test and/or;
 - e. The creation of a discipline-specific product and/or text.
2. Prior to the commencement of the academic year, information will be provided in the prospectus on each individual component regarding how the interim examinations will be administered and how their results will be determined, taking the weighting of any partial exams into account. At the request of the student or the examiner, the Examining Board may allow an exam to be taken in a form other than previously announced, if this is not to the detriment of the student.
3. In cases where an interim examination has admission requirements, the admission requirements will be published in the prospectus before the start of the academic year, see Article 3.3, paragraph 2. This requires permission from the programme coordinator. Contrary to the above provisions, the admission requirements for the courses completed in the fourth period may still be changed up until the start of the second period, with permission from the programme coordinator.
4. There are no admission requirements for interim examinations; if students are enrolled in a component, they are admitted to all sub-components, including the interim examination.

5. Students with functional impairments are given the opportunity to take exams in a manner appropriately suited to their impairment. The Examining Board shall, if necessary, seek expert advice and counsel prior to reaching its decision. If the students in question require certain facilities for their interim examinations or resits, they must request these from the Education and Examination Administration of the faculty no later than two weeks before the interim examination or resit.
6. During oral examinations, no more than one person is tested at a time, unless decided otherwise by the Examination Board.
7. Oral interim examinations are not public, unless the Examining Board has deemed otherwise in exceptional cases. Oral exams are recorded or a second examiner or designated observer will be present.

Article 3.5 Exemptions

1. At the request of the student and having heard the examiner involved, the Examination Board may exempt a student, either partially or fully, from sitting for an interim examination if the student:
 - a. Has completed a course in a relevant subject at a university or institute of higher vocational education (HBO);
 - b. Demonstrates that they have adequate knowledge and skills regarding the component in question as a result of relevant work experience or professional experience.
2. If the degree programme allows group exemptions, then these are included in the programme-specific part of these regulations.
3. Only one grade for each course may be registered for a single degree programme. If a course is also part of another examination programme, this course will be listed on the qualification as an exemption on the other diploma.
4. Students who were first enrolled on or after 1 September 2017 can never have more exemptions than a quarter of the total study load of the programme expressed in EC, as stated in paragraph 1.
5. All results for a degree programme achieved before the date of the first enrolment are stated as exemptions on the degree programme's diploma. These exemptions do not count towards the ECs as stated in clause 4 if the courses are only included in a one examination programme.
6. Exemptions as referred to in paragraphs 1 and 2 cannot be granted for final examination assignments.

Article 3.6 Term of validity for successfully completed interim examinations

1. The term of validity of successfully completed interim examinations is unlimited.
2. Passed partial exams are valid indefinitely, unless the lecturer specifies otherwise. The interim examinations are valid at least until the end of the academic year.
3. A successfully passed examination may be taken again. If a student resits an exam, the last result obtained is always valid for the study programme in which the exam is resit.

Article 3.7 Elective programmes

The programme Examining Board shall decide on a request for authorisation to follow a free elective as referred to in Article 7.3d of the WHW. The Examination Board will verify whether the programme fits within the domain of the degree programme under the authority of the Examination Board, whether it is sufficiently cohesive, and whether the level is adequate in the context of the programme's exit qualifications. The programme-specific part of these EER may contain further criteria for the order in which components may be taken and the related interim examinations.

Section 4. Examinations

Article 4.1 Frequency of interim examinations

1. Students are given the opportunity to take the examinations at least twice per academic year per interim examination.
2. Contrary to the provisions of paragraph 1, a degree programme coordinator may decide to only offer one opportunity for an interim examination or partial examination. If only one opportunity is given to take an interim examination or partial examination, this is stated in the programme study guide before the start of the academic year.
3. Notwithstanding the provisions in the first paragraph, there will be at least one opportunity in the following year to take an interim examination for a course that was taught for the final time in a particular academic year.
4. If a certain component is not given in a particular academic year, the opportunity to take the corresponding examination will be offered once in that academic year, as long as the interim examination is administered in written or oral form.

Article 4.2 Registration for course examinations

1. Students who register through Osiris for a component are automatically registered for the first interim examination opportunity in the relevant academic year. This does not apply to students whose enrolment in the degree programme has not yet been completed.
2. Students can register for an examination right up until 11:59 pm on the day prior to a period of five working days before the date of the examination. Registration is no longer possible after this date, unless the head of Education Centre decides otherwise in special cases on behalf of the dean.

Article 4.3 Confirmation of examination results

1. The result of an interim examination is determined by an examiner in the form of a grade on a scale from 1 to 10 (with 10 being the highest possible grade), consisting exclusively of whole numbers or half numbers. However, a grade of 5.5 is never given. When rounding off between 5 and 6, the rule is that a grade lower than 5.5 is rounded down to a five (5), which is an insufficient grade, meaning the educational component has not been successfully completed; a 5.5 and higher is rounded up to a six (6), meaning that the educational component has been successfully completed. In addition to results that take the form of a grade, an assessment of 'completed' ('voldaan' - V), 'not completed' ('niet

voldaan' - NV), 'pass' ('voldoende' - VLD), 'fail' ('onvoldoende' - OV), 'good' ('goed' - G) and 'very good' ('zeer goed' - ZG) may also be awarded.

2. Notwithstanding the provisions of paragraph 1, partial examinations may also be graded with one decimal point on a 1 to 10 point scale. Rounding off of grades is only done for the final grade of the component.

Article 4.4 Publication of results

1. The examiner shall determine the result of the final project within 15 working days after the presentation of the final project has taken place and after the final project has been submitted, using the method specified in the study guide.
2. The examiner shall determine the result of an interim examination within 15 working days of the date the examination was administered. Here, the precondition applies that there must be at least ten working days between the date of the publication of the result in Osiris and the date of the resit.
3. Contrary to the provisions in paragraph 2, the examiner shall determine the result of an interim examination in the fourth period no later than nine days before the scheduled date of the corresponding resit. The lecturer always has at least five working days after the written examination to determine the result.
4. Contrary to the provisions set out in paragraph 2, the examiner shall determine the result of an oral examination within two working days of the date it was administered.
5. In special cases, the Examination Board may extend the term in which the result must be determined as referred to in paragraph 2 and 3 by a maximum of 10 working days. This is not possible for interim examinations in the fourth period. The lecturer will inform students of this extension.
6. In this statement of the result of an interim examination, the student is also informed of their right to inspection, referred to in Article 4.5 as well as the right to appeal to the Examination Appeals Board.
7. Students may submit an appeal of a decision by the Examination Board to the Examination Appeals Board within six weeks.

