

# Education and Examination Regulation 2020-2021

## Master Chemistry

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<sup>1</sup> These Education and Examination Regulations are a translation of a Dutch-language document. The original Dutch OER takes precedence over all its translations and therefore, no rights can be derived from this translation.

# **PART I    GENERAL PROVISIONS**

## **Section 1.    General provisions**

### **Article 1.1    Applicability of these regulations**

1. These Education and Examination Regulations (EER) apply to the Bachelor'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 2020-2021 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 which was active at the time of their initial enrolment in the programme.
3. Course components provided by a different faculty or institution are subject to the rules applicable at that faculty or institution. Components offered by the Faculty of Science are at all times subject to the regulations described in at least one of the EERs of the Faculty of Science.
4. The faculty offers the following Bachelor's programmes:
  - a. Biology;
  - b. Chemistry;
  - c. Computing Science;
  - d. Molecular Life Sciences;
  - e. Natuur- en Sterrenkunde;
  - f. Science;
  - g. Mathematics.
5. The degree programmes have a study load of 180 EC.
6. All degree programmes are offered exclusively as full-time programmes.
7. The programmes Biology, Chemistry, Computing Science, and Molecular Life Sciences are taught in English. The other programmes have English components. An overview of this is provided in Article 7.2.

### **Article 1.2    Definition of terms**

1. The terms used in these EER, which 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 will be understood to have the following meaning:

- a. Degree programme: the Bachelor's programme 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 Examination Board;
- 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 examination 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: a new opportunity to take a particular examination as referred to in Article 7.10 paragraph 1 of the Higher Education and Research Act (WHW). 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 Examination Board determines whether all the components pertaining to the Bachelor's programme have been completed successfully. The Examination Board may decide that the final examination also includes an investigation by the Examination 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. *Fraud*: any behaviour or negligence on the part of the student that, by nature, is directed towards making it partly or entirely impossible to properly assess the knowledge, insights, and skills of the student or of another student. The Regulations on Fraud during Interim Examinations and Examinations are included as an appendix to these EER;
- k. Examination Board: the examination board of a degree programme, established in accordance with Article 7.12 of the Act. Also see the Radboud University Structural Regulations;
- l. Examiner: the person designated by the Examination Board to administer the interim examinations, in accordance with Article 7.12 of the Act;
- m. EC: European Credits, i.e. the study load unit in accordance with the European Credit Transfer System;
- n. Work day: Mondays to Fridays, with the exception of official holidays and any other days designated by Radboud University as collective holidays;

- o. Awarding of the degree certificate: the formal confirmation that all the examination requirements have been met;
- p. Prospectus: the guide for a particular degree programme of the Faculty of Science, containing specific information for the Bachelor's programme;
- q. The university: Radboud University;
- r. The faculty: The Faculty of Science;
- s. The education institute: the organisational unit responsible for the degree programme;
- t. Minor: a cohesive selection of components;
- u. Free elective: a freely-selected, academic, assessable component;
- v. Dual Bachelor's programme: excellence programme in which the student takes two Faculty of Science Bachelor's programmes simultaneously;
- 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. To be admitted to the programme, the student must meet the statutory (additional) prior education requirements set out by the Act.
2. Decisions regarding admission are made by the education institute on behalf of the dean.
3. The programme-specific part of these EER lists the admission requirements the student must meet to be admitted to the degree programme.

#### **Article 2.2      Substitute requirements for insufficient prior education**

The student who has a pre-university education diploma that does not meet the prior education requirements referred to in Article 2.1, may still enrol, with due observance of the provisions of Article 7.25 paragraph 5 of the Act, on the condition that comparable requirements have been met in terms of content, subject to further assessment. The assessment procedure and the requirements are outlined in the programme-specific part of these regulations.

#### **Article 2.3      Language requirements**

1. A sufficient command of Dutch is required to participate in the programme and to sit for 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.
1. In certain cases, the education institute may assess whether a student is sufficiently proficient in Dutch.
2. A sufficient command of the English language is required to participate in the programme and to sit for 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, and 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*; 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. in the opinion of the programme meets the requirements; or
  - h. has achieved a sufficient score on one of the following English language tests:
    - 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.

### Section 3. Structure and design

#### Article 3.1 Final examination, degree, and distinctions

1. All Bachelor's programmes conclude with a Bachelor's examination.
2. The student who has passed the examination of the Bachelor's degree programme will be awarded a Bachelor of Science (MSc) degree.
3. The degree referred to in the second paragraph is exclusively awarded if the student has earned at least half of the EC for their degree programme at this university.
4. The Examination Board can award a distinction to a student who has successfully passed the degree programme examination. The rules for awarding a distinction can be found in Article 4.7 of these EER.

