

## Education- and examination regulations Bachelor's programme Artificial Intelligence 2017-2018

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## Part 1 General provisions

### Section 1 General provisions

#### *Article 1.1 Applicability*

1. These Education and Examination Regulations (EER, hereinafter, regulations) apply to the Bachelor's degree programme Artificial Intelligence (hereinafter, the programme), that is offered by the Faculty of Social Sciences (hereinafter, the faculty). Part 2 of these regulations lists the provisions applicable to all Bachelor's degree programmes. Part 3 specifies the additional provisions applicable to this particular programme.
2. The present regulations apply to all students enrolled in the programme in the academic year 2017-2018.
3. In order to prevent disadvantages to students as a result of regulatory alterations regarding the EER that was in place at the start of the programme, suitable arrangements are made. If no arrangements have been made, students can apply for consideration of the hardship clause (article 12.1).

#### *Article 1.2 Definitions*

1. The terms used in these regulations, 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 these terms have in the Act.
2. Apart from the terms referred to in paragraph 1, the following terms will be understood to have the following meaning:
  - EC (European Credit): the course load entity in accordance with the European Credit Transfer System, in which 1 EC is equivalent to 28 hours of study.
  - Examination programme: the entirety of units of study, resulting in a Bachelor's or Master's degree certificate.
  - Interim examination: umbrella term for all common assessment methods, as described in article 4.1.1.
  - Unit of study part of the degree programme (component) as referred to in article 7.3 of the Act.
  - Extracurricular elective unit of study: component to be determined by the student, which is not part of the examination programme.
  - Free elective unit of study: component to be determined by the student, which is part of the examination programme.
  - Fraud: any act or omission by a student that makes forming an accurate opinion of his or her knowledge, understanding and skills partially or entirely impossible. A detailed explanation of this is outlined in appendix 3.
  - Scientific integrity: regarding research and education within the faculty, regulations are in place as formulated by the 'Notitie Wetenschappelijke integriteit' at the KNAW ([www.knaw.nl/nl/actueel/publicaties/notitie-wetenschappelijke-integriteit](http://www.knaw.nl/nl/actueel/publicaties/notitie-wetenschappelijke-integriteit)) and elaborated by the 'Nederlandse Gedragscode Wetenschapsbeoefening' by the VSNU (<http://www.vsnul.nl/nederlandse-gedragscode-wetenschapsbeoefening.html>).
  - Final paper: final paper for the programme, also known as dissertation or thesis.

## Part 2 General part

### Section 2 Admission to the programme and education

#### *Article 2.1 (Additional) admission requirements*

To be admitted to the programme, the student must meet the statutory admission requirements relating to (additional) previous qualifications.

#### *Article 2.2 Additional requirements in case of inadequate prior education*

- 1 The student who has a pre-university education diploma that does not meet the admission 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 condition that comparable requirements have been met in

terms of content and subject to further assessment. The assessment procedure and the requirements are outlined in the programme-specific part of these regulations.

2. With regard to the equivalence of different or foreign prior education as well as any assessment of deficiencies, the Examination Board of the preferred programme will advise the university's Executive Board. The Executive Board makes the final decision.

#### ***Article 2.3 Entry requirements***

Students who are registered for the programme may attend all units of study in that programme and may sit the relevant interim examinations, unless specific admission requirements apply as laid down in the programme-specific part of these regulations.

### **Section 3 Structure of the programme**

#### ***Article 3.1 Final examination, degree and distinction***

1. The first year of the programme is concluded by the Propaedeutic examination. The programme is concluded by the Bachelor's final examination.
2. The student who has passed the final examination of the Bachelor's degree programme will be awarded the Bachelor of Science (BSc) degree.
3. The Examination Board can award a distinction to a student who has successfully passed the Propaedeutic or Bachelor's final examination. The rules for awarding a