Article 4.5 Right of inspection and explanation

1. Students may request access to review and inspect all graded work within at least 30 working days following publication of a written interim examination result. For the results of interim examinations with 'open' questions, at their request, the student shall be granted a copy of their graded work at cost.
2. During period referred to in paragraph 1 of this Article, any student who has taken an interim examination may review the questions and assignments of the interim examination in question, as well as the standards on which the result was based.
3. Students must be offered at least one opportunity to inspect or have their examinations explained, as referred to in paragraphs 1 and 2. If the student demonstrates that they are or were unable to attend an inspection, they may request the Examination Board to allow them another opportunity to inspect the examination, within the period referred to in

paragraph 1 if possible. In all cases, the inspection must take place at least five working days before the resit of an interim examination. For examinations in the fourth period, students may view their work until one working day before the resit.

4. The examiner shall retain all written interim examinations and related papers (assignments or otherwise) that count towards the final result for a period of two years following the date when the examination was administered. Master's programme reports and theses must remain available for visitations, accreditations and inspections, and shall be kept for seven years.

Article 4.6 Confirmation of examination results

1. Students are given the opportunity to take the final examination after they have provided sufficient proof of passing the components leading up to the final examination.
2. Examinations are scheduled each month.
3. The Examining Board will determine the result of the final examination, as well as the rules in relation to the manner in which the result of the examination is determined. The result of the examination is determined by the Examining Board within five weeks following the student's request. If the examination took place in July, the results will be determined no later than 31 August. Where needed in relation to entry requirements for a subsequent programme or the acceptance of a job, a statement can be released indicating that the student has met the requirements of the examination within five days. This is only possible if the student has met the criteria specified in clause 1.
4. Prior to determining the result of the final examination, the Examination Board may evaluate and assess the student's knowledge with respect to one or more components or aspects of the programme, if and to the degree to which the results of the related interim examinations justify this.

Article 4.7 Awarding distinctions

The guidelines concerning distinctions can be found in the Appendix of the Distinction Regulations.

Section 5. Study performance, guidance and evaluation of education

Article 5.1 Study performance and support

1. The faculty dean is responsible for recording student results in such a way that, upon request, the Examination Board can respond by providing the student with an overview of the progress of the study programme within a reasonable time frame.
2. The dean is responsible for providing adequate student counselling.

Article 5.2 Method of evaluation of education

In compliance with the quality assurance system of the university as described in the Handboek Kwaliteitszorg Onderwijs Radboud Universiteit (Radboud University Quality Assurance Manual), the dean shall ensure that the education of the degree programmes is evaluated systematically.

PART III PROGRAMME-SPECIFIC PART

Section 6. Admission to the study programme and education

Article 6.1 Admission requirements

The following students are admissible to the programme:

1. Students who have successfully passed the final examination of the Bachelor's programme in Biology at Radboud University.
2. Students who have successfully passed the final examination of the Bachelor's programme in Biology or an equivalent degree in a similar topic at another Dutch university.
3. Students who are in possession of a certificate that is at least equal to the qualification referred to in paragraph 6.1 under 1.
4. Students who have otherwise demonstrated suitability for participation in the study programme in the opinion of the Examining Board.

Components of the Microbiology specialisation have additional admission requirements, described in Article 6.3.

Article 6.2 Pre-Master's programme of study

Students who have earned a qualification in Biology or a related field from a university of applied sciences (HBO), including higher laboratory education (HLO) and Life Science study programmes, and have completed the Biology pre-Master's programme determined for the student are also admitted to the study programme.

Article 6.3 Microbiology enrolment capacity

In addition to the admission requirements described above, the Microbiology specialisation has a maximum number of 24 student enrolments per year.

Section 7. Structure and design

Article 7.1 Programme-specific learning outcomes

1. In addition to the general learning outcomes described in the general part of these regulations, the Master's programme aims to achieve the following learning outcomes:
 - a. Capable, based on broad and up-to-date knowledge of biological processes, in combination with specialist knowledge (theories, methods, techniques) and research experience in at least one sub-area of this field, of setting up and conducting research aimed at acquiring new knowledge and insight in this research area.
 - b. Capable of formulating new questions and hypotheses in the biological field, and familiar with the research methods and state-of-the-art techniques to answer these, taking into account available equipment and resources.

- c. Capable of setting up and conducting scientific experiments in an independent manner, including the required controls, of using models and theories to explain the results, and of evaluating the results in terms of well-founded scientific conclusions.
 - d. Capable of independently identifying, critically reading and comprehending relevant, up-to-date international literature from various disciplines within biology, of discriminating essential from nonessential information, and of integrating new information in their overall view on biology.
 - e. Capable of using concepts from different organisational levels in biology, in combination with those from physics, chemistry, (bio)mathematics, to solve a complex biological problem.
 - f. Capable of presenting the results of a research project in written form, in accordance with the standards of an academic article.
 - g. Capable of independent professional practice whereby, depending on the chosen specialisation, the emphasis is placed on conducting fundamental scientific research (under supervision), or on transferring or applying existing scientific knowledge, thereby taking into account the student's own competences.
 - h. Capable of asking adequate questions with a critical and constructive attitude towards analysis and answering complex biological problems.
 - i. Capable of defending their view and of critically evaluating other views in a scientific discussion.
 - j. Capable of presenting and discussing the results of a research project in the form of an oral presentation for experts and other students.
 - k. Capable of working in or leading a project team, including the making of plans, the distribution of tasks, the integration of sub-projects and the joint evaluation of results.
 - l. Capable of integrating ethical aspects in their professional practice, along with the ability to reflect on the potential implications for society.
 - m. Capable, through self-reflection and discussion with others, of assessing their own performance and opportunities on the labour market.
2. Students who choose a research-oriented specialisation, as described in Article 7.2 clauses 1a-d, will also achieve the following learning outcomes upon receiving their Master's qualification:
- a. Capable, based on broad and deepened knowledge of the specialisation topic and research experience in at least two distinct sub-areas of biological sciences, of setting up and performing scientific research in an independent manner.
 - b. Capable of presenting the results of a research project in written form, in accordance with the standards of an academic article.
 - c. Capable of writing a research proposal according to the criteria of external scientific funding organisations.
3. Students who choose the Science, Management and Innovation specialisation as described in Article 7.2e, will also achieve the following learning outcomes upon graduation:
- a. have knowledge of the Sustainable Development Goals (SDGs) from their own discipline and societal context
 - b. can set up and carry out interdisciplinary research independently
 - c. can work towards sustainable and innovative research-based solutions

