

# Education and Examination Regulations

2025-2026

Master Molecular Sciences

**Radboud Universiteit**



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# PART I GENERAL PROVISIONS MASTER

## SECTION 1. GENERAL PROVISIONS

### ARTICLE 1.1 APPLICABILITY OF THE REGULATIONS

1. These Education and Examination Regulations (hereinafter: EER) apply to the Master's programmes (the study programme in which the student is enrolled, is hereinafter referred to as: the study programme), including all associated educational units, of the Faculty of Science. These regulations outline the applicable procedures, rights and obligations for teaching, interim examinations and final examinations.
2. The present regulations apply to all students enrolled in the study programme in the 2025-2026 academic year. Students who enrolled in the study programme before 1 September 2016 and have been continuously enrolled in this study programme may appeal to the regulations that were active at the time of their initial enrolment in the study programme.
3. Educational units that are included in the programme-specific part of these regulations as part of the study programme are subject to the rules outlined in these regulations. Educational units offered by the Faculty of Science are always subject to the regulations included in at least one of the EERs of the Faculty of Science.
4. The Faculty offers the following 120 EC Master's programmes:
  - a. Biology
  - b. Computing Science
  - c. Science Education
  - d. Mathematics
  - e. Medical Biology
  - f. Molecular Sciences
  - g. Physics and Astronomy
  - h. Science for Sustainability
5. The Faculty offers the following 60 EC Master's programmes:
  - a. Information Sciences
6. The study programmes are offered exclusively as full-time programmes.

### ARTICLE 1.2 EXECUTIVE BOARD GUIDELINES

1. In view of the organisation and coordination of the provisions in these regulations, the Executive Board has established the following guideline and regulations. The guideline and regulations can be found in the appendix:
  - a. Appendix 1: Guideline for Awarding Distinctions
  - b. Appendix 2: Fraud Regulations

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### ARTICLE 1.3 DEFINITIONS

1. The terms used in these regulations that also appear in the Higher Education and Research Act (Wet op het Hoger onderwijs en Wetenschappelijk onderzoek, hereinafter: 'the Act') have the same meaning as that assigned to them by the Act.
2. Apart from the terms referred to in paragraph 1, the terms below are understood to have the following meanings:
  - a. **Study programme:** the Master's programme, as referred to in Article 7.3a, paragraph 1 of the Act.
  - b. **Educational unit:** a study programme is a coherent set of educational units; see Article 7.3, paragraphs 2 and 3 of the Act. In practice, an educational unit is also referred to as a 'course'.
  - c. **Student:** a person enrolled at Radboud University to take educational units and/or to take interim examinations and the final examination of a study 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. **Course objective:** a general description of the knowledge, understanding and/or skills the student must possess after completing an educational unit.
  - g. **Interim examination:** an examination testing the knowledge, understanding or skills of the student in relation to a certain educational unit, as well as the assessment of the results of this examination, which is administered by at least one examiner designated by the Examination Board as referred to in Article 7.10, paragraph 1 of the Act.
  - h. **Partial examination:** an examination testing the knowledge, understanding or skills of the student in relation to a certain educational unit, which in conjunction with one or more other partial examinations constitute the interim examination. In these regulations, when the term 'interim examination' is used, this can also be read as 'partial examination', unless explicitly indicated otherwise.
  - i. **Resit:** an opportunity to retake an interim examination as referred to in Article 7.10, paragraph 1 of the Act. In these regulations, when the term 'interim examination' is used, this can also be read as 'resit', unless explicitly indicated otherwise.
  - j. **Final examination:** an assessment, on the basis of which the Examination Board determines whether the Master's examination, as defined in the programme-specific part of these regulations, has been completed successfully.
  - k. **Final project:** the final project is an academic proof of competence in the specific field of study of the study programme.
  - l. **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, understanding and skills of the student or of another student.
  - m. **Examination Board:** the examination board of a study programme, established in accordance with Article 7.12 of the Act. See also the Radboud University Structure Regulations.
  - n. **Examiner:** the person designated by the Examination Board to administer the interim examinations, in accordance with Article 7.12c of the Act.
  - o. **Distinction:** a distinction awarded by the Examination Board that indicates that a student has completed the study programme with exceptional success. There are two distinctions: cum laude and summa cum laude.
  - p. **EC:** European Credits, i.e. the study load unit in accordance with the European Credit Transfer System.

- q. **Specialisation:** a coherent programme within the Master's programme that has been approved as such by the Faculty Board.
- r. **Working day:** Mondays to Fridays, with the exception of official holidays and any other days designated by Radboud University as collective holidays.
- s. **Course catalogue:** catalogue listing the educational units and minors associated with the study programmes. The catalogue provides programme-specific information about all Radboud University study programmes.
- t. **University:** Radboud University.
- u. **Faculty:** the Faculty of Science of Radboud University.
- v. **Education Institute:** the organisational unit responsible for the study programme.
- w. **Programme Director:** person responsible for managing the study programme. In these regulations, where the term 'programme director' is used, this can also be read as 'programme coordinator'.
- x. **Free elective:** a freely-selected, academic, assessable educational unit chosen from the options offered within the study programme.
- y. **Rules and Regulations:** regulations in which the Examination Board sets out how it works in accordance with these regulations.

# PART II GENERAL PART

## SECTION 2. ADMISSION TO THE STUDY PROGRAMME AND EDUCATION

### ARTICLE 2.1 ADMISSION AND ADMISSION REQUIREMENTS

1. The Admissions Office decides on admission on behalf of the Dean.
2. The general admission requirements are included in the [Registration Regulations for the 2025-2026 academic year](#). The programme-specific part of these regulations lists the programme-specific admission requirements.

### ARTICLE 2.2 LANGUAGE REQUIREMENTS

1. The Faculty offers study programmes in Dutch or in English. A Dutch-taught study programme may include English-taught educational units. An English-taught study programme may include Dutch-taught educational units. The language of instruction of the study programme is specified in the programme-specific part of these regulations.
2. To participate in a Dutch-taught study programme, the student must be able to provide proof of sufficient Dutch language proficiency. Qualifications and certificates that meet the Dutch language requirements can be found on the [website of Radboud University](#).
3. To participate in an English-taught study programme, the student must be able to provide proof of sufficient English language proficiency. Qualifications and certificates that meet the English language requirements can be found on the [website of Radboud University](#).
  - a. For the following certificates, the test results listed below are required:
    - TOEFL IBT, score  $\geq 90$  + sub-score  $\geq 22$  + writing sub-score  $\geq 25$
    - IELTS Academic, score  $\geq 6.5$  + sub-score  $\geq 6.0$  + writing sub-score  $\geq 6.5$
    - Cambridge Certificate C1 Advanced: general minimum score 176, minimum component score 169, minimum writing component score 176
    - Cambridge Certificate C2 Proficiency, general minimum score 180, minimum component score 169, minimum writing component score 176
4. A student who does not meet the requirements described above but can otherwise demonstrate sufficient language proficiency may submit a request for exemption from the language requirement to the Admissions Office, which will decide on the matter on behalf of the Dean.

## SECTION 3. STRUCTURE AND DESIGN

### ARTICLE 3.1 FINAL EXAMINATION, DEGREE AND DISTINCTIONS

1. A Master's programme is concluded with a Master's examination.
2. Students who pass the study programme's Master's examination will be awarded a Master of Science degree. The Master's examination is considered to have been successfully completed if a valid and satisfactory interim examination result has been obtained for all compulsory educational units, supplemented by elective educational units, as specified in the programme-specific part of these regulations. The Examination Board may conduct an additional investigation into the knowledge, understanding and skills of the candidate (see Article 7.10, paragraphs 1 and 2 of the Act).
3. The degree referred to in paragraph 2 is awarded exclusively if the student has earned at least half of the EC required for their study programme at this University.

4. The Examination Board can award distinctions to students who have successfully passed the final examination of the study programme. The rules for awarding distinctions can be found in the Guideline for Awarding Distinctions in the appendix.