#### Article 3.2 General learning outcomes

1. The degree programme has the following learning outcomes for students:
  - a. Acquire knowledge, skills and insights in the relevant field of study;
  - b. Develop academic competences;
  - c. Prepare for further study or future career.
2. Students who have completed one of the faculty Bachelor's programmes as referred to in Article 7.10a paragraph 1 of the Act, shall be granted unconditional admission to at least one of the Master's programmes at the university.

#### Article 3.3 Curriculum

1. The degree programme-specific part of these regulations describes all the components that make up the degree programme.
2. The Bachelor's programmes include a component with a study load of 3 EC for the purpose of reflecting on study performance and planning, as well as boosting the development of academic skills.
  - a. A condition for obtaining the course credits (EC) mentioned above is participation in the Academic Language Proficiency course and the corresponding test in the first year of the programme. This does not apply to students who have already completed the course and associated test at Radboud University.
  - b. Completion of the Academic Language Proficiency test with a passing grade is not required. A resit for the language test is possible if desired by the student.



3. The degree programme includes a free elective component with a minimum study load of 6 EC. The elective courses cannot have a substantial overlap in content with courses from the mandatory component. Courses that overlap with the elective courses within the mandatory programme or in the minor component are also not allowed.
4. Every programme has a minor component of at least 15 EC in which the student can participate in one or more minors.
5. If a minor is not accessible to students of a specific Bachelor's programme, this is mentioned in the programme-specific part of these EER.
6. Minors offered by Radboud University can be found in the prospectus. The approval of the Examination Board must be requested if a student wants to do a minor which is not offered by Radboud University. This minor will be labelled as a "free minor" and needs to meet the following requirements:
  - a. The minor encompasses at least 15 EC and at most 30 EC;
  - b. The minor is thematically cohesive;
  - c. There should be no substantial overlap with other parts of the Bachelor's degree programme.
7. The degree programme also includes one or more components of a philosophical nature, in total amounting to at least 3 EC, as well as a writing skills component of 3 EC.
8. Finally, the degree programme includes an individual final aptitude test (hereinafter: Bachelor's thesis) with a study load of 12 EC.
9. In addition to the provisions of paragraph 8, the Bachelor's thesis can be expanded. In all cases in which an expansion is possible, this will be stated in the programme-specific part of these EER.
10. The composition of the Bachelor's programme compiled by the student must be presented for approval to the Examination Board 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.
11. A student is permitted to add components to the examination programme. These components are considered extracurricular and do not count towards the determination of the distinction.
12. If a student can choose 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 towards their distinction.

#### **Article 3.4      Sequence of education and interim examinations**

1. The student may not start the final aptitude assessment (Bachelor's thesis) before a minimum of 120 EC of the degree programme have been obtained, which includes the components of the first year.

2. 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.

### **Article 3.5      Type of interim examination**

1. Each component of the degree programme will be 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 (paper or digital);
  - b. Oral test;
  - c. Presentation;
  - d. Skill test;
  - e. The creation of a discipline-specific product and/or assignment.
2. Prior to the commencement of the academic year, information will be provided in the prospectus for each individual component regarding the way in which the interim examinations will be administered. At the request of the student or the examiner, the Examination Board may allow an interim examination to be administered in a form other than stated above, if this is not to the detriment of the student.
3. In cases where a component has admission requirements, the admission requirements will be published in the prospectus before the start of the academic year, see also Article 3.2 paragraph 2. This requires the permission of 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 the permission of the programme coordinator.
4. There are no admission requirements for an interim examination; if a student is enrolled in a component, they are admitted to all sub-components including the interim examination.
5. Students with disabilities are given the opportunity to take interim examinations in a manner appropriately suited to their disability. The Examination Board, if necessary, shall seek expert advice and counsel prior to reaching its decision. If the students in question require 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.
6. During oral examinations, no more than one person is tested simultaneously, unless decided otherwise by the Examination Board.
7. An oral interim examination is not public, unless the Examination Board has deemed otherwise in exceptional cases. An audio recording is made of oral interim examinations. As an alternative to an audio recording, a second examiner or a designated observer may be present.

### **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 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 diploma as an exemption.
4. Students who were first enrolled after 1 September 2017 can never have more than 70 EC of exemptions, 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 70 EC as stated in paragraph 4 if the courses are only included in one examination programme.
6. Exemptions as referred to in paragraph 1 cannot be granted for the Bachelor's thesis.
7. As an exception to the provision in paragraph 6, a student who does a dual Bachelor's can receive an exemption for a Bachelor's thesis if they completed a Bachelor's thesis for another programme within the Faculty of Science.

#### **Article 3.7      Term of validity for successfully completed interim examinations**

1. The term of validity of successfully completed interim examinations is unlimited.
2. Results obtained for interim examinations are valid at least until the end of the academic year. The lecturer can decide to extend the term of the validity for the result of interim examinations.