- d. can make proposals that are intelligible to relevant stakeholders (academic and non-academic)
 - e. can create support for the achievement of the SDGs
4. Students who choose the Science in Society specialisation as described in Article 7.2f will also achieve the following learning outcomes:
- a. Capable of analysing the role of scientific expertise in societally relevant issues.
 - b. Capable of designing and conducting independent, methodologically sound research about the interface of science and society, and contributing to academic research.
 - c. Capable of understanding and implementing public and stakeholder engagement in research and innovation.
 - d. Capable of analysing, improving and evaluating interdisciplinary collaborations with multiple stakeholders, integrating different perceptions, interests and types of knowledge (experiential, professional and scientific).
 - e. Capable of substantiating and communicating the relevance of their scientific discipline in society.
5. Students who choose the Science and Education specialisation as described in Article 7.2g will also achieve the following learning outcomes:
- a. Have knowledge of and insight into the theoretical principles of discipline-specific thinking, educational design, and the methods and techniques of applying didactic research in the discipline;
 - b. Able to design, implement and systematically evaluate an educational design and a scientific study, drawing a link between didactic and professional practice concepts, discipline-specific thinking of the students at different levels and problems from teaching practice;
 - c. Able to devote attention to discipline-specific learning of individual students, focusing on developing inspiring education;
 - d. Able to apply thorough scientific knowledge of general didactic concepts about the learning of individual students and methods to improve both the social climate in the classroom and to answer the individual learning needs of the students;
 - e. Able to differentiate themselves and improve the social climate for collaboration and, in doing so, to set independent priorities and respond appropriately to development and behavioural problems, after consultation with relevant third parties;
 - f. Focus on collaboration and responsible behaviour based on clear communication with individual students and colleagues;
 - g. Develop their own professional knowledge base to justify their own actions and understand the actions of colleagues and supervisors;
 - h. Use their professional knowledge base and practical feedback (students, colleagues, and supervisors) to evaluate and guide their own professional development.
 - i. Develop a personal identity in the context of their own actions, external frameworks and ethical dilemmas.

Article 7.2 Composition of the programme

1. Subject to the provisions in the general part of these EER, the student chooses one of the following specialisations of the study programme:
 - a. Adaptive Organisms

- b. Conservation and Restoration Ecology
- c. Water and Environment
- d. Transnational Ecosystem-based Water Management
- e. Microbiology
- f. Science, Management and Innovation
- g. Science in Society
- h. Science and Education

Article 7.2.a Adaptive Organisms Master's specialisation

The Master's specialisation in Adaptive Organisms consists of the following components:

1. Mandatory components (15 EC):

| Course code | Course name | EC |
|-------------|---|----|
| NWI-BM036A | Orientation in Biology and Environmental Sciences | 3 |
| NWI-BM077 | Genomics | 3 |
| NWI-BM010C | Adaptation physiology of animals | 3 |
| NWI-BM076 | Symbiosis | 3 |
| NWI-BM035B | Molecular physiology of plant stress adaptation | 3 |

2. Limited choice electives (15 EC)

Students must choose at least one of the following courses, provided these do not correspond with the other components of the programme. Note: not all courses are taught every year.

| Course code | Course name | EC |
|-------------|--|----|
| NWI-BM004C | Apoptosis | 3 |
| NWI-BM010C | Adaptation physiology of animals | 3 |
| NWI-BM014D | Microbiology of aquatic ecosystems | 3 |
| NWI-BM016C | Cellular Imaging in Four Dimensions | 3 |
| NWI-BM024D | Course on laboratory animal sciences | 3 |
| NWI-BM032C | Advanced Endocrinology | 3 |
| NWI-BM033F | Nature in a Crowded Country | 3 |
| NWI-BM035B | Molecular physiology of plant stress adaptation | 3 |
| NWI-BM038A | Ecological and Environmental Concepts | 3 |
| NWI-BM039A | Management of Ecosystems | 3 |
| NWI-BM040B | Field Course Alpine Ecology (alternates with BM048B, not in 2023-2024) | 6 |
| NWI-BM041B | Principles of Systems Biology | 3 |
| NWI-BM048B | Field research course (alternates with BM040B, offered in 2023-2024) | 6 |
| NWI-BM060C | Quantitative conservation ecology | 6 |
| NWI-BM063 | Microbial Physiology and Metabolism | 3 |
| NWI-BM065 | Microbial Cell Structure and Function | 3 |

| | | |
|------------|--|---|
| NWI-BM067 | Host-Microbe Interactions | 3 |
| NWI-BM068 | Environmental Microbiology and Biotechnology | 3 |
| NWI-BM074A | NIOZ Marine Master's Summer Course | 4 |
| NWI-BM075 | Biodiversity Assessment | 3 |
| NWI-BM076 | Symbiosis | 3 |
| NWI-BM077 | Genomics | 3 |
| NWI-BM080 | Molecular Parasitology | 3 |
| NWI-BM083 | Data Visualisation | 3 |
| NWI-BM081 | Digesting the Microbiome | 3 |
| NWI-BM082 | Food & Brain Health | 3 |
| NWI-BM086 | Human Breathomics | 3 |
| NWI-BM087 | Imaging in Modern Cell Biology | 3 |
| NWI-BM090 | Urban Evolution | 3 |
| NWI-MM002A | Environmental and Ecological Modelling | 3 |
| NWI-MM013 | Research Skills | 3 |
| NWI-MM018A | Environmental Economics for Water Management | 3 |
| NWI-MM019A | Integrated Water Management | 3 |
| NWI-MM021 | Social Aspects of Water Management | 3 |
| NWI-MM022 | Water Governance and Spatial Planning | 3 |

The student must also choose from one of the following philosophical courses (3 EC):

| Course code | Course name | EC |
|--------------|--|----|
| NWI-FFIL202A | Evolution and the Mind | 3 |
| NWI-FFIL203B | Bio-ethics for Life Scientists | 3 |
| NWI-FFIL209B | Environmental Ethics | 3 |
| NWI-FFIL211B | Physics and Philosophy | 3 |
| NWI-FFIL212 | Philosophy of Water Management | 3 |
| NWI-FFIL215 | Upgrading the Human? | 3 |
| NWI-FFIL216 | Imagining the Anthropocene | 3 |
| NWI-FFIL217 | Science and Arts | 3 |
| NWI-FFIL218 | Science and Values | 3 |
| NWI-FFIL302 | Philosophy & ethics in microbiology | 3 |
| NWI-FFIL220 | Philosophy of Evidence and Expertise | 3 |
| NWI-FFIL221 | Compete or Collaborate? - An Introduction to Disciplines and Interdisciplinarity | 3 |

In addition to this, natural-science components at a measurable Master's level need to be chosen up to a total of 15 EC of the limited elective space.

A maximum of 6 EC of the limited elective space can be used to extend the scientific internships. If a student wishes to expand their internship by more than 6 EC, they should request permission for this from the Examining Board prior to the internship. It is explicitly not allowed for free electives to be used to extend an internship.

All components without a course code and not covered by the limited extension of the internship, as described above, must have their level assessed and be approved by the Examining Board before they can be included in the limited elective space.

3. Free electives (6 EC)

Chosen components need to be at a measurable academic level.

The free electives may not be used to extend the scientific internship if this internship has already been extended from the limited elective space (also see Article 7.2a paragraph 2).

4. Internships (72 EC) (NWI-BM-STAGE1 and NWI-BM-STAGE2)

Students should take two scientific internships at university level that concern a biological problem, which is investigated through experiments and/or data analysis, each having a study load of 36 EC. The findings are recorded and presented in a written report and an oral presentation. At least one internship should take place on a specialisation-related topic, as specified in the study guide.