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### ARTICLE 3.2 GENERAL LEARNING OUTCOMES

The study programme has the following learning outcomes for students:

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

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### ARTICLE 3.3 CURRICULUM

1. The programme-specific part of these regulations lists and describes all of the educational units that jointly comprise the study programme.
2. For each educational unit, the Programme Director is responsible for ensuring that the following information is included in the course catalogue for the academic year corresponding to these regulations prior to the adoption of these regulations:
  - a. a description of the educational unit
  - b. the course objectives
  - c. any admission requirements
  - d. the manner in which interim examinations are administered
  - e. how the results of an interim examination are determined, taking into account the weighting of any partial examinations
  - f. scheduling of partial or interim examinations
  - g. if relevant, the limited validity of partial examinations
  - h. any capacity restrictions
3. Contrary to the provisions of Article 3.3, paragraph 2, the information from Article 3.3, paragraph 2 under (a), (c), (e), and (f) of the educational units that are completed in the third and fourth periods may still be amended by the Programme Director up until the start of the second period.
4. Students can register for an educational unit up until 11:59 p.m. on the day prior to a period of four weeks before the start of the period in which the educational unit starts. For educational units in the first period, students can register until the end of the first week of teaching.
5. For educational units with a capacity restriction as referred to in Article 3.3, paragraph 2 under (h), if the number of enrolments exceeds capacity, the following procedure will be followed: participants will be admitted in order of enrolment. Students who cannot be admitted due to capacity restrictions will also be placed on a waiting list in order of enrolment. Notwithstanding the above provisions, the Programme Director can decide otherwise; the procedure that applies in that case must be included in the course catalogue for the academic year corresponding to these regulations prior to the adoption of these regulations. A capacity restriction may not apply to students for whom the educational unit is compulsory.
6. If students are granted admission to an educational unit, they are admitted to all components of the unit in question, including the interim examination.
7. Some modes of instruction have attendance/participation requirements. Attendance or participation can only be made compulsory if attendance is required to meet one or more of the course objectives. The attendance/participation requirement must be listed in the course catalogue under the relevant educational unit.

8. All Faculty of Science Master's programmes, with the exception of Information Sciences and Science for Sustainability, offer research specialisations and societal specialisations. The specialisations are described in the programme-specific part of these regulations.
9. The educational units of the nominal space of the study programme may not have any substantial substantive overlap.
10. The study programme includes a free elective space with a study load of 6 EC.
11. The study programme includes an educational unit of a philosophical nature with a minimum study load of 3 EC.
12. The study programme includes a component for the purpose of reflecting on study progress and planning, and professional orientation with a study load of 1, 2, or 3 EC. This component can be a stand-alone educational unit or integrated into subject-specific educational units. In the latter case, assessment must take the form of one or more partial examinations.
13. The study programme includes an individual final project. The programme-specific part of these regulations lists the partial or interim examinations that together represent the final project, and their scope in EC.
14. The student must present their compiled Master's programme to the Examination Board for approval no later than three months before the expected examination date. The Examination Board will reach a decision within 20 working days of receiving the submitted programme.
15. Extracurricular educational units are allowed if, in the opinion of the Examination Board, the course is testable at an academic level.
16. If a student chooses educational units within the programme that result in a total study load exceeding 120 EC or 60 EC respectively, the excess educational units will be classified as extracurricular. This does not apply if the study load of such an educational unit would have to be split up. Extracurricular educational units do not count towards the determination of the distinction.
17. If a student can choose different educational units within the curriculum, and the student has passed more than one of these educational units, the student can decide which educational units will count toward their distinction if one or more of the educational units are extracurricular.

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#### ARTICLE 3.4 SEQUENCE OF EDUCATION AND INTERIM EXAMINATIONS

1. The programme-specific part of these regulations may contain further requirements for the order in which educational units and the accompanying interim examinations may be taken.

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#### ARTICLE 3.5 TYPES OF INTERIM EXAMINATIONS

1. Educational units are concluded by an interim examination. Interim examinations may comprise several partial examinations. Only partial examinations and interim examinations can be used to determine a final grade.
2. Partial examinations and interim examinations may consist of the following assessment forms:
  - a. Written test and/or
  - b. Oral test and/or
  - c. Presentation and/or
  - d. Skills test and/or
  - e. The creation of a discipline-specific product and/or text.
3. Contrary to the provisions of Article 3.3, paragraph 2 under (d) and at the request of the student or the examiner, the Examination Board may allow an interim examination to be taken in an alternative form, if this is not to the detriment of the student.

4. The course materials offered provide the student with insight into the manner in which, as well as the form in which the learning objectives will be assessed.
5. For partial and interim examinations as referred to in paragraph 2 under (a), information concerning the format of the partial or interim examination will be provided no later than 10 working days before the day on which the partial or interim examination concerned is administered. In this context, the following must be specified:
  - a. The type of questions: open and/or closed questions
  - b. Permitted aids and resources
  - c. Application of methods whereby points are deducted, such as 'guess correction'
6. For partial and interim examinations as referred to in paragraph 2, under (c), (d), and (e), the assessment criteria must be made available with the assignment, or otherwise communicated to the student.
7. Students with functional impairments have the opportunity to take interim examinations in a manner appropriately suited to their impairment. The Examination Board shall, if necessary, seek expert advice prior to reaching a decision on the matter. If a student requires certain facilities for their interim examinations, they must request these from the Education and Examination Administration of the Faculty no later than two weeks before the interim examination.
8. During oral examinations, no more than one person is tested at a time, unless the Examination Board decides otherwise.
9. Oral examinations are not public, unless the Examination Board has deemed otherwise in exceptional cases. Oral examinations are recorded, or a second examiner or designated observer is present.

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#### ARTICLE 3.6 EXEMPTIONS

1. At the request of the student and having heard the examiner involved, the Examination Board may exempt the student, either partially or fully, from sitting for an interim examination if the student:
  - a. Has completed an educational unit at a research university or university of applied sciences (HBO) that is equivalent in content and level, or
  - b. Demonstrates that they have adequate knowledge and skills regarding the educational unit in question as a result of relevant work or professional experience.
2. Any generic exemptions in the study programme are included in the programme-specific part of these regulations.
3. A course can only be registered with a grade on the diploma for one study programme. If a course is also part of another examination programme, this course will be listed as an exemption on one of the two diplomas.
4. For students who first enrolled on or after 1 September 2017, the number of exemptions as referred to in paragraph 1 may not exceed one quarter of the total study load of the study programme expressed in EC.
5. All results achieved before the date of initial enrolment for a study programme are listed as exemptions on the diploma for that study programme. These exemptions do not count towards the EC as stated in paragraph 4 if the courses are only included in one examination programme.
6. Nor is it possible to obtain an exemption for the free elective space based on a Bachelor's educational unit that was not completed during the Master's programme.
7. Exemptions as referred to in paragraphs 1 and 2 cannot be granted for final projects.
8. If, after completing two Master's programmes, a student wishes to distribute the exemptions in accordance with paragraphs 2 and 3 across the two diplomas, they must submit an examination application for both study programmes at the same time.

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#### ARTICLE 3.7 TERM OF VALIDITY FOR SUCCESSFULLY COMPLETED INTERIM EXAMINATIONS

1. Successfully completed interim examinations are valid indefinitely.
2. Successfully completed partial examinations are valid indefinitely, unless specified otherwise in the course catalogue (see Article 3.3, paragraph 2, under (g)), but at least until the end of the academic year in which they were completed.
3. A successfully passed interim examination may be taken again. If a student resits an interim examination, in derogation from paragraph 1, the last result obtained always applies.

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#### ARTICLE 3.8 ELECTIVE PROGRAMMES

The Examination Board of the study programme decides about requests for authorisation to follow an elective programme as referred to in Article 7.3j of the Act. The Examination Board verifies whether the elective programme fits within the domain of the study programme, whether it is sufficiently cohesive, and whether the level is adequate in the context of the study programme's learning outcomes. Further requirements to this end may be set out in the programme-specific part of these regulations.

### SECTION 4. ASSESSMENT

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#### ARTICLE 4.1 FREQUENCY OF INTERIM EXAMINATIONS

1. For each educational unit, there are at least two interim examination opportunities per academic year.
2. Notwithstanding paragraph 1, there may in some cases only be one opportunity to take an interim examination or partial examination. The Programme Director is responsible for ensuring that this is included in the course catalogue for the academic year corresponding to these regulations prior to the adoption of these regulations.
3. Notwithstanding paragraph 1, if an educational unit is offered for the last time in a particular academic year, there will be at least one other opportunity to take an interim examination for this educational unit in the following academic year.
4. If an educational unit is not offered in a particular academic year, the opportunity to take the corresponding interim examination will be offered once in that academic year, as long as the interim examination is administered in written or oral form.