#### **Article 3.8      Elective programme**

The programme's Examination Board determines whether to grant permission for a student to take an elective programme as meant in Article 7.3d of the Act. 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.

## **Section 4.    Testing**

#### **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 prospectus before the start of the academic year.
3. Contrary to the provision 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 also 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. Registration for an interim examination closes at 11:59 pm on the day preceding a period of five working days before the date of the interim examination, so that there are always five full working days between the deadline for registration for the interim examination in question and the date of that examination. The day on which the interim examination takes place is not included in this period of five working days.
3. A successfully passed examination may be taken again.
4. If a student resits an interim examination, the most recent result will determine the final result.

#### **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 of 1 to 10 (with 10 as 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; while 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 in the form of a grade, the assessments “completed”, “not completed”, “satisfactory”, “not satisfactory”, and “good” may also be awarded.
2. Contrary to the provisions of paragraph 1, partial examinations may also be graded with one decimal point on a 10-point scale. Rounding off grades is done exclusively for the final grade.

#### **Article 4.4 Publication of results**

1. The examiner shall determine the result of a Bachelor's thesis within 15 working days after its submission via <http://thesissubmission.science.ru.nl>.
2. The examiner shall determine the result of an oral examination within two working days of the date that it was administered.
3. The examiner shall determine the result of a written interim examination within ten working days of the date it was administered for interim examinations in the first year of the degree programme, and within 15 working days for interim examinations in the other years of the degree programme. 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.
4. Contrary to the provisions in paragraph 3, the examiner shall determine the result of a written interim examination in the fourth period no later than nine days before the scheduled date of the corresponding resit. The examiner shall determine the result of a written resit examination in the fourth period within five 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 3 by a maximum of ten working days. This is not possible for the interim examinations in the second period of the first year and for the interim examinations in the fourth period.
6. In this statement of the result of an interim examination, the student is also informed of their right of inspection, referred to in Article 4.5 as well as the right to appeal to the Examination Appeals Board.
7. A student 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. Within at least 30 working days following publication of a written interim examination result, the student may request access to review and inspect all graded work. For the results of interim examinations with "open" questions, at the student's request they shall be granted a copy of their graded work at cost.
2. During the 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. Inspection or explanation as referred to in paragraph 1 and 2 shall take place during at least one scheduled time before the start of the interim examination. If the student demonstrates that they are or were unable to attend an inspection at a determined place and time due to force majeure, they may request the Examination Board to allow them another opportunity to inspect the examination, if possible within the period referred to in the first paragraph. In all cases, inspection will take place no later than five working days prior to the resit of an interim examination. For

examinations in the fourth period, the student 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. Bachelor'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 the result of the final examination**

1. The student is given the opportunity to take the final examination after they have provided sufficient proof that they have passed the components leading up to the final examination.
2. Examinations are scheduled each month.
3. The Examination 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 Examination 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 within five days indicating that the student has met the requirements of the examination. This is only possible if the student has met the criteria specified in paragraph 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**

1. With due observance of the provisions set out in this Article, the Examination Board is responsible for the decision of whether a distinction shall be awarded and if so, which distinction.
2. The distinctions:
  - a. "cum laude" shall be awarded if the weighted average result of the assessments of all components referred to in paragraph 3 is equal to or higher than 8.0, or
  - b. "summa cum laude" shall be awarded if the weighted average result of the final assessment of the components referred to in paragraph 3 is equal to or higher than 9.0.
3. 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.
4. The number of EC of the component referred to in paragraph 3 shall serve as the weighting factor for the calculation of the weighted average result, unless stipulated otherwise in the programme-specific part of these regulations.

5. The distinction shall not be awarded if more than 10 percent of the total study load of the examinations for the degree programme (being one or more components) has been re-sat or if interim examinations have been re-sat more than once, unless the Examination Board decides otherwise, stating the reasons for this decision.

## Section 5. Study performance, guidance, counselling, 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 timeframe.
2. The dean is responsible for providing adequate student counselling.