One or both academic internships can be completed at a department at Radboud University or Radboud university medical center. Contrary to the above provisions, one or both internships can also be done at an external research department, on the condition that written permission is obtained at the start of the internship from an internal examiner of Radboud University or Radboud university medical center, who will also act as the assessor. Each year, the study programme will publish a list, in the course guide, of suitable internship departments where at least one internal or external internship must be completed. Assessment of the internships is done with the internship assessment form for the Master's phase of the study programme. Assessment of the second internship by the same first examiner as for the first internship is not permitted, with the exception of external internships.

4a. Portfolio (NWI-BM054B)

The portfolio is part of the internship. Students orientate themselves and prepare for careers during the portfolio. This is done through various assignments: writing cover letters, creating a CV, attending and reflecting on career orientation activities.

5. Review article (6 EC) (NWI-BM-REVIEWART)

A literature review of a biological problem. Assessment must be carried out by an examiner from an internship department suitable for this specialisation, as described in the course guide. The Review article can be replaced by Field Course in Alpine Ecology (NWI-BM040B) or Field Research Course EER 23-24 MA Biology [English Version]

(NWI-BM048B). The Review Article and the Research Proposal may not both be replaced by a field course. The Review article and the Research proposal may not have the same examiner, but such a limitation does not apply if one of these assignments has been replaced by the Field Course in Alpine Ecology (NWI-BM040B) or Field Research Course (NWI-BM048B).

6. Research proposal (6 EC) (NWI-BM-RESPROP)

A research proposal based on a biological problem. Assessment must be carried out by an examiner from an internship department suitable for this specialisation, as described in the course guide. The Research proposal may be replaced by Field Course Alpine Ecology (NWI-BM040B) or Field research Course (NWI-BM048B). The Review Article and the Research proposal may not both be replaced by these courses. The Review article and the Research proposal may not have the same examiner, but such a limitation does not apply if one of these assignments has been replaced by the Field Course in Alpine Ecology (NWI-BM040B) or Field Research Course (NWI-BM048B).

Article 7.2b Master's specialisation in Conservation and Restoration Ecology

The Master's specialisation in Conservation and Restoration Ecology consists of the following components:

1. Mandatory components (15 EC):

| Course code | Course name | EC |
|-------------|---|----|
| NWI-BM036A | Orientation in Biology and Environmental Sciences | 3 |
| NWI-BM060C | Quantitative conservation ecology | 6 |
| NWI-BM039A | Management of Ecosystems | 3 |
| NWI-BM014D | Microbiology of aquatic ecosystems | 3 |

2. Limited choice electives (15 EC)

A student must choose from the limited choice electives as described in Article 7.2a, paragraph 2, under the conditions stated therein.

3. Free electives (6 EC)

Chosen components need to be at a measurable academic level.

The free electives may not be used to extend the scientific internship if this internship has already been extended from the limited elective space (also see Article 7.2a paragraph 2).

4. Internships (72 EC) (NWI-BM-STAGE1 and NWI-BM-STAGE2)

See Article 7.2a, paragraph 4.

5. Review article (6 EC) (NWI-BM-REVIEWART)

See Article 7.2a, paragraph 5.

6. Research proposal (6 EC) (NWI-BM-RESPROP)

See Article 7.2a, paragraph 6.

Article 7.2c Master's specialisation in Water and Environment

The Master's specialisation in Water and Environment consists of the following components:

1. Mandatory components (15 EC):

| Course code | Course name | EC |
|-------------|---|----|
| NWI-BM036A | Orientation in Biology and Environmental Sciences | 3 |
| NWI-BM038A | Ecological and Environmental Concepts | 3 |
| NWI-BM039A | Management of Ecosystems | 3 |
| NWI-BM075 | Biodiversity Assessment | 3 |
| NWI-MM002A | Environmental and Ecological Modelling | 3 |

2. Limited choice electives (15 EC)

A student must choose from the limited choice electives as described in Article 7.2a, paragraph 2, under the conditions stated therein.

3. Free electives (6 EC)

Chosen components need to be at a measurable academic level.

The free electives may not be used to extend the scientific internship if this internship has already been extended from the limited elective space (also see Article 7.2a paragraph 2).

4. Internships (72 EC) (NWI-BM-STAGE1 and NWI-BM-STAGE2)

See Article 7.2a, paragraph 4.

5. Review article (6 EC) (NWI-BM-REVIEWART)

See Article 7.2a, paragraph 5.

6. Research proposal (6 EC) (NWI-BM-RESPROP)

See Article 7.2a, paragraph 6.

Article 7.2d Master's specialisation in Transnational Ecosystem-based Water Management

The Master's specialisation in Transnational Ecosystem-based Water Management consists of the following components:

1. Mandatory components (60 EC):

At Radboud University:

| Course code | Course name | EC |
|-------------|---|----|
| NWI-BM036A | Orientation in Biology and Environmental Sciences | 3 |
| NWI-BM038A | Ecological and Environmental Concepts | 3 |
| NWI-BM039A | Management of Ecosystems | 3 |
| NWI-BM075 | Biodiversity Assessment | 3 |
| NWI-MM002A | Environmental and Ecological Modelling | 3 |
| NWI-MM019A | Integrated Water Management | 3 |
| NWI-MM021 | Social Aspects of Water Management | 3 |
| NWI-MM018A | Environmental Economics for Water Management | 3 |
| NWI-MM022 | Water Governance and Spatial Planning | 3 |
| NWI-FFIL212 | Philosophy of Water Management | 3 |

At the University of Duisburg-Essen:

| | Course name | EC |
|--|---|----|
| | Hydroclimatology and Sustainable Water Management | 4 |
| | Aquatic ecotoxicology | 3 |
| | Water Quality Modelling | 3 |
| | Ecology and Protection of Freshwater Ecosystems and Aquatic Organisms | 5 |
| | Hydrobiological Field Trips | 2 |
| | Waterborne Diseases | 2 |
| | Basics in Hydraulic Planning and Hydraulic Works | 3 |
| | Waste Water Treatment | 3 |
| | Flood Management | 2 |
| | River Basin Management | 3 |

2. Project (16 EC) (NWI-TWM24)

A project consisting of an internship based on career orientation in the field of Transnational Ecosystem-based Water Management. This space may also be filled with a short academic internship. The project is carried out under the responsibility of an examiner from one of the chair groups at the Radboud Institute for Biological and Environmental at Radboud University, at the Institute for Science EER 23-24 MA Biology [English Version]

and Society at Radboud University or by an assistant, associate professor, or full professor at the Center for Water and Environmental Research at the University of Duisburg-Essen. Assessment of the internship is done with the internship assessment form for the Master's phase of the programme. Together with the Orientation in Biology and Environmental Sciences course, the project also includes the reflection on study performance, study planning and professional orientation, as referred to in Article 3.3, paragraph 3 of these EER.

3. Free electives (13 EC)

Consisting of components that can be freely chosen, on the condition that the content is of a measurable academic level and at least 8 EC from the free electives are at Master's level. A student can use a maximum of 5 EC within the elective space to extend the project. If a student wishes to expand the project by more than 5 EC, written permission should be requested from the Examining Board prior to beginning the project.