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#### ARTICLE 4.2 REGISTRATION FOR INTERIM EXAMINATIONS

1. Students can register for an interim examination up until 11:59 p.m. on the day prior to a period of five working days before the date of the interim examination. Registration is not possible after this, unless the head of the Education Centre decides otherwise in exceptional cases and on behalf of the Dean.

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#### ARTICLE 4.3 DETERMINATION OF INTERIM EXAMINATION RESULTS

1. The examiner determines the result of an interim examination on one of the following result scales:
  - a. A grade on a scale from 1 (lowest possible grade) to 10 (the highest possible grade), whereby only the following final grades can be awarded: 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10. A final grade of 6 or higher means that the educational unit has been successfully completed (pass). Grades that are not one of the permitted final grades must be rounded to the nearest permitted final grade. A grade that falls exactly between two permitted final grades must be rounded up.

- b. A non-numerical result from the following list: 'pass' (voldaan, VD), 'fail' (niet voldaan, NVD), 'satisfactory' (voldoende, VLD), 'unsatisfactory' (onvoldoende, ONV), 'good' (goed, G), 'participated' (deelgenomen, D) and 'did not participate' (niet deelgenomen, ND), whereby a result of 'VD', 'VLD', 'G' or 'D' means that the educational unit has been successfully completed.
2. Notwithstanding the provisions of paragraph 1 under (a), partial examinations may also be graded to one decimal point on a scale of 1 to 10.

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#### ARTICLE 4.4. PUBLICATION OF INTERIM EXAMINATION RESULTS

1. The examiner determines the result of an interim examination within 15 working days of the date the interim examination was administered. Here, the precondition applies that there must be at least 10 working days between the date of the publication of the result in OSIRIS and the date of the resit.
2. Notwithstanding paragraph 1, for interim examinations in the fourth period, the examiner shall determine the results of the examination no later than nine days before the date of the resit. The period between the interim examination and the resit is always at least 14 working days. This gives the examiner five working days to establish the result.
3. Contrary to the provisions of paragraph 1, the examiner shall determine the result of an oral examination within a maximum of five working days of the date it was administered, such that the student is given the opportunity to graduate in the current academic year.
4. In exceptional cases, the Examination Board may extend the term in which the result must be determined as referred to in paragraphs 1 and 2 by a maximum of 10 working days. This is not possible for the interim examinations in the fourth period. The lecturer will inform students of this extension.
5. The examiner determines the result of the final project within 15 working days after all products and assessments have been completed and submitted according to the method specified in the course catalogue.
6. In the statement concerning the result of an interim examination, the student is also informed of their right to inspection, as referred to in Article 4.5, as well as the right to appeal to the Examination Appeals Board.
7. Students may appeal an interim examination result to the Examination Appeals Board within six weeks after the date of publication of the examination result in question.

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#### ARTICLE 4.5 RIGHT OF INSPECTION AND REVIEW

1. Students are given the opportunity to view their graded work within 30 working days of the publication of the results of a written interim examination. The student can submit a request to this end to the examiner. The student may upon request also be provided with a copy of their graded work where 'open' questions are concerned. The inspection must take place at least five working days before the resit. For interim examinations in the fourth period, this is possible until one working day before the resit.
2. During the period referred to in paragraph 1, 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 assessment was based.
3. If the student demonstrates that they are or were unable to attend an inspection due to circumstances outside their control, they may ask the Examination Board to allow them another opportunity to inspect the examination, if possible within the period referred to in paragraph 1.
4. The retention period for partial and interim examinations is:
  - Written partial and interim examinations on paper: two years (retained by the examiner)
  - Digital written partial and interim examinations: two years (retained in the assessment software)
  - Final project: seven years (retained in OSIRIS)

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#### ARTICLE 4.6 DETERMINATION OF FINAL EXAMINATION RESULTS

1. Students are given the opportunity to take the final examination once they have successfully completed all educational units, as described in Article 3.3, paragraph 14.
2. There is at least one final examination date every month.
3. The Examination Board will determine the result of the final examination, as well as the rules for the manner in which the result of the examination is determined. The result is determined within five weeks following the application. If the final examination takes place in July, the results will be determined no later than 31 August. Where needed due to entry requirements for a subsequent study programme or the acceptance of a job, a statement can be released within five working days indicating that the student has met the requirements of the final examination. This is only possible if the student has met the requirement specified in paragraph 1.
4. Before the Examination Board determines the result of the final examination, they may evaluate and assess the student's knowledge on one or more educational units or aspects of the study programme, if and to the degree to which this is justified by the results of the relevant interim examinations.

#### SECTION 5. STUDY PROGRESS, ACADEMIC COUNSELLING, STUDY ADVICE AND EVALUATION OF EDUCATION

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##### ARTICLE 5.1 STUDY PROGRESS AND ACADEMIC COUNSELLING

1. The Dean is responsible for recording study results in such a way that the Education and Examination Administration can, upon request, and within a reasonable time period, provide every student with an overview of their study results up to that moment.
2. The Dean is responsible for providing adequate academic counselling.

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##### ARTICLE 5.2 METHOD OF EVALUATING EDUCATION

In compliance with the quality assurance system of the University as described in the Radboud University Quality Assurance Manual, the Dean shall ensure that the education of the study 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 study programme:

1. For the specialisations in Chemistry of Life, Medicinal Chemistry, Science in Society, Science, Management and Innovation, Science and Education:
  - a. Students who have successfully completed the final examination of the Bachelor's programme in Chemistry at Radboud University.
  - b. Students who have successfully completed the final examination of the Bachelor's programme in Science at Radboud University.
  - c. Students who have successfully completed the final examination of the Bachelor's programme in Molecular Life Sciences at Radboud University.
  - d. Students who are in possession of a certificate that is at least equivalent to the qualification referred to in Article 6.1 paragraph 1, under (a) through (c).
  - e. Students who have, in the opinion of the study programme, otherwise demonstrated their suitability for participation in the study programme.
  - f. Students must provide proof of sufficient proficiency in English, as described in Article 2.2.
2. For the specialisations in Molecular Chemistry and Physical Chemistry:
  - a. Students who have successfully completed the final examination of the Bachelor's programme in Chemistry at Radboud University.
  - b. Students who have successfully completed the final examination of the Bachelor's programme in Science at Radboud University.
  - c. Students who have successfully completed the final examination of the Bachelor's programme in Molecular Life Sciences at Radboud University provided their Bachelor's programme included at least the following topics:
    - i. Quantum mechanics, Chemical bonding (Molecular Chemistry 6 EC, Physical Chemistry 9 EC)
    - ii. Physical chemistry/Thermodynamics (6 EC)
    - iii. Solid state chemistry (6 EC)
  - d. Students who are in possession of a certificate that is at least equivalent to the qualification referred to in Article 6.1 paragraph 2, under (a) through (c).
  - e. Students who have, in the opinion of the study programme, otherwise demonstrated their suitability for participation in the study programme.
  - f. Students must provide proof of sufficient proficiency in English, as described in Article 2.2.

### ARTICLE 6.2 PRE-MASTER'S PROGRAMME OF STUDY

Students who have earned a qualification in a related field from a university of applied sciences (HBO) and have completed the pre-Master's programme curriculum of a maximum of 60 EC are also eligible for admission to the study programme.