### Article 5.2 Binding study advice regulations

1. On behalf of the dean, the Committee on Binding Study Advice for First-Year Students (Commissie Studieadvies Eerste Jaar) will advise students on continuing their degree programme. This will occur at the end of the first year, but no later than 31 August, that the student has been registered for the full-time Bachelor's programme as referred to in Article 7.8b of the Act.
2. The Committee on Binding Study Advice for First-Year Students shall issue a positive advice to students who have completed at least 39 EC of the first-year curriculum.
3. The Committee on Binding Study Advice for First-Year Students will issue a negative advice to students if a student does not meet the requirements referred to in paragraph 2, unless one or more of the personal circumstances as referred to in Article 5.4 of these regulations are applicable.
4. In case of a binding rejection, the Committee on Binding Study Advice for First-Year Students shall formulate a plan to inform the student of a negative binding study advice and provide the student with the opportunity to be heard before the binding study advice is issued.
5. In determining whether the required credits referred to in paragraph 2 have been achieved, exempted credits shall be counted.
6. If students have registered for a full-time programme after 31 January, the Committee on Binding Study Advice for First-Year Students will give a binding study advice at the end of their second study year. The Committee on Binding Study Advice for First-Year Students will give a positive advice to students if all components from the first year are concluded successfully.
7. Students who switch degree programmes after 31 January, within the Bachelor's programmes Chemistry, Molecular Life Sciences and Science, will receive the binding study advice as referred to in paragraph 1 at the end of the first academic year.



8. Students who terminate their enrolment before 1 March will not receive a binding study advice. If they re-enrol for the same programme in the following academic year, they will receive the binding study advice at the end of the relevant academic year. The provisions of the second sentence of paragraph 6 shall apply accordingly.
9. A student may appeal the negative binding study advice with the Examination Appeals Board within six weeks. The appeal does not suspend the validity of the binding study advice.

#### **Article 5.3. Preliminary study advice**

1. In anticipation of the advice referred to in Article 5.2, the Committee on Binding Study Advice for First-Year Students will issue a preliminary study advice at the end of the first semester (no later than 28 February) on the basis of the results of the student to date.
2. The preliminary study advice is intended as a warning for students who have failed to make adequate progress. The students in question will be invited for an interview with the student advisor to discuss how their study results could be improved or what other alternative programmes would be better suited to them.

#### **Article 5.4. Personal circumstances**

1. The Committee on Binding Study Advice for First-Year Students shall take into account personal circumstances in their binding study advice decision, as stated in Article 2.1 of the Act's Implementation Decree, insofar as these circumstances have been reported to the student advisor, a student dean, or another designated person, either by the student or by someone else on the student's behalf. The student may be asked to further substantiate or justify claims of personal circumstances.
2. Only personal circumstances mentioned in or supported by the Act are eligible.

#### **Article 5.5. Duration of the period of rejection**

1. Students who have received a negative binding study advice may not re-enrol in the relevant Bachelor's programme for a period of three years, or for any other Bachelor's programmes that the dean has determined fully or partially share the first year. In any case, this concerns the Bachelor's programmes in Chemistry, Molecular Life Sciences, and Science.
2. In the event that a student registers again for the degree programme after the period referred to in paragraph 1, this registration will be considered to be the first registration for the purposes of this section.

#### **Article 5.6. No negative binding study advice or deferral of the decision**

1. On the basis of the circumstances referred to in Article 5.4 of these regulations, the dean, having heard the Committee on Binding Study Advice for First-Year Students may decide not to attach a binding rejection to the negative study advice. Having heard the Committee on Binding Study

Advice for First-Year Students, the dean may also decide to not yet attach a binding rejection to the negative study advice, on the basis of the circumstances referred to in Article 5.4.

2. If a negative study advice is not yet subject to a binding rejection pursuant to paragraph 1, the Committee on Binding Study Advice for First-Year Students will issue a binding rejection as stipulated in Article 5.2 before the end of the second study year if, by that time, the student has yet to obtain the 60 EC from the first year.

#### **Article 5.7. 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 systematically evaluated.

## **PART III                      PROGRAMME-SPECIFIC PART**

### **Section 6. Admission to the degree programme and education**

#### **Article 6.1      Substitute requirements for insufficient prior education**

1. Deficiencies in prior education as referred to in the general provisions of these EER are compensated through the successful completion, as deemed by the degree programme, of still to be determined tests at the level of the VWO (pre-university education) final examination: Physics, Chemistry and Mathematics B.
2. The degree programme will appoint one or more examiners with the responsibility of administering the test(s) referred to in paragraph 1.

#### **Article 6.2      Equivalent prior education**

The diploma from prior education obtained abroad or from an international or European Baccalaureate will be assessed by the degree programme in regard to the presence and level of the subjects Physics, Chemistry and Mathematics B.

#### **Article 6.3      Colloquium doctum**

The admission assessment, referred to in Article 7.29 of the Act, is in relation to the following courses at the stated level: pre-university education (VWO) final examination level in Mathematics B, Chemistry, English, and Physics.

#### **Article 6.4      HBO first year**

Admission on the basis of an HBO first year is only allowed if certificates at VWO level or equivalent have been obtained in the following school subjects: physics, chemistry, mathematics B, and English.

### **Section 7.      Structure and design**

#### **Article 7.1      Programme-specific learning outcomes**

In addition to the general learning outcomes described in the general part of these EER, the Chemistry degree programme also aims to achieve the following learning outcomes.