5. Internship (30 EC) (NWI-TWM22)

The university-level internship is completed under the supervision of an examiner from one of the chair groups at the Radboud Institute for Biological and Environmental Sciences of Radboud University or at the department of Sustainable Management of Resources of Radboud University, and by a lecturer, associate professor or full professor at the Center for Water and Environmental Research at the University of Duisburg-Essen.

5a. Portfolio (NWI-BM054B)

The portfolio is part of the internship. Students orientate themselves and prepare for careers during the portfolio. This is done through various assignments: writing cover letters, creating a CV, attending and reflecting on career orientation activities.

Article 7.2e Master's specialisation Microbiology

The Master's specialisation in Microbiology consists of the following components:

1. Mandatory components (18 EC)

| Course code | Course name | EC |
|-------------|--|----|
| NWI-BM069 | Introduction and Orientation in Microbiology | 3 |
| NWI-BM063 | Microbial Physiology and Metabolism | 3 |
| NWI-BM068 | Environmental Microbiology and Biotechnology | 3 |
| NWI-BM065 | Microbial Cell Structure and Function | 3 |
| NWI-BM067 | Host-Microbe Interactions | 3 |
| NWI-BM070 | Medical Microbiology | 3 |

2. Limited choice electives (12 EC)

A student must choose from the limited choice electives as described in Article 7.2a, paragraph 2, under the conditions stated therein.

3. Free electives (6 EC)

Chosen components need to be at a measurable academic level.

The free electives may not be used to extend the scientific internship if this internship has already been extended from the limited elective space (also see Article 7.2a paragraph 2).

4. Internships (72 EC) (NWI-BM-STAGE1 and NWI-BM-STAGE2)

See Article 7.2a, paragraph 4.

5. Review article (6 EC) (NWI-BM-REVIEWART)

See Article 7.2a, paragraph 5.

6. Research proposal (6 EC) (NWI-BM-RESPROP)

See Article 7.2a, paragraph 6.

Article 7.2f Master's specialisation in Science, Management and Innovation (SMI)

The Master's specialisation in Science, Management and Innovation consists of the following components:

1. Mandatory courses (15 EC)

| Course code | Course name | EC |
|-------------|--|----|
| NWI-FMT003E | Sustainable Innovation Management | 6 |
| NWI-FMT030 | Reaching the sustainable development goals | 6 |
| NWI-FMT019 | Methods in societal research: science, management & innovation | 3 |

2. Theme courses (15 EC)

Students can choose from one of the following themes:

Climate and Energy

| Course code | Course name | EC |
|-------------|-------------------------------------|----|
| NWI-FMT022 | Energy and Climate | 6 |
| NWI-FMT026 | Energy Modelling | 3 |
| NWI-FMT032 | Environmental Life Cycle Assessment | 6 |

Health

| Course code | Course name | EC |
|-------------|-------------------------|----|
| NWI-FMT023 | The Future of Health | 6 |
| NWI-FMT029 | How Health Systems Work | 6 |
| | Free electives | 3 |

Green Industries & IT

| Course code | Course name | EC |
|-------------|---|----|
| NWI-FMT022 | Energy and Climate | 6 |
| NWI-SM299 | Pattern Recognition for Natural Science | 3 |
| NWI-FMT032 | Environmental Life Cycle Assessment | 6 |

Biodiversity

| Course code | Course name | EC |
|-------------|---|----|
| NWI-BM038A | Ecological and environmental concepts * | 3 |
| NWI-BM075 | Biodiversity Assessment* | 3 |
| NWI-BM033F | Nature in a Crowded Country | 3 |
| NWI-FMT032 | Environmental Life Cycle Assessment | 6 |

* Students who choose (c) Water and Environment or (d) Transnational ecosystem-based Water Management (TWM) under Article 7.2, paragraph 1 will take other courses from the list mentioned in 7.2a paragraph 2, instead of these courses, on the condition that they do not overlap with the other components of the programme.

3. Disciplinary components (15 EC)

Choice of one of the combinations of mandatory components, as referred to in Article 7.2a paragraph 1, Article 7.2b paragraph 1, Article 7.2c paragraph 1, Article 7.2d paragraph 1, or Article 7.2e paragraph 1. If the combination is chosen as described in Article 7.2e paragraph 1, the student must make a selection of 15 EC from the courses listed there. Alternatively, the student can choose a combination of courses referred to in Article 7.2a paragraph 1, Article 7.2b paragraph 1, Article 7.2c paragraph 1, Article 7.2d paragraph 1 or Article 7.2e paragraph 1, with a total of 15 EC, by requesting permission from the Examining Board with a written motivation letter, within one year of the start of the Master's programme.

4. Philosophical course (3 EC)

The student must choose from one of the following philosophical courses (3EC):

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| Course code | Course name | EC |
|--------------|--------------------------------------|----|
| NWI-FFIL202A | Evolution and the Mind | 3 |
| NWI-FFIL203B | Bio-Ethics for Life Scientists | 3 |
| NWI-FFIL209B | Environmental Ethics | 3 |
| NWI-FFIL211B | Physics and Philosophy | 3 |
| NWI-FFIL212 | Philosophy of Water Management | 3 |
| NWI-FFIL215 | Upgrading the Human? | 3 |
| NWI-FFIL216 | Imagining the Anthropocene | 3 |
| NWI-FFIL217 | Science and Arts | 3 |
| NWI-FFIL218 | Science and Values | 3 |
| NWI-FFIL302 | Philosophy & Ethics Microbiology | 3 |
| NWI-FFIL220 | Philosophy of Evidence and Expertise | 3 |

5. Internship (33 EC) (NWI-BM-STAGES1)

One scientific internship at university level on a biological problem. Assessment of the internship is done with the internship assessment form for the Master's phase of the programme. Assessment should take place by an examiner from an appropriate internship department, as described in the course guide. For extension of the internship, see: Free choice.

5a. Portfolio (NWI-BM054B)

The portfolio is part of the internship. Students orientate themselves and prepare for careers during the portfolio. This is done through various assignments: writing cover letters, creating a CV, attending and reflecting on career orientation activities.

6. Review article (6 EC) (NWI-BM-REVIEWART)

See Article 7.2a, paragraph 5.

7. Free electives (6 EC)

Under the conditions described in Article 7.2a paragraph 3. The student can use the free elective space to extend the internship by 6 EC. Students can use the free elective space to expand the Science, Management and Innovation final research project by 3 EC. If a student wishes to expand their internship by more than 6 EC, or the SMI Research project by more than 3 EC, they must request written permission from the Examining Board.

8. Science, Management and Innovation Final research project (27 EC) (NWI-FMT033)

The SMI research project may, in consultation with the SMI coordinator or a lecturer from the SMI specialisation, be completed both internally (within RU/Radboudumc) or externally (government, businesses, consulting firms, NGOs, etc.), at home or abroad. In the first month, the student writes a research plan that must be approved by the first examiner, supervisor and second examiner. The

assessment of the thesis is based on the criteria described in the manual ‘Doing a research project: A guide for students of the Science, Management & Innovation Master’s specialisation’. For extension of the SMI research project, see Article 7.2f, paragraph 8.