## ARTICLE 7.1 PROGRAMME-SPECIFIC LEARNING OUTCOMES

In addition to the general learning outcomes described in the general part of these regulations, the study programme aims to achieve the following learning outcomes:

<b>Master's in Molecular Sciences graduates</b>	
Knowledge and understanding	<ul style="list-style-type: none"> <li>• Graduates have knowledge and understanding of current molecular sciences subjects founded upon and extending the Bachelor's level of various molecular sciences programmes.</li> <li>• Graduates are familiar with the use of advanced experimental approaches, providing the basis for originality in developing and applying ideas within a research context.</li> </ul>
Applying knowledge and understanding	<ul style="list-style-type: none"> <li>• Graduates have the ability to apply their knowledge and understanding, and problem-solving abilities, in new or unfamiliar environments within broader (or multidisciplinary) contexts related to molecular sciences.</li> </ul>
Making judgements	<ul style="list-style-type: none"> <li>• Graduates are able to critically evaluate research questions and results and defend points of view and conclusions.</li> <li>• Graduates can give feedback in writing and orally.</li> <li>• Graduates have the skills to critically read and interpret the scientific literature and apply new developments and experimental approaches in his specialised domain.</li> <li>• Graduates can evaluate ethical and societal issues associated with molecular research and its applications.</li> </ul>
Communication	<ul style="list-style-type: none"> <li>• Graduates have the ability to communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.</li> <li>• Graduates can function in a research team and in a multidisciplinary academic research setting.</li> </ul>
Lifelong learning skills	<ul style="list-style-type: none"> <li>• Graduates have strategic, critical thinking and problem-solving abilities.</li> <li>• Graduates can develop and execute research and communicate the results and implications with peers in the context of a research team.</li> <li>• Graduates can incorporate and interpret new knowledge and insights into existing scientific theories.</li> <li>• Graduates are able to adjust and redefine hypotheses and models explaining processes at the molecular level.</li> <li>• Graduates can respond to ethical, societal and global considerations in practicing his profession.</li> </ul>

1. Upon completion of their Master's programme, students who opt for a content/research-oriented specialisation have also
  - a. Developed the ability, based on specialised knowledge and research experience in one sub-area within the field of Molecular Sciences, to set up and independently perform experiments, design appropriate checks, and evaluate the results within a set time frame.
  - b. Developed the ability to independently write the basis for a scientific publication or research proposal.

- c. Developed the ability to break new ground in research areas based on a critical analysis of research results.
  - d. Developed the ability, in addition to their current specialisations, to work at a specialist level in another field of Molecular Sciences.
2. Students who opt for the specialisation in Science, Management and Innovation, as described in Article 7.2.2, also achieve the following learning outcomes:
- a. Graduates are able to bridge the gap between their own scientific discipline and other disciplines, based on a profound understanding of their chosen core theme and its relation to political, business/economic, societal, technological, environmental and legal issues or objectives in today's world.
  - b. Graduates are able to take an analytical approach to a system that can draw on methods or models from both inside and outside their core scientific discipline.
  - c. Graduates have developed a proficiency in utilising research methods and frameworks from the social sciences.
  - d. Graduates have developed a proficiency in speaking the language of both the natural and social sciences in order to effectively communicate in written and spoken form the problems and approaches for solutions that are found at the intersection of scientific research and applications in society.
  - e. Graduates have developed the ability to balance perspectives and interests in specific contexts within a company, government and non-government organisation or an industry in the general sense in order to formulate appropriate strategies and recommendations that can be utilised towards the realisation of the Sustainable Development Goals (SDGs).
  - f. Graduates have developed the ability to work in multidisciplinary and multicultural high-performing teams based on a sound division of tasks, knowledge, competencies, and responsibilities, whilst respecting diverging views and opinions.
3. Students who opt for the Science in Society specialisation will also achieve the following learning outcomes:
- a. Graduates are able to analyse the role of scientific expertise in societally relevant issues.
  - b. Graduates are able to design and conduct independent, methodologically sound research about the interface of science and society, and contribute to academic research.
  - c. Graduates are able to understand and implement public and stakeholder engagement in research and innovation.
  - d. Graduates are able to analyse, improve and evaluate interdisciplinary collaborations with multiple stakeholders, integrating different perceptions, interests and types of knowledge (experiential, professional and scientific).
  - e. Graduates are able to substantiate and communicate the relevance of their scientific discipline in society.
4. Students who opt for the Science and Education specialisation will also achieve the following learning outcomes:
- a. Graduates 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. Graduates are able to design, implement and systematically evaluate an educational design and a scientific study, drawing a link between didactic and professional practice concepts, the discipline-specific thinking of the students at different levels and problems from teaching practice.
- c. Graduates are able to devote attention to the discipline-specific learning of individual and unique students, focusing on developing inspiring education.
- d. Graduates are able to apply sound 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 meet the individual learning needs of students.
- e. Graduates are 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. Graduates are able to focus on collaboration and responsible behaviour based on clear communication with individual students, groups of students, and colleagues.
- g. Graduates can develop their own professional knowledge base to justify their own actions and understand the actions of colleagues and supervisors.
- h. Graduates are able to use their professional knowledge base and practical feedback (students, colleagues, and supervisors) to evaluate and guide their own professional development.
- i. Graduates are able to develop a personal identity in the context of their own actions, external frameworks, and ethical dilemmas.

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## ARTICLE 7.2 COMPOSITION OF THE STUDY PROGRAMME

1. The student chooses one of the following specialisations of the study programme:
  - a. A. Chemistry of Life
  - b. Medicinal Chemistry
  - c. Molecular Chemistry
  - d. Physical Chemistry
  - e. Science, Management and Innovation
  - f. Science in Society
  - g. Science and Education (this specialisation is closed for new students from 2024-2025)

The programme for the research specialisations (a, b, c, and d) is described in Article 7.2.1. The programmes for the societal specialisations (e, f, and g) are described in Articles 7.2.2, 7.2.3 and 7.2.4, respectively.

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### ARTICLE 7.2.1 RESEARCH SPECIALISATIONS

The Master's programme in Molecular Sciences with a research specialisation consists of the following components:

#### 1. EDUCATION SPECIALISATION (18 EC)

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18 EC of theoretical courses are mandatory for each specialisation:

- a. A. Chemistry of Life

Course code	Course name	EC
NWI-MOL418	Chemical Biology	6
NWI-MOL427	Glycobiology	3
NWI-BM078	Molecular Therapy	6

Course code	Course name	EC
NWI-MOL410	Omics	3

b. Medicinal Chemistry

Course code	Course name	EC
NWI-MOL418	Chemical Biology	6
NWI-MOL421	Medicinal Chemistry	6
NWI-MOL404	Instrumental Analysis in (Bio)molecular Chemistry	3
NWI-MOL432	Advanced Organic Synthesis	3

c. Molecular Chemistry

Course code	Course name	EC
NWI-MOL429	Systems Chemistry	6
NWI-MOL404	Instrumental Analysis in (Bio) Molecular Chemistry	3
NWI-MOL432	Advanced Organic Synthesis	3
NWI-MOL430	Polymer Science	6

d. Physical Chemistry

Course code	Course name	EC
NWI-MOL406	Computational Physical Chemistry 1	3
NWI-MOL437	Computational Physical Chemistry 2	3
NWI-MOL409	Fundamentals of Spectroscopy	6
NWI-MOL431	Fundamentals of Condensed Matter	6

## 2. RESEARCH PLAN (6 EC)

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Course code	Course name	EC
NWI-MOL500	Research Plan	6

In principle, the Research Plan is written in preparation for the NWI-MOL501B specialisation internship and should be completed before the start of the internship.

## 3. SPECIALISATION INTERNSHIP: NWI-MOL501B, 50 EC

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This internship, consisting of a theoretical and/or practical research project, a presentation and a report, constitutes the final project as referred to in Article 7.4 and should focus on a specialisation-related topic. The content must be approved in advance by the internship coordinator. The study programme publishes an annual course catalogue containing an overview of suitable internship departments. An internship can also take place externally.

## 4. SECOND INTERNSHIP OR BROADENING COURSES (30 EC)

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Choice from a second internship or academic educational units at minimum second-year Bachelor's level that the student did not previously take.

- The second internship (NWI-MOL502A) can be freely chosen, although its content and scope must be approved beforehand by the internship coordinator. This internship and the specialisation internship cannot be supervised by the same examiner, unless one of the internships takes place externally at a different university, institute or company at academic level. The scope of the internship can be expanded with the elective space referred to in Article 7.2.1 under 8 (or part thereof). This should be indicated before the start of the internship.
- Broadening courses are courses within the exact science domain, including mathematics and computing science and/or courses in medical and biomedical science and/or courses from the societal specialisations and/or a coherent set of courses of at least 15 EC worth of non-scientific courses.