<b>Bachelor's programme</b>	<b>Chemistry</b>
Knowledge and understanding	<ul style="list-style-type: none"><li>• Major aspects of chemical terminology, nomenclature, conventions, and units</li><li>• The major types of chemical reactions and the main characteristics associated with them</li><li>• The principles and procedures used in chemical analysis and the characterisation of chemical compounds</li><li>• The principal techniques of structural investigations, including spectroscopy</li><li>• The characteristics of the different states of matter and the theories used to describe them.</li><li>• The principles of thermodynamics and their applications to chemistry</li><li>• The principles of quantum mechanics and their application to the description of the structure and properties of atoms and molecules</li></ul>

	<ul style="list-style-type: none"> <li>• The kinetics of chemical change, including catalysis; the mechanistic interpretation of chemical reactions</li> <li>• The characteristic properties of elements and their compounds, including group relationships and trends within the Periodic Table</li> <li>• The structural features of chemical elements and their compounds, including stereochemistry</li> <li>• The properties of aliphatic, aromatic, heterocyclic and organometallic compounds</li> <li>• The nature and behaviour of functional groups in organic molecules</li> <li>• Major synthetic pathways in organic chemistry, involving functional group interconversions and carbon-carbon and carbon-heteroatom bond formation</li> <li>• The relation between bulk properties and the properties of individual atoms and molecules, including macromolecules (both natural and man-made), polymers and other related materials</li> <li>• The structure and reactivity of important classes of biomolecules and the chemistry of important biological processes.</li> </ul>
Applying knowledge and understanding	<ul style="list-style-type: none"> <li>• The capacity to apply knowledge in practice, in particular problem-solving competences, relating to both qualitative and quantitative information</li> <li>• Numeracy and calculation skills, including such aspects as error analysis, order-of-magnitude estimations, and correct use of units.</li> <li>• Information-management competences, in relation to primary and secondary information sources, including information retrieval through on-line computer searches.</li> <li>• Information-technology skills such as word-processing and spreadsheet use, data-logging and storage, subject-related use of the Internet.</li> <li>• Skills in planning and time management.</li> </ul>
Making judgments	<ul style="list-style-type: none"> <li>• Ability to analyse material and synthesise concepts.</li> <li>• Ability to include aspects of safety and environment, ethical, societal and economic consequences of (bio)chemical, and technological changes in the design of products</li> <li>• The capacity to adapt to new situations and to make decisions</li> </ul>
Communication	<ul style="list-style-type: none"> <li>• Interpersonal skills, relating to the ability to interact with other people and to engage in team-working.</li> <li>• Communication competences, covering both written and oral communication, in one of the major European languages (English, German, Italian, French, Spanish).</li> </ul>
Lifelong learning skills	<ul style="list-style-type: none"> <li>• Study competences needed for continuing professional development. These will include in particular the ability to work autonomously</li> <li>• Ethical commitment</li> </ul>

## Article 7.2 Programme language

The language of instruction of the Bachelor's programme is English and the examinations and interim examinations are administered in English. Contrary to the above provision, elective courses that are (also) part of a different degree programme may be taught in Dutch.

The course NWI-FCEM02B Writing about Science is taught both in Dutch (Schrijven over Wetenschap) and in English.

### Article 7.3 Composition of the first year

Subject to the general part of these EER, the first year of the degree programme is comprised of the following components:

Course code	Course name	EC
NWI-RADAR-EN	RADAR: Academic Language Proficiency	0
NWI-MOL120	Structure of Atoms and Molecules	3
NWI-MOL121	Chemical Analysis 1	3
NWI-MOL122	Chemical Analysis 2	3
NWI-MOL123	Chemical Analysis Lab	3
NWI-MOL124	Organic Chemistry 1	6
NWI-MOL125	Synthesis Lab 1a	3
NWI-MOL126	Synthesis Lab 1b*	3
NWI-MOL127	Biochemistry	6
NWI-MOL128	Essentials of Biochemistry Lab	3
NWI-MOL003	Mechanics 1	3
NWI-MOL014	Electricity & Magnetism 1	3
NWI-MOL131	Mathematics	9
NWI-MOL135	Thermodynamics (Physical Chemistry 1)	3
NWI-MOL136	Physical Concepts of Chemical Processes (Physical Chemistry 2)	3
NWI-MOL139	Sustainable Chemistry	3
NWI-MOL140	Molecular Sciences Lab	3
NWI-MOL0861	Academic Skills first year	0

\* instead of NWI-MOL126 Synthesis Lab 1b students who started in 2019 must complete the NWI-MOL161 Organic Chemistry 2 course. The first year of the degree programme is also the first year of the Radboud University degree programmes Molecular Life Sciences and Science, with the understanding that in the Bachelor's programme in Chemistry at least the following courses are included: NWI-MOL122 Chemical Analysis 2, NWI-MOL136 Physical Chemistry 2, NWI-MOL139 Sustainable Chemistry and NWI-MOL126 Synthesis Lab 1b.