Article 7.2g Master’s specialisation in Science in Society (SiS)

The Master’s specialisation Science in Society consists of two partially corresponding ‘tracks’: Science and Societal Interaction & Philosophies and Worldviews.

1. Trackspecific courses (27 ec)

Science and Societal Interaction:

| Course code | Course name | EC |
|---------------------|--|----|
| NWI-FFIL218 | Science and Values | 3 |
| NWI-FC0045 | Science and Public Participation | 6 |
| NWI-FC0010D | Framing Knowledge | 6 |
| NWI-FC0043B | Science and Public Policy | 3 |
| NWI-FC0044C | Methods of societal research: science in society | 6 |
| SiS elective course | Social-science elective course | 3 |

A social-science elective (3 EC) must be submitted to the SiS coordinator for approval.

Philosophies and Worldviews:

| Course code | Course name | EC |
|---------------------|--|----|
| NWI- FFIL218 | Science and Values | 3 |
| NWI-FFIL220 | Philosophy of Evidence and Expertise | 3 |
| NWI-FC0010D | Framing Knowledge | 6 |
| NWI-FC0044C | Methods of societal research: science in society | 6 |
| SiS elective course | Philosophy elective courses | 9 |

Students can choose from the following courses for the Philosophy elective courses (EC):

Q1:

- NWI-FFIL216 Imagining the Anthropocene 3 EC
- NWI-FFIL211B Physics and philosophy 3 EC
- NWI-FFIL209B Environmental ethics 3 EC

Q2:

- NWI-FFIL212 Philosophy of water management 3 EC
- NWI-IMI003 Philosophy and ethics for computing and information science 3 EC

A course chosen as a Philosophy elective course cannot be chosen as a Philosophical course (7.2g3)

2. Disciplinary components (15 EC)

Choice of one of the combinations of mandatory components, as referred to in Article 7.2a paragraph 1, Article 7.2b paragraph 1, Article 7.2c paragraph 1, Article 7.2d paragraph 1, or Article 7.2e paragraph 1. If the combination is chosen as described in Article 7.2e paragraph 1, then the student must make a selection of 15 EC from the courses listed there. Alternatively, the student can choose a combination of courses referred to in Article 7.2a paragraph 1, Article 7.2b paragraph 1, Article 7.2c paragraph 1, Article 7.2d paragraph 1 or Article 7.2e paragraph 1, with a total of 15 EC, by requesting permission from the Examining Board with a written motivation letter, within one year of the start of the Master's programme.

3. Philosophical course (3 EC)

The student must choose from one of the following philosophical courses (3EC):

| Course code | Course name | EC |
|--------------|--|----|
| NWI-FFIL203B | Bioethics for Life Scientists | 3 |
| NWI-FFIL202A | Evolution and the Mind | 3 |
| NWI-FFIL209B | Environmental Ethics | 3 |
| NWI-FFIL212 | Philosophy of Water Management | 3 |
| NWI-FFIL217 | Science and Arts | 3 |
| NWI-FFIL215 | Upgrading the Human? | 3 |
| NWI-FFIL302 | Philosophy and Ethics in Microbiology | 3 |
| NWI-FFIL211B | Philosophy and Physics | 3 |
| NWI-FFIL216 | Imagining the Anthropocene | 3 |
| NWI-FFIL220 | Philosophy of Evidence and Expertise | 3 |
| NWI-FFIL221 | Compete or Collaborate? - An Introduction to Disciplines and Interdisciplinarity | 3 |

A course chosen as a Philosophical course cannot be chosen as a Philosophy elective course (7.2g1).

4. Internship (33 EC) (NWI-BM-STAGES1)

One scientific internship at university level on a biological problem. Assessment of the internship is done with the internship assessment form for the Master's phase of the programme. Assessment should take place by an examiner from an appropriate internship department, as described in the course guide. For extension of the internship, see: Article 7.2f, paragraph 8.

4a. Portfolio (NWI-BM054B)

The portfolio is part of the internship. Students orientate themselves and prepare for careers during the portfolio. This is done through various assignments: writing cover letters, creating a CV, attending and reflecting on career orientation activities.

5. Review article (6 EC) (NWI-BM-REVIEWART)

See Article 7.2a, paragraph 5.

6. Free electives (6 EC)

Under the conditions described in Article 7.2a paragraph 3. The student can use the free elective space to extend the internship by 6 EC. If a student wishes to expand their internship by more than 6 EC, written permission should be requested from the Examining Board prior to the internship.

7. Science in Society research project (30 EC) (NWI-SISSTAGE)

In consultation with a SiS lecturer, the SiS graduation project can be completed both internally (at the ISIS department) and externally (government, consulting firms, NGOs, etc.). In the first month, the student writes a research plan, which has to be approved by the first examiner, supervisor and second examiner. The assessment of the thesis is based on the criteria described in the "Graduation project guidelines SiS".

Article 7.2h Master's specialisation in Science and Education

The Master's specialisation in Science and Education consists of the following components:

1. Disciplinary components (15 EC)

Choice of one of the combinations of mandatory components, as referred to in Article 7.2a paragraph 1, Article 7.2b paragraph 1, Article 7.2c paragraph 1, Article 7.2d paragraph 1, or Article 7.2e paragraph 1. If the combination is chosen as described in Article 7.2e paragraph 1, the student must make a selection of 15 EC from the courses listed there. Alternatively, the student can choose a combination of courses referred to in Article 7.2a paragraph 1, Article 7.2b paragraph 1, Article 7.2c paragraph 1, Article 7.2d paragraph 1 or Article 7.2e paragraph 1, with a total of 15 EC, by requesting permission from the Examining Board with a written motivation letter, within one year of the start of the Master's programme.

2. Philosophical course (3 EC)

The student must choose from one of the following philosophical courses (3EC):

| Course code | Course name | EC |
|--------------|-------------------------------|----|
| NWI-FFIL203B | Bioethics for Life Scientists | 3 |
| NWI-FFIL202A | Evolution and the Mind | 3 |
| NWI-FFIL209B | Environmental Ethics | 3 |

| | | |
|--------------|---------------------------------------|---|
| NWI-FFIL218 | Science and Values | 3 |
| NWI-FFIL212 | Philosophy of Water Management | 3 |
| NWI-FFIL217 | Science and Arts | 3 |
| NWI-FFIL215 | Upgrading the Human? | 3 |
| NWI-FFIL302 | Philosophy and Ethics in Microbiology | 3 |
| NWI-FFIL211B | Philosophy and Physics | 3 |
| NWI-FFIL216 | Imagining the Anthropocene | 3 |
| NWI-FFIL220 | Philosophy of Evidence and Expertise | 3 |

3. Internship (30 EC) (NWI-BM-STAGEE1)

One scientific internship at university level on a biological problem. Assessment of the internship is done with the internship assessment form for the Master's phase of the programme. Assessment should take place by an examiner from an appropriate internship department, as described in the course guide.