#### 5. PROGRAMME-SPECIFIC MASTER'S ELECTIVES (6 EC)

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Master's courses from the exact sciences, including mathematics and computing science, and/or medical and biomedical sciences. Master's courses within these domains offered by the Faculty of Science are approved as long as there is no overlap with other courses in the programme. Courses in the social, educational and philosophical domain are excluded (courses with course codes beginning with NWI-FFIL, NWI-FC, NWI-FMT, NWI-FNWI, NWI-EDU, NWI-SFS).

#### 6. CAREER ORIENTATION (1 EC)

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Course code	Course name	EC
NWI-MOL412	Career Orientation (Molecular Sciences)	1

#### 7. EDUCATIONAL UNIT OF A PHILOSOPHICAL NATURE (3 EC)

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Courses offered at the Faculty of Science with a course code starting with NWI-FFIL2 or NWI-FFIL3 are automatically approved.

#### 8. FREE ELECTIVES (6 EC)

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See the general part of the EER, Article 3.3, paragraph 10.

The study programme includes a free elective space of 6 EC, to be filled with assessable courses at academic level. The free electives may also be added (in full or in part) to the internship referred to in paragraph 4. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

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#### ARTICLE 7.2.2 SCIENCE, MANAGEMENT AND INNOVATION

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

##### 1. EXACT SCIENCE MASTER'S COURSES (15 EC)

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Master's courses offered at the Faculty of Science are approved, provided there is no overlap with the other programme components. Courses in the social, educational and philosophical domain are excluded (courses with course codes beginning with NWI-FFIL, NWI-FC, NWI-FMT, NWI-FNWI, NWI-EDU, NWI-SFS).

##### 2. EXACT SCIENCE RESEARCH PROJECT (29 EC)

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This consists of the following components :

- Internship: practical or theoretical research project, presentation, and report (NWI-MOL502A, minimum 23 EC)
- Optional research-related specialisation course(s) (maximum 6 EC)

The content and scope of the internship must be approved in advance by the internship coordinator. The study programme publishes an annual course catalogue containing an overview of suitable internship departments.

### 3. FREE ELECTIVES (9 EC)

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To be filled with Master's courses, as referred to under 1 above, possibly in combination with a literature thesis (NWI-MOL601, 6 EC) or Research Plan (NWI-MOL500, 6 EC), and/or to be used to extend the exact science internship referred to under 2. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

### 4. CAREER ORIENTATION (1 EC)

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Course code	Course name	EC
NWI-MOL412	Career Orientation	1

### 5. EDUCATIONAL UNIT OF A PHILOSOPHICAL NATURE (3 EC)

---

Courses offered at the Faculty of Science with a course code starting with NWI-FFIL2 or NWI-FFIL3 are automatically approved.

### 6. MANDATORY EDUCATIONAL UNITS (15 EC)

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Course code	Course name	EC
NWI-FMT003F	Sustainable Innovation Management	3
NWI-FMT030	Reaching the Sustainable Development Goals	6
NWI-FMT019A	Methods in Societal Research: Science, Management & Innovation	6

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### 7. THEMATIC EDUCATIONAL UNITS (15 EC)

Choice of one of the following themes:

#### *Climate and Energy*

Course code	Course name	EC
NWI-FMT022	Energy and Climate	6
NWI-FMT026	Energy Systems Analysis	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

### **Biodiversity**

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

### 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 either internally (within RU/Radboudumc) or externally (government, businesses, consulting firms, NGOs, etc.), at home or abroad. In the first month, the student is required to write a research plan that must be approved by both the external and first supervisor, as well as the second reader. Students may only take part in the Science, Management and Innovation Final Research Project once they have successfully completed the theme-based educational units NWI-FMT019A Methods in Societal Research: Science, Management & Innovation and NWI-FMT003F Sustainable Innovation Management. The assessment of the thesis is based on the criteria described in the *Doing a Research Project: A Guide for Students of the Science, Management & Innovation Master's Specialisation* manual. For the extension of the SMI research project, see Article 7.2.2, paragraph 9.

This research project constitutes the final project as referred to in Article 7.4.

### 9. FREE ELECTIVES (6 EC)

The study programme includes a free elective space of 6 EC, to be filled with assessable courses at academic level. The free electives may also be added to the internship in paragraph 2. The student can use 3 EC of the free elective space to expand the Science, Management and Innovation final research project by 3 EC. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

### ARTICLE 7.2.3 SCIENCE IN SOCIETY

The Master's programme in Molecular Sciences with the specialisation in Science in Society consists of the following educational units:

#### 1. EXACT SCIENCE MASTER'S COURSES (15 EC)

Master's courses offered at the Faculty of Science are approved, provided there is no overlap with the other programme components. Courses in the social, educational and philosophical domain are excluded (courses with course codes beginning with NWI-FFIL, NWI-FC, NWI-FMT, NWI-FNWI, NWI-EDU, NWI-SFS).

#### 2. EXACT SCIENCE RESEARCH PROJECT (29 EC)

This consists of the following components:

- Internship: practical or theoretical research project, presentation, and report (NWI-MOL502A, minimum 23 EC)

- Optional research-related specialisation course(s) (maximum 6 EC)

The content and scope of the internship must be approved in advance by the internship coordinator. The study programme publishes an annual course catalogue containing an overview of suitable internship departments.

### 3. FREE ELECTIVES (9 EC)

To be filled with Master's courses, as referred to under 1 above, possibly in combination with a literature thesis (NWI-MOL601, 6 EC) or Research Plan (NWI-MOL500, 6 EC), and/or to be used to extend the exact science internship referred to under 2. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

### 4. CAREER ORIENTATION (1 EC)

Course code	Course name	EC
NWI-MOL412	Career Orientation	1

### 5. EDUCATIONAL UNIT OF A PHILOSOPHICAL NATURE (3 EC)

Courses offered at the Faculty of Science with a course code starting with NWI-FFIL2 or NWI-FFIL3 are automatically approved.

A philosophy course that is taken as a compulsory course and/or as a compulsory or free elective course within the specialisation may not be chosen as a course of a philosophical nature.

### 6. SPECIALISATION COURSES (27 EC)

The Master's specialisation Science in Society consists of the following educational units:

#### MANDATORY EDUCATIONAL UNITS (27 EC)

Course code	Course name	EC
NWI-FC0046	Introduction to Philosophy and Social Studies of Science	3
NWI-FFIL218	Science and Values	3
NWI-FC0045	Science and Public Participation	6
NWI-FC0010D	Framing Knowledge	6
NWI-FFIL220 <i>OR</i> NWI-FC0043B	Philosophy of Evidence and Expertise <i>OR</i> Science and Public Policy	3 3
NWI-FC0049	Social Scientific and Philosophical Methods for Science in Society	3
SIS elective course*	Elective course (see below)	3

\*The student chooses one of the following educational units:

Course code	Course name	EC
NWI-FC0013C	Science and Media	3

MED-BMS07	Science, Communication and Society	3
NWI-FFIL209B	Environmental Ethics	3
NWI-FFIL217	Science and Arts	3
NWI-FFIL302	Philosophy and Ethics in Microbiology	3
NWI-IMI003	Philosophy and Ethics for Computing and Information Science	3
NWI-FFIL221	Beyond Boundaries: An Introduction to Interdisciplinarity	3

### 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 will write a research plan which must be approved by both the first and the second examiner. The assessment of the thesis is based on the criteria described in the Graduation Project Guidelines SiS. Students may only take part in the Science, Management and Innovation Final Research Project once they have successfully completed 12 EC from the SiS curriculum, including at the very least the Social Scientific and Philosophical Methods for Science in Society course.

This research project constitutes the final project as referred to in Article 7.4.

### 8. FREE ELECTIVES (6 EC)

The study programme includes a free elective space of 6 EC, to be filled with assessable courses at academic level. The free electives may also be added to the internship in paragraph 2. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

### ARTICLE 7.2.4 SCIENCE AND EDUCATION

Note: This specialisation is closed for new students from 2024-2025.

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

#### 1. EXACT SCIENCE MASTER'S COURSES (15 EC)

Master's courses offered at the Faculty of Science are approved, provided there is no overlap with the other programme components. Courses in the social, educational and philosophical domain are excluded (courses with course codes beginning with NWI-FFIL, NWI-FC, NWI-FMT, NWI-FNWI, NWI-EDU, NWI-SFS).