If a student has enrolled during or before the 2018-2019 academic year, the first-year programme of the Molecular Life Sciences degree programme can also be used as a replacement for the first-year programme. The same provision applies to the Science degree programme, provided it includes NWI-MOL005 or NWI-MOL006 Reactions and Kinetics Project, or provided this project is included in the elective space of the degree programme.

### Article 7.4 Composition of the second and third year

## 1. Compulsory courses (75 EC)

Course code	Course name	EC
NWI-MOL150	DATA: Programming and statistics	6
NWI-MOL151	DATA: Techniques and analysis	6
NWI-MOL016	Linear Algebra	3
NWI-MOL155	Quantum mechanics	6
NWI-MOL056	Chemical Bonding	3
NWI-MOL160	Mechanics, Electricity, and Magnetism 2	6
NWI-MOL161	Organic Chemistry 2*	3
NWI-MOL162	Inorganic Chemistry 1	3
NWI-MOL163	Synthesis Lab 2	6
NWI-MOL032	Crystal Structure	3
NWI-MOL165	Biochemistry 2	3
NWI-MOL040	Thermodynamics 2	3
NWI-MOL157	Physical Organic Chemistry	3
NWI-MOL170	Panorama Science and Society 1	6
NWI-MOL175	Panorama Science and Society 2**	6
NWI-MOL086	Academic Skills	3
NWI-FCM02B	Writing about Science	3
NWI-FFIL100 or NWI-FFIL101	Philosophy and Ethics of Science	3

\* instead of this course, students who started in 2019 must complete the NWI-MOL126 Synthesis Lab 1b course.

\*\* If the educational minor (30 EC) is chosen, the MOL175 Panorama Science and Society 2 course does not have to be completed.

## 2. Elective components (27 EC)

A minimum of 12 EC must be chosen from the BC1 list. Other components can be chosen from all the Bachelor's programmes taught at the NWI faculty.

BC1 list: Elective courses within the Chemistry curriculum

Course code	Course name	EC
NWI-BB017C	Advanced Molecular Biology	6
NWI-MOL150C	DATA: Bioinformatics	3
NWI-MOL039	Bioinformatics A	3
NWI-MOL035	Chemistry and Society	3
NWI-MOL043	Bioinorganic Chemistry	3
NWI-MOL048A or NWI-MOL049A or NWI-MOL034	Organic Chemistry Lab Chemical Biology Project Condensed Matter Lab	6 6 3
NWI-MOL050	Condensed Matter	3
NWI-MOL053	Pharmacochemistry	6
NWI-MOL054	Toxicology	6
NWI-MOL059	Statistical Thermodynamics	6
NWI-MOL064	Spectroscopy of Atoms and Molecules	3
NWI-MOL065	Chemometrics	6
NWI-MOL071	Crystal Growth	3

NWI-MOL075	Bioinformatics A	3
NWI-MOL087	Synthesis Lab 3	6
NWI-MOL091	Green Chemistry	3
NWI-MOL093	Stereoselective Synthesis	3
NWI-MOL094	Physical Organic Chemistry	3
NWI-MOL095	Organic Chemistry 3	6
NWI-MOL096	Metal Organic Chemistry	3
NWI-MOL106	Applied Quantum Chemistry	3
NWI-MOL108	Magnetic Resonance in Chemistry	3
NWI-MOL110	Applied Magnetic Resonance	3
NWI-MOL111	Biophysical Chemistry	3

The below courses are mutually exclusive due to overlapping content:

Course code	Course name	EC
NWI-MOL033 NWI-MOL076 NWI-MOL085	Programming in Matlab Programming: Matlab Programmeren Matlab voor NW	3
NWI-MOL032 NWI-NB072B	Crystal Structure SdM: Vaste stoffysica	3
NWI-MOL041 NWI-MOL100	Quantum Mechanics 1 Spectroscopy of Biomolecules	3
NWI-MOL048A NWI-MOL049A	Organic Chemistry Lab Chemical Biology Project	6
NWI-MOL063 and NWI-MOL109	Chemometrics Chemometrics for Molecular Life Sciences	6
NWI-MOL087 NWI-MOL087A/B	Advanced Synthesis Lab Synthesis Lab ((In)Organic)	6 3
NWI-MOL139 NWI-MOL091	Sustainable Chemistry Green Chemistry	3 3

A minor can be followed within this elective space. If the student chooses to do so, at least half of the space needs to be taken up by components from the BC1 list.