3a. Portfolio (NWI-BM054B)

The portfolio is part of the internship. Students orientate themselves and prepare for careers during the portfolio. This is done through various assignments: writing cover letters, creating a CV, attending and reflecting on career orientation activities.

4. Review article (6 EC) (NWI-BM-REVIEWART)

See Article 7.2a, paragraph 5.

6. Free electives (6 EC)

Under the conditions described in Article 7.2a paragraph 3. The student can use the free elective space to extend the internship by 6 EC. If a student wishes to expand their internship by more than 6 EC, written permission should be requested from the Examining Board prior to the internship.

7. Education specialisation (60 EC)

The specialisation in Science and Education is provided by the Radboud Graduate School of Education (RDA). The curriculum and related regulations are found in the EER of the RDA.

Article 7.3 Deviating programme

If a student does not choose a specialisation, they must submit a motivated request for permission to the Examining Board for an alternative course selection for the Master's programme within three months after the start of the Master's programme. The submitted course selection must include at least a programme-specific selection of 60 EC, including at least 15 EC of Master's courses and a programme-specific internship of at least 30 EC.

Article 7.4 Definition of final paper

All curriculum components of at least 27 EC are considered a final paper, as defined in Article 1.3, paragraph j.

Section 8. Transitional provisions

These EER apply to cohorts from up to 4 years ago, i.e. from the 2019-2020 cohort to the present. Students from earlier cohorts (i.e. who started in 2018-2019 or earlier) should have coordinated their programme with the Examining Board in a timely manner.

Some courses (limited choice and otherwise) have been dropped in recent years or replaced by other courses. The table below shows which courses these are and, accordingly, which have been pre-approved by the Examining Board:

| Course code | Name | EC | End of year | Replacement | Name | EC | Comment |
|---|---|----|-------------|-----------------|-------------------------------------|----|----------------------------------|
| NWI-BM002C | Ecology and Management of Large Rivers | 3 | 2021 | none | | | |
| NWI-BM007C | TMS-VRS-D | 2 | 2020 | none | | | |
| NWI-BM033E | European Vegetation | 3 | 2018 | NWI-BM033F | Nature in a Crowded Country | 3 | |
| NWI-BM040A | Biodiversity and Ecological Assessment | 3 | 2018 | NWI-BM075 | Biodiversity Assessment | 3 | |
| NWI-BM060B | Quantitative Conservation Biology | 3 | 2019 | NWI-BM060C | Quantitative conservation ecology | 6 | BM60B & MM002A instead of BM060C |
| NWI-BM-THESIS1 | Review Article I | 6 | 2019 | NW-BM-REVIEWART | Review Article | 6 | or by BM-RESPROP |
| NWI-BM-THESIS2 | Review Article II | 6 | 2020 | NWI-BM-RESPROP | Research Proposal | 6 | or by BM-REVIEWART |
| NWI-MM020A | Environmental Life Cycle Assessment | 3 | 2021 | NWI-FMT032 | Environmental Life Cycle Assessment | 6 | |
| NWI-TWM21 | Hygiene, Water, Sanitation and Health | 3 | 2019 | none | | | |
| NWI-FFIL219 | Philosophy of Neuroscience for Science Students | 3 | 2021 | none | | | |
| Specialism specific | | | | | | | |
| Adaptive Organisms | | | | | | | |
| NWI-BM014D | Microbiology of aquatic ecosystems | 3 | 2018 | NWI-BM076 | Symbiosis | 3 | |
| Conservation and Restoration Ecology | | | | | | | |

| | | | | | | | |
|---|---|-------|------|------------|---|---|--|
| NWI-BM075 or NWI-BM040A | Biodiversity Assessment or Biodiversity and Ecological Assessment | 3 | 2018 | NWI-BM014D | Microbiology of aquatic ecosystems | 3 | |
| Science, Management and Innovation | | | | | | | |
| NWI-FMT020 | Bio-economy | 3 | 2019 | NWI-... | a 3 EC course on the Climate and Energy theme | 3 | |
| NWI-FMT025B | From Lab to Clinic | 6 | 2019 | NWI-FMT029 | How Health Systems Work | 6 | |
| NWI-FMT024 | Policy and Economics | 3 | 2020 | NWI-FMT030 | Reaching the SDGs | 6 | FMT024 & FMT006A instead of FMT030 |
| NWI-FMT006A | Entrepreneurship | 3 | 2020 | NWI-FMT030 | Reaching the SDGs | 6 | FMT024 & FMT006A instead of FMT030 |
| NWI-MM020A and 3 EC free electives | Environmental Life Cycle Assessment + 3 EC free electives | 3 + 3 | 2020 | NWI-FMT032 | Environmental Life Cycle Assessment | 6 | MM020A & 3 EC free elective course |
| Science in Society | | | | | | | |
| NWI-FC003B | Research, Responsibility and Uncertainty | 3 | 2022 | NWI-FC0045 | Science & Public Participation | 6 | NWI-FC0045 is a combination of NWI-FC003B and NWI-FC002B |
| NWI-FC002B | Science and Societal Interaction | 3 | 2022 | NWI-FC0045 | Science & Public Participation | 6 | |
| NWI-FC0013C | Science and Media | 3 | 2022 | none | | | Students may use the courses as a Societal Elective in the SIS |
| NWI-FFIL300C | Philosophy of Mathematical Practice | 3 | 2021 | none | | | |

PART IV FINAL PROVISIONS

Section 9. Final provisions

Article 9.1 Safety net scheme and hardship clause

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1. In all cases not covered fully or clearly by these regulations, the decision lies with the dean.
2. In all cases in which these regulations may result in an unreasonable or unfair situation for individual students, the Examining Board or the dean is authorised to make an exception to the provisions in these Education and Examination Regulations.

Article 9.2 Establishment and amendments

1. Contrary to the provisions in Article 7 of the Structure Regulations, these regulations are drawn up or amended by the dean after receiving advice from the programme committees and after having obtained the approval of the Joint Assembly of the faculty.
2. An amendment to these regulations has no impact on the current academic year, unless this would disproportionately damage the interest of the students.
3. Contrary to paragraph 1, the dean is authorised to drop elective components from the curriculum should the circumstances be deemed impossible for offering these courses.

Article 9.3 Entry into force

These regulations enter into force on 1 September 2023.

Article 9.4 Publication

1. The dean is responsible for publishing these regulations and any amendments thereto.
2. Interested parties may consult these regulations via the prospectus.

As established by the dean on 26-06-2023.