#### 2. EXACT SCIENCE RESEARCH PROJECT (29 EC)

This consists of the following components :

- Internship: practical or theoretical research project, presentation, and report (NWI-MOL501A, minimum 23 EC)
- Optional research-related specialisation course(s) (maximum 6 EC)

The content and scope of the internship must be approved in advance by the internship coordinator. The study programme publishes an annual course catalogue containing an overview of suitable internship departments.

This research project constitutes the final project as referred to in Article 7.4.

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### 3. FREE ELECTIVES (6 EC)

To be filled with Master's courses, as referred to under 1 above, or with a literature thesis (NWI-MOL601, 6 EC), or Research Plan (NWI-MOL500, 6 EC), or to be used to extend the exact science internship referred to under 2. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

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### 4. CAREER ORIENTATION (1 EC)

Course code	Course name	EC
NWI-MOL412	Career Orientation	1

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### 5. EDUCATIONAL UNIT OF A PHILOSOPHICAL NATURE (3 EC)

Courses offered at the Faculty of Science with a course code starting with NWI-FFIL2 or NWI-FFIL3 have been approved.

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### 6. SCIENCE AND EDUCATION (60 EC)

In the second year, the Science and Education specialisation includes educational units provided by the Radboud Teachers Academy. These lead to a first-degree teaching qualification in Chemistry. Students may only participate in the educational units offered by the Radboud Teachers Academy once they have completed the disciplinary internship.

If, following successful completion of the education minor during their Bachelor's programme or for other reasons, the student need not take a portion of the above-mentioned educational units, they must fill the corresponding number of EC with programme-specific educational units.

Admission to the educational units of the Radboud Teachers Academy (RDA), with the aim of earning a first-degree teaching qualification in Chemistry, is granted after the content of the Molecular Sciences' student's Bachelor's and Master's programme is assessed by the RDA pedagogical context expert responsible.

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### 7. FREE ELECTIVES (6 EC)

The study programme includes a free elective space of 6 EC, to be filled with assessable courses at academic level. The free electives may also be added to the internship in paragraph 2. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

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## ARTICLE 7.3 DEVIATING PROGRAMME

If a student does not choose a specialisation, they must submit a motivated request for permission to the Examination Board for an alternative course selection for the Master's programme. The submitted course

selection must include at least a coherent selection of 18 EC of exact science Master's courses and a thematically suitable exact science internship (in principle NWI-MOL501B, 50 EC; an alternative scope can also be approved (NWI-MOL501A/NWI-MOL502A)). This internship counts as the final project.

#### ARTICLE 7.4 DEFINITION OF FINAL PROJECT

The final project as referred to in Article 1.3 paragraph k is a specialisation-related (research) project. For the research specialisations, this is the NWI-MOL501B internship. For the Science, Management and Innovation and Science in Society societal specialisations, it is the NWI-FMT033 final project and the NWI-SISSTAGE internship, respectively.

In the Science and Education specialisation, the final project consists of the exact science research internship NWI-MOL501A.

### SECTION 8. TRANSITIONAL PROVISIONS

#### ARTICLE 8.1 STUDENTS WHO ENROLLED IN A RESEARCH SPECIALISATION BEFORE 2024

Students who enrolled in the Master's programme before 2024 may choose to complete the Master's programme according to the curriculum of the time, possibly by appealing to incidental transitional provisions:

The curriculum of the Master's in Molecular Sciences with a research specialisation consists of the following:

##### 1. SPECIALISATION COURSES (15 EC)

15 EC of theoretical courses are mandatory for each specialisation:

###### a. A. Chemistry of Life

Course code	Course name	EC
NWI-MOL418	Chemical Biology	6
NWI-BM078	Molecular Therapy	6
NWI-MOL410	Omics	3

*Instead of NWI-BM078 Molecular Therapy (6 EC) students may also take NWI-BM084 Integrative Omics in Health and Disease (6 EC) or the combination of NWI-MOL414 Chemical Discovery and Design (3 EC) + NWI-BM064 Protein Dynamics and Networks (3 EC). These courses are not mutually exclusive.*

###### b. Medicinal Chemistry

Course code	Course name	EC
NWI-MOL418	Chemical Biology	6
NWI-MOL421	Medicinal Chemistry	6
NWI-MOL404	Instrumental Analysis in (Bio)molecular Chemistry	3

*Instead of NWI-MOL421 Medicinal Chemistry (6 EC) students may also take the combination of NWI-MOL402 Systems Chemistry (3 EC) and NWI-MOL414 Chemical Discovery and Design (3 EC). These courses are not mutually exclusive.*

###### c. Molecular Chemistry

Course code	Course name	EC
NWI-MOL402 *	Systems Chemistry	3
NWI-MOL404	Instrumental Analysis in (Bio) Molecular Chemistry	3
NWI-SM302	Advanced Organic Synthesis	3
NWI-SM019A or NWI-MOL177 **	Polymer Chemistry	3
NWI-SM292A ***	Molecular Materials	3

\* Instead of NWI-MOL402 Systems Chemistry (3 EC), students can also take NWI-MOL429 Systems Chemistry (6 EC) as part of their examination programme. In that case, elective course NWI-MOL416 Systems Chemistry 2 may not be included.

Students who enrolled in 2023 or earlier can take the Bachelor's course NWI-MOL177 Polymer Chemistry (3 EC) instead of NWI-SM019A until the 2025-2026 academic year.

\*\*\* Instead of NWI-SM292A Molecular Materials (3 EC), students can take NWI-MOL430 Polymer Science (6 EC) as part of their examination programme. In that case, elective course NWI-MOL422 Polymer Chemistry 2 may not be included.

#### d. Physical Chemistry

Course code	Course name	EC
NWI- SM297/MOL437	Molecular Modelling/Computational Physical Chemistry 2	3
NWI-MOL406	Quantum Chemistry (= Computational Physical Chemistry 1)	3
NWI-MOL409(A)	Advanced Spectroscopy	6
NWI-MOL408 *	Physical Chemistry of Molecular Aggregates	3
NWI-MOL407	Materials Science	3

If NWI-MOL408 Physical Chemistry of Molecular Aggregates (3 EC) is not included in the programme, the following combinations are approved as alternatives to NWI-MOL407+NWI-MOL408+NWI-MOL409 (12 EC):

- NWI-MOL409(A) Advanced Spectroscopy (6 EC, tot 2024-2025) + NWI-MOL431 Fundamentals of Condensed Matter (6 EC). In that case, NWI-MOL407 Materials Science may not be included in the examination programme.
- NWI-MOL409 Fundamentals of Spectroscopy (6 EC, starting from 2024-2025)  
+ NWI-MOL407 Materials Science (3 EC)  
+ choice of: NWI-SM155 Advanced Crystallography (3 EC) or NWI-MOL415 Chemistry at Interfaces or, if not yet taken (NWI-SM297/NWI-MOL437 Molecular Modelling/Computational Physical Chemistry 2 (3 EC)) or (NWI-MOL406 Quantum Chemistry (= Computational Physical Chemistry 1) (3 EC))

## 2. SPECIALISATION INTERNSHIP: NWI-MOL501A, 44-53 EC

This internship, consisting of a theoretical and/or practical research project, a presentation and a report, constitutes the final project as referred to in Article 7.4 and should focus on a specialisation-related topic. The content and scope of the internship should be approved beforehand by the internship coordinator. The study programme publishes an annual course catalogue containing an overview of suitable internship departments. An internship can also take place externally.

If this is the only internship, it should have a scope of 53 EC and the free elective space referred to under 8.1 paragraph 5 no longer applies.

### 3. SECOND INTERNSHIP OR BROADENING COURSES (30 EC)

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Choice from a second internship or academic educational units at minimum second-year Bachelor's level that the student did not previously take.

- The second internship (NWI-MOL502A) can be freely chosen, although its content and scope must be approved beforehand by the internship coordinator. This internship and the specialisation internship cannot be supervised by the same examiner, unless one of the internships takes place externally at a different university, institute or company at academic level. The scope of the internship can be extended with a part of the elective space referred to in Article 8.1 paragraph 5 and 9. This should be indicated before the start of the internship.
- Broadening courses are courses within the exact science domain, including mathematics and computing science and/or courses in medical and biomedical science and/or courses from the societal specialisations and/or a coherent set of courses of at least 15 EC worth of non-scientific courses.