### 3. Free electives (6 EC)

The degree programme includes a free elective component with a minimum study load of 6 EC, to be filled with assessable courses at the academic level.

### 4. Bachelor's internship (12 EC)

A final aptitude test (practical work and a report) with a study load of 12 EC. Every year, the degree programme publishes a list of approved internship departments for each specialisation.

## Article 7.5 Unauthorised minors



The following minors cannot be part of the Chemistry programme:

- Physical Organic Chemistry
- Bio-organic Chemistry
- Sustainable Chemistry

## Section 8. Transitional provisions

- NWI-MOL120 Structure of Atoms and Molecules may be replaced by NWI-MOL079 Structure of Atoms and Molecules.
- NWI-MOL121 Chemical Analysis 1 may be replaced by NWI-MOL001A Chemical Analysis or NWI-MOL001 Chemical Analysis.
- NWI-MOL122 Chemical Analysis 2 may be replaced by NWI-MOL019 Spectroscopic Techniques.
- NWI-MOL123 Chemical Analysis Lab may be replaced by NWI-MOL001A Chemical Analysis or NWI-MOL001 Chemical Analysis.
- NWI-MOL124 Organic Chemistry 1 may be replaced by NWI-MOL080 Molecular Structure and NWI-MOL007 Reactions and Kinetics.
- NWI-MOL126 Organic Chemistry Lab may be replaced by NWI-MOL005 Reactions and Kinetics Project.
- NWI-MOL127 Biochemistry may be replaced by NWI-MOL008A Biochemistry or NWI-MOL008 Biomolecules and NWI-MOL013 Biochemical processes.
- NWI-MOL128 Essentials of Biochemistry Lab may be replaced by NWI-MOL010 Biochemistry Project.
- NWI-MOL130 Physics 1 may be replaced by NWI-MOL003A Mechanics 1A, NWI-MOL003 Mechanica 1B or NWI-NP001B Mechanica 1B and NWI-MOL014 Electricity and Magnetism 1A.
- NWI-MOL131 Mathematics may be replaced by NWI-MOL004 Mathematics 1 and NWI-MOL009A Mathematics 2-3. NWI-MOL009A Mathematics 2-3 may be replaced by NWI-MOL009 Mathematics 2 and NWI-MOL015 Mathematics 3.
- NWI-MOL135 Physical Chemistry 1 may be replaced by NWI-MOL017 Thermodynamics.
- NWI-MOL139 Sustainable Chemistry may be replaced by NWI-MOL020 Environmental Chemistry and Sustainability.
- NWI-MOL140 Molecular Sciences Lab and NWI-MOL136 Physical Chemistry 2 may be replaced by NWI-MOL018 Thermodynamics Project.
- NWI-MOL057 Magnetic Resonance may also be included in the elective space. However, this is not allowed if NWI-MOL108 Magnetic Resonance in Chemistry and/or NWI-MOL110 Applied Magnetic Resonance are also included in the elective space.
- NWI-MOL087 Advanced Synthesis Lab may be replaced by NWI-MOL087A Synthesis Lab (Organic Chemistry), possibly in combination with NWI-MOL087B Synthesis Lab (Inorganic Chemistry).
- The transitional provisions for the second year can be found in Appendix 1.



## **PART IV      FINAL PROVISIONS**

### **Section 9.    Final provisions**

#### **Article 9.1      Safety net scheme and hardship clause**

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 Examination 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. In derogation from paragraph 1, the dean is authorised to drop elective components of the curriculum should the circumstances be deemed impossible to offer the course.

#### **Article 9.3      Entry into force**

These regulations enter into force on 1 September 2020.

#### **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 15 July 2020.

# APPENDIX I REGULATIONS ON FRAUD DURING INTERIM EXAMINATIONS AND EXAMINATIONS

## **Paragraph 1    Introductory provisions**

### Article 1.        Purpose of these regulations

1.        To prevent fraud during interim examinations and examinations as referred to in article 7.12b *WHW*, the executive board of Radboud University (hereinafter: RU) adopts the following regulations.
2.        For the harmonization of the provisions in these regulations between faculties, these regulations have been laid down as ‘comply-explain’ regulations (*pas-toe-leg-uit-regeling*).

### Article 2.        Scope of these regulations

1.        Except for the provisions referred to in this appendix, these regulations apply both to the initial RU programmes and for the students who have registered for these programmes.
2.        The executive board may decide, in a separate decision, to apply these regulations *mutatis mutandis* to other programmes offered by RU.

### Article 3.        Definitions

The terms that are used in these regulations – in so far as these terms are also used in the Higher Education and Research Act (*Wet op het Hoger onderwijs en Wetenschappelijk onderzoek* (hereinafter: *WHW*) – have the same meaning that is given to these terms in the *WHW*.