Appendix 1: Guideline for awarding distinctions

- a. With due observance of the provisions set out in this Article, the Examining Board is responsible for the decision of whether a distinction shall be awarded and if so, which distinction.
- b. The distinction shall be calculated on the basis of all components of the examination programme for which a mark has been awarded on a scale from 1 to 10, with the exception of extra-curricular components.
- c. The number of EC of the component referred to in paragraph b shall serve as the weighting factor for the calculation of the weighted average result, unless stipulated otherwise in the programme-specific part of the EER.
- d. The distinction 'cum laude' shall be awarded if the weighted average result of the final assessment of the components referred to in paragraph b is equal to or higher than 8.0. Both the EC-weighted average of the assessments of all exam parts with a size of **less than 20 EC** and the EC-weighted average of the assessments of all exam parts with a size **equal to or more than 20 EC** must be at least 8.0 before any rounding off.
- e. The distinction 'summa cum laude' shall be awarded if the weighted average result of the final assessment of the components referred to in paragraph b is at least 9.0. Both the EC-weighted average of the assessments of all exam parts with a size of **less than 20 EC** and the EC-weighted average of the assessments of all exam parts with a size **equal to or more than 20 EC** must be at least equal to 9.0 before any rounding off.
- f. A distinction shall not be awarded if more than 10% of the total study load of the examination programme (being one or more components) has been resat, unless the Examining Board decides otherwise, stating the reasons for this decision.
- g. A distinction shall not be awarded if exams have been resat more than once, unless the Examining Board decides otherwise, stating the reasons for this decision.
- h. A distinction is not granted if the extent of the granted exemption includes more than 50% of the programme, considering possible further restrictions to the number exemptions as stated in the EER.
- i. The distinction shall not be awarded if fraud was discovered in one of the exams of the examination programme.

Appendix 2: Fraud Regulations

Section 1. Introductory provisions

Article 1. Objective and scope of the regulations

The Dean of the Faculty of Science at Radboud University has drawn up the following regulations with a view to preventing fraud during interim and final examinations as referred to in Article 7.12b of the Higher Education and Research Act (Wet op het Hoger onderwijs en Wetenschappelijk onderzoek (hereinafter: WHW)) that are part of the teaching and exams of the study programmes in the Faculty of Natural Sciences, Mathematics and Computer Science at Radboud University.

Article 2. Definitions

The terms that are used in these regulations – in so far as these terms are also used in the WHW or the Education and Examination Regulations of the degree programme (hereinafter: the EER) – have the same meaning that is given to these terms in the WHW and the EER.

Section 2. Definition of fraud, procedure and sanctions

Article 3. Definition of fraud

1. At Radboud University, fraud is understood to mean any act or omission by a student which, by its nature, is intended to render the proper assessment of the knowledge, understanding and skills of that student or another student fully or partially impossible.
2. Fraud in general is defined as:
 - a. Fraud when taking written interim and final exams, including:
 - i. Having access to unauthorised aids as referred to in the House Rules for Radboud University Examination Rooms;
 - ii. Looking at the work of others or exchanging information;
 - iii. Impersonating someone else or allowing someone else to impersonate oneself during an interim or final exam.
 - b. Committing fraud when writing theses or other papers or completing assignments, including:
 - i. Plagiarism in the sense of using or copying someone else's texts, data or ideas without complete and correct references to sources, plagiarism in the sense of copying the work of another student and presenting this as one's own work and other specifically academic forms of plagiarism;
 - ii. The fabrication or falsification of research data;
 - iii. The submission of a thesis or other paper that has been written by someone else.
 - c. Other fraud during examination, including:

- i. Taking possession of assignments, answer keys and the like, prior to the time the exam takes place;
 - ii. Changing answers to questions on an examination after it has been submitted for assessment;
 - iii. Providing incorrect information when requesting exemption, an extension of the validity period, and other similar requests regarding an examination.
3. Any attempt at fraud will also be considered fraud in the sense of these regulations.

Article 4. Procedure for determining fraud

1. In the event that fraud is suspected, the Examining Board or the examiner will immediately inform the student. If fraud is suspected while an exam is being given, then the Examining Board or the examiner will provide the student with the opportunity to complete the exam.
2. The Examining Board or the examiner may order the student to provide the materials involved in the suspicion of fraud.
3. For the application of the provisions in paragraphs 1 and 2, 'examiner' is understood to mean the invigilator or another Radboud University staff member.
4. The Examining Board or the examiner will draw up a report of the suspected fraud. If the examiner draws up the report, they will send it to the Examining Board immediately.
5. The Examining Board will immediately make the report referred to in paragraph 4 available to the student and will begin an investigation into it. The Examining Board will provide the student with the opportunity to respond to the report in writing. The Examining Board will hear both the examiner and the student.
6. Within four weeks of making the report available to the student, the Examining Board will determine whether there is evidence of fraud. The Examining Board will inform both the student and the examiner of its decision in writing. The period of four weeks may be extended by two weeks.

Article 5. Remedial measures

If the Examining Board determines that fraud has been committed:

- a. The Examining Board will declare that the relevant exam taken by the student (or students) in question is considered invalid, and;
- b. It will document the identification of fraud and, if applicable, the sanctions imposed in the student's file.

Article 6. Sanctions

1. If the Examining Board determines an instance of fraud, it is able to:
 - a. Decide that the student is no longer able to sit for one or more exams during a period to be defined by the Examining Board, being no longer than a year;
 - b. Decide that no distinction will be granted on the student's diploma;
 - c. Make a recommendation to the Dean of the Honours Academy that the student should not be admitted to the honours programme of the university or the faculty, or

recommend that the student's participation in the honours programme of the university or the faculty be terminated.

2. If the Examining Board establishes that serious fraud has been committed:
 - a. the Examining Board can recommend to the Executive Board that the student's enrolment in a study programme be definitively terminated;
 - b. The Executive Board may definitively terminate the student's enrolment in a study programme at the suggestion of the Examining Board.
3. As described in the Distinction Guidelines, a distinction will not be awarded if fraud has been detected in one or more of the components in the entire examination programme.
4. The sanctions as specified in this provision will be imposed on the day following the date on which the student has been informed of the decision to impose the sanctions.

Section 3. Transitional provisions

Not applicable.

Section 4. Final provisions

Article 7. Decisions and legal protection

1. Decisions on the basis of these regulations may be sent to the student digitally or by email.
2. For decisions based on these regulations, the student is permitted to appeal the relevant decision with the Examination Appeals Board (EAB) within six weeks of the decision date.

Article 8. Adoption and amendments

1. This scheme is adopted and amended by the dean.
2. If the content of these regulations relates to duties and powers of the Examining Board of the study programme, that content must be approved by that Examining Board.

Article 9. Entry into force

These regulations enter into force on 1 September 2023. On that date, these regulations will replace the preceding regulations.

Article 10. Publication

1. The dean is responsible for publishing these regulations and for appropriately disclosing any amendments thereto.
2. For the purpose of proper and clear provision of information to students and prospective students, the dean includes these regulations as an appendix to the Education and Examination Regulations (Onderwijs- en Examenreglement (EER)).

As determined by the dean on 26-06-2023 and ratified by the Examination Board on 10-07-2023.