### 4. PROGRAMME-SPECIFIC MASTER'S ELECTIVES (6 EC)

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Master's courses from the exact sciences, including mathematics and computing science, and/or medical and biomedical sciences. Master's courses within these domains offered by the Faculty of Science are approved as long as there is no overlap with other courses in the programme.

### 5. FREE ELECTIVES (9 EC)

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If the Master's programme only contains one internship (NWI-MOL501A 53 EC, see Article 8.1 paragraph 2), this elective space does not apply.

If the student completes two internships, part of these 9 EC can be added to paragraph 2 (up to a maximum of 53 EC), and/or paragraph 3, and/or paragraph 4 above. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

### 6. LITERATURE THESIS (6 EC)

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Course code	Course name	EC
NWI-MOL601	Literature Thesis	6

### 7. CAREER ORIENTATION

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Course code	Course name	EC
NWI-MOL412	Career Orientation (Molecular Sciences)	1

*Instead of NWI-MOL412 Career Orientation (Molecular sciences) (1 EC), students may also include in their free elective space NWI-FNW1001A Career Orientation (3 EC). In that case, the internship under paragraph 2 is extended by 1 EC (up to maximum 54 EC).*

### 8. EDUCATIONAL UNIT OF A PHILOSOPHICAL NATURE (3 EC)

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Courses offered at the Faculty of Science with a course code starting with NWI-FFIL2 or NWI-FFIL3 are automatically approved.

## 9. FREE ELECTIVES (6 EC)

The study programme includes a free elective space of 6 EC, to be filled with assessable courses at academic level. The free electives may also partly be added to the internship in paragraph 3. Expanding the internship with part of this elective space is only possible if this is indicated beforehand in the internship plan.

### ARTICLE 8.2 REPLACEMENT REGULATIONS FOR SPECIALISATION COURSES

The following transitional provisions apply for the specialisation courses. This means that old and new specialisation courses can be combined within a specialisation as mandatory courses: The new course and the corresponding old course(s) from the examination programme are mutually exclusive. See also the possible content of the specialisation courses in Article 8.1.1.:

New course		Old course(s)	
MOL409 Fundamentals of Spectroscopy	6 EC	MOL409 Advanced Spectroscopy + MOL408 Physical Chemistry of Molecular Aggregates	6 EC 3 EC
MOL429 Systems Chemistry	6 EC	MOL402 Systems Chemistry + MOL416 Systems Chemistry 2	3 EC 3 EC
MOL431 Fundamentals of Condensed Matter	6 EC	MOL407 Materials Science + MOL408 Physical Chemistry of Molecular Aggregates	3 EC
MOL430 Polymer Science	6 EC	MOL422 Polymer Chemistry 2 + SM292A Molecular Materials	3 EC 3 EC
MOL437 Molecular Modelling	3 EC	SM297 Molecular Modelling	3 EC
MOL432 Advanced Organic Synthesis	3 EC	SM302 Advanced Organic Synthesis	3 EC
MOL500 Research Plan	6 EC	MOL601 Literature Thesis	6 EC

Students may choose to replace the MOL601 Literature Thesis (6 EC) in an old programme with MOL500 Research Plan (6 EC). In the new Master's programme, MOL601 Literature Thesis (6 EC) may also be included in the free elective space (Article 7.2.1.8), not in the programme-specific Master's elective space (Article 7.2.1.5).

### ARTICLE 8.3 STUDENTS WHO ENROLLED IN THE MASTER'S IN CHEMISTRY, MOLECULAR LIFE SCIENCES OR SCIENCE AT RADBOUD UNIVERSITY BEFORE 2021

The Master's programme in Molecular Sciences is considered to be the successor of the former Master's programmes in Chemistry, Molecular Life Sciences, and Science. Students from these former Master's programmes can include any educational units they already completed within the old programme as educational units of the Master's programme in Molecular Sciences. The programme may, in that case, include educational units with a deviating scope as long as the total scope of the Master's programme remains 120 EC, and the programme includes at least one research internship of at least 39 EC; the programme must be approved by the Examination Board.

### ARTICLE 8.4 GENERAL TRANSITIONAL PROVISIONS

Instead of the NWI-FFIL222 Philosophy of Ecological Restoration course, students may take the NWI-FFIL212 Philosophy of Water Management course. It is not possible to include both courses.

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### CONCERNING THE SPECIALISATION IN SCIENCE, MANAGEMENT AND INNOVATION:

- Students who already completed NWI-FMT020 Bio-economy may use this course instead of one of the three 3 EC courses in the Climate and Energy theme.
- Students who already completed NWI-FMT025B From Lab to Clinic may use it instead of NWI-FMT029 How Health Systems Work.
- Students who have successfully completed NWI-FMT024 Policy and Economics *and* NWI-FMT006A Entrepreneurship: Making a Business Plan may use them instead of NWI-FMT030 Reaching Sustainable Development Goals.
- Students who have successfully completed NWI-FMT006A Entrepreneurship: Making a Business Plan, but not NWI-FMT024 Policy and Economics, may use it as a free elective, or they can take NWI-FC0043B Science and Public Policy and then use NWI-FMT006A Entrepreneurship: Making a Business Plan and NWI-FC0043B Science and Public Policy together instead of NWI-FMT030 Reaching Sustainable Development Goals.
- Students who have successfully completed NWI-FMT024 Policy and Economics but not NWI-FMT006A Entrepreneurship: Making a Business Plan may use it as part of their free elective space.
- Students who have successfully completed NWI-MM020A Environmental Life Cycle Assessment and a 3 EC free elective may use it instead of NWI-FMT032 Environmental Life Cycle Assessment.
- Only students who were already enrolled in the Green Industries and IT theme prior to the 2025-2026 academic year may complete this theme. The specialisation courses are

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

- Students who started the Science, Management and Innovation specialisation in the 2025-2026 academic year but have not completed both NWI-FMT003E and NWI-FMT019 must enrol for NWI-FMT003F and NWI-FMT019A.
- Students who have completed NWI-FMT003E are not permitted to participate in NWI-FMT003F, and students who have completed NWI-FMT019 are not permitted to participate in NWI-FMT019A.
- Students who have already completed NWI-FMT003E but not NWI-FMT019 must register for NWI-FMT019A. As a result, the free elective space for these students is reduced by 3 EC.
- Students who have already completed NWI-FMT019 but not NWI-FMT003E must register for NWI-FMT003F and may do a research project (NWI-FMT033) worth 30 EC instead of 27 EC.
- Students in the specialisations Science, Management and Innovation or Science in Society who have already started and/or completed internship NWI-MOL501B as an exact sciences internship (according to Article 7.2.2, paragraph 2 or Article 7.2.3, paragraph 2) can include it instead of NWI-MOL502A.
- Students who enrolled before 2025 (SMI/SiS/SE) can include NWI-FNWI001A Career Orientation (3 EC) instead of NWI-MOL412 Career Orientation (Molecular Sciences) (1 EC) in their free elective space. In that case, the internship (NWI-MOL501A or NWI-MOL502A) is extended by 1 EC.

### IN THE SPECIALISATION IN SCIENCE IN SOCIETY

Students who enrolled before 2025 (SMI/SiS/SE) can include NWI-FNWI001A Career Orientation (3 EC) instead of NWI-MOL412 Career Orientation (Molecular Sciences) (1 EC) in their free elective space. In that case, the internship (NWI-MOL501A or NWI-MOL502A) is extended by 1 EC.