## **Paragraph 2    Definition fraud, procedure and sanctions**

### Article 4.        Definition of fraud

1.        At RU, fraud is understood to mean any act or omission by student which, in its nature, is intended to have as an effect that proper assessment of the knowledge, understanding and skills of that student, or another student, is made fully or partially impossible.
2.        Fraud is in any case understood to mean:
  - a.    fraud when taking written interim examinations, including
    - i.    having materials available which are not permitted under the House Rules Examinations Rooms RU Regulations (*Regeling Huisregels Tentamenruimten RU*);
    - ii.   copying or exchanging information;

- iii. passing oneself off as someone else, or being represented by someone else during interim examinations;
  - b. fraud when producing theses and other papers, including
    - i. plagiarism in the sense of using or copying someone else's texts, data or ideas without complete and correct source references, 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. fabricating (making up) and/or falsifying (distorting) research data;
    - iii. submitting a thesis or another paper that was written by someone else.
  - c. Other fraud in the context of interim examinations or examinations, including
    - i. taking possession of assignments, answer keys and the like, prior to the time the interim examination or examination.
- 3. An attempt to commit fraud will also be seen as fraud for the purpose of these regulations.

#### Article 5. Procedure for suspicion of fraud

1. When fraud is suspected, the board of examiners or the examiner immediately informs the student of this suspicion. If the suspicion of fraud is established when the interim examination or the examination is administered, the board of examiners or the examiner will allow the student to complete the interim examination or the examination.
2. The board of examiners or the examiner may order the student to make any material related to the suspicion of fraud available to them.
3. The board of examiners or the examiner may order the student to make any material related to the suspicion of fraud available to them.
4. For the purposes of the provisions in paragraphs 1 and 2 of the present article, examiner is also understood to mean the invigilator or any other RU member or staff.

#### Article 6. Procedure for investigation and determination of fraud

1. The board of examiners makes the report referred to in article 5 available for the student without delay and then starts an investigation into the matter. The board of examiners provides the student with the opportunity to respond to the report in writing. The board of examiners hears both the examiner and the student.
2. Within four weeks following the date the report was made available to the student, the board of examiners decides whether fraud was actually committed. The board of examiners informs both the student and the examiner of their decision in writing. The four-week period may be extended by two weeks.
3. If fraud is established, the board of examiners declares the relevant interim examination or examination invalid.
4. If fraud is established, the board of examiners records both the fact that fraud was committed and the sanction imposed in the student's student file.

## Article 7. Sanctions

1. If the board of examiners has established fraud has been committed, the board of examiners may:
  - a. determine that the student may not sit one or more interim examinations or examinations during a period to be set by the board of examiners, which period will be a maximum of one year;
  - b. determine that no distinction will be awarded on the degree certificate;
  - 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 should be ended.

If the board of examiners has established that *serious* fraud has been committed, the board of examiners may also

- d. make a recommendation to the executive board that the student's registration for a programme should be terminated with definitive effect.
2. After the board of examiners has established that serious fraud has been committed, the executive board – upon the board of examiners' recommendation – may terminate the student's registration for a programme with definitive effect.
3. The sanctions as referred to in this article are imposed as from the day following the date the student is notified of the decision that sanctions are imposed.

### **Paragraph 3 Transitional provisions**

[no transitory regulations]

### **Paragraph 4 Final provisions**

## Article 8.

1. Decisions pursuant to these regulations may be sent to the student digitally and/or by email.
2. The student can appeal against any decision made under these regulations, within six weeks following the date on the relevant decision, by lodging a notice of appeal at the Examinations Appeals Board (*College voor Beroep van de Examens (CBE)*).

## Article 9. Adoption and amendment

1. These regulations have been adopted by the executive board in accordance with the 'comply-explain' principle.
2. In so far as the content of these regulations relates to the duties and powers of the faculty's dean or the duties and powers of the programme's board of examiners, the content must also be confirmed by that dean of that board of examiners. Without any comments by the

dean or the board of examiners as referred to in the first paragraph of the present article, confirmation will take place five months after the regulations have been adopted.

Article 10. Effect

With due observance of the provisions in article 9, these regulations take effect on 1 September 2018. These regulations will then replace any previous regulations.

Article 11. Publication

1. The executive board sees to the appropriate publication and possible amendments of these regulations.
2. For the purpose of appropriate and clear provision of information to students and prospect students, the dean and the board of examiners will include these regulations, every year, as an appendix to the Education and Examination (*Onderwijs- en Examenreglement (OER)*) and as an appendix to the Rules and Guidelines (*Regels en Richtlijnen (RR)*) of the programme.

Thus adopted by the executive board on 13 November 2017.