Old course				Replacement course		
Course code	Name	EC	Final year		EC	Remarks
NWI-FC0048	Philosophical Methods for Science in Society	3	2024	NWI-FC0049 Social Scientific and Philosophical Methods for Science in Society	3	NWI-FC0047 and NWI-FC0048 have been merged into NWI-FC0049. Successfully completing NWI-FC0047 or NWI-FC0048 is equivalent to completing NWI-FC0049.
NWI-FC0047	Social Scientific Methods for Science in Society	3	2024	NWI-FC0049 Social Scientific and Philosophical Methods for Science in Society	3	NWI-FC0047 and NWI-FC0048 have been merged into NWI-FC0049. Successfully completing NWI-FC0047 or NWI-FC0048 is equivalent to completing NWI-FC0049.
NWI-FC0044C	Methods of Societal Research	6	2023	NWI-FC0046 Introduction to Philosophy and Social Studies of Science + NWI-FC0049 Social Scientific and Philosophical Methods for Science in Society	3 3	
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-FC0045 can therefore not be included in a

							single programme with NWI-FC003B or NWI-FC002B.
NWI-FC002B	Science and Societal Interaction	3	2022	NWI-FC0045	Science & Public Participation	6	NWI-FC0045 is a combination of NWI-FC003B and NWI-FC002B. NWI-FC0045 can therefore not be included in a single programme with NWI-FC003B or NWI-FC002B.
NWI-FFIL300C	Philosophy of Mathematical Practice	3	2021	none			Students may use the course as a philosophy elective course
NWI-FFIL219	Philosophy of Neuroscience	3	2023	none			Students may use the course as a philosophy elective course

Until 2024, students were required to choose one of the following profiles: *Science and Societal Interaction* or *Philosophies and Worldviews*. This requirement was abolished in 2025. With the course package and the elective courses that meet the requirements of the profiles, the current structure also meets the requirements of the Science in Society specialisation.

Students from the 2023-2024 cohort may also take the FFIL209b and/or FFIL217 courses as electives for the philosophy track.

# PART IV FINAL PROVISIONS

## SECTION 9. FINAL PROVISIONS

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### ARTICLE 9.1 SAFETY NET SCHEME AND HARDSHIP CLAUSE

1. In all cases not covered fully or clearly by these regulations, the final decision lies with the Dean. If this concerns an educational unit in which the Dean is involved, the Vice Dean responsible for education will decide.
2. In all cases in which these regulations may result in an unreasonable or unfair situation for individual students, the Examination Board or the Dean is authorised to make an exception to the provisions in these regulations. Unless this concerns an educational unit in which the Dean is involved, in which case the Vice Dean responsible for education is authorised to do so instead of the Dean.

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### ARTICLE 9.2 ESTABLISHMENT AND AMENDMENTS

1. Without prejudice to the provisions in Article 7 of the Structure Regulations, these regulations are established or amended by the Dean following advice from the programme committees and approval by the Joint Assembly of the Faculty.
2. An amendment to these regulations applies in the current academic year, unless this would disproportionately damage the interests of the student.
3. Notwithstanding the provisions of paragraph 1, the Dean is authorised to drop elective educational units from the curriculum should the circumstances be deemed impossible for offering these educational units.

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### ARTICLE 9.3 ENTRY INTO FORCE

These regulations enter into force on 1 September 2025.

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### ARTICLE 9.4 PUBLICATION

The Dean is responsible for ensuring that these regulations and any amendments thereto are published in an appropriate manner via the [Radboud University website](#).

As established by the Dean on 15 July 2025.

## APPENDIX 1: GUIDELINE FOR AWARDING DISTINCTIONS<sup>1</sup>

- a. With due observance of the provisions set out in this Article, the Examination Board is responsible for deciding whether a distinction should be awarded and if so, which distinction.
- b. The distinction is calculated on the basis of all units of the examination programme for which a grade has been awarded on a scale from 1 to 10, with the exception of extracurricular units.
- c. The number of EC of the unit 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 units referred to in paragraph b is equal to or higher than 8.0.

Both the EC-weighted average of the assessments of all the educational units of the examination with a study load of **less than 20 EC** and the EC-weighted averages of the assessments of the educational units of the examination with a study load **equal to or more than 20 EC** must be at least equal to 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 units referred to in paragraph b is equal to or more than 9.0.

Both the EC-weighted average of the assessments of all the educational units of the examination with a study load of **less than 20 EC** and the EC-weighted averages of the assessments of the educational units of the examination with a study load **equal to or more than 20 EC** must be at least equal to 9.0 before any rounding off.

- f. The distinction shall not be awarded if more than 10% of the total study load of the examination programme (consisting of one or more educational units) has been resat, unless the Examination Board decides otherwise, stating their reasons for this decision.
- g. The distinction shall not be awarded if interim examinations have been resat more than once, unless the Examination Board decides otherwise, stating their reasons for this decision.
- h. The distinction shall not be awarded if the scope of the granted exemptions constitutes more than 50% of the programme, taking into account any further restrictions to the permitted number of exemptions as established in the EER.
- i. The distinction shall not be awarded if fraud was discovered in one of the educational units of the examination programme.

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<sup>1</sup> In this guideline, 'unit' refers to an educational unit as referred to in Article 7.3, paragraphs 2 and 3 of the Act.

## APPENDIX 2: FRAUD REGULATIONS

### SECTION 1. INTRODUCTORY PROVISIONS

#### ARTICLE 1. OBJECTIVE AND SCOPE OF THE REGULATIONS

The Dean of the Radboud University Faculty of Science 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: 'the Act') and that are part of the teaching and examinations of the study programmes offered by the Radboud University Faculty of Science.

#### ARTICLE 2. DEFINITIONS

The terms used in these regulations – in so far as these terms also appear in the Act or the Education and Examination Regulations of the study programme (hereinafter: the EER) – have the same meaning as that given to them in the Act 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 is understood to mean in any case:
  - a. Fraud when taking written interim and final examinations, 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 examination
  - 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 and/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 assessment and examination, including:
    - i. Taking possession of assignments, answer keys and the like, prior to the time the interim or final examination takes place
    - ii. Changing answers to questions on an interim or final examination after it has been submitted for assessment
    - iii. Providing incorrect information when requesting an exemption, an extension of the validity period, and other similar requests regarding an interim or final examination
3. Any attempt at fraud will also be considered fraud in the sense of these regulations.

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#### ARTICLE 4. PROCEDURE FOR DETERMINING FRAUD

1. In the event that fraud is suspected, the Examination Board or the examiner will immediately inform the student. If fraud is suspected while an interim or final examination is being administered, the Examination Board or the examiner will provide the student with the opportunity to complete the interim or final examination.
2. The Examination Board or the examiner may order the student to hand over the materials involved in the suspicion of fraud.
3. For the application of the provisions in paragraphs 1 and 2, 'examiner' is also understood to mean the invigilator or another Radboud University staff member.
4. The Examination Board or the examiner will draw up a report of the suspected fraud. If the examiner draws up the report, the examiner will send it to the Examination Board immediately.
5. The Examination Board will immediately make the report referred to in paragraph 4 available to the student and will launch an investigation into the matter. The Examination Board will provide the student with the opportunity to respond to the report in writing. The Examination Board will hear both the examiner and the student.
6. Within four weeks of making the report available to the student, the Examination Board will determine whether there is evidence of fraud. The Examination 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.

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#### ARTICLE 5. REMEDIAL MEASURES

If the Examination Board determines that fraud has been committed:

- a. The Examination Board will declare that the relevant interim or final examination 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.

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#### ARTICLE 6. SANCTIONS

1. If the Examination Board determines that fraud has been committed, it may:
  - a. Decide that the student is no longer allowed to sit one or more interim or final examinations during a period to be defined by the Examination Board, being no longer than one year.
  - b. Make a recommendation to the Manager and Faculty Programme Director 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 Examination Board establishes that serious fraud has been committed:
  - a. The Examination Board may 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 recommendation of the Examination Board.
3. As described in the Guideline for Awarding Distinctions, a distinction will not be awarded if fraud has been detected in one or more of the educational units of the examination programme as a whole.
4. The sanctions as specified in this provision will be imposed as from the day following the date on which the student has been informed of the decision to impose the sanctions.

## SECTION 3. FINAL PROVISIONS

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### ARTICLE 7. DECISIONS AND LEGAL PROTECTION

1. Decisions on the basis of these regulations may be sent to the student via OSIRIS and/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.
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### ARTICLE 8. ADOPTION AND AMENDMENTS

1. These regulations are adopted and amended by the Dean.
  2. Where the content of these regulations relates to duties and powers of the Examination Board of the study programme, that content must also be ratified by that Examination Board.
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### ARTICLE 9. ENTRY INTO FORCE

These regulations enter into force on 1 September 2025. On that date, these regulations will replace any previous regulations.

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### 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 will include these regulations as an appendix to the EER.

As established by the Dean on 15 July 2025 and ratified by the Examination Board on 15 July 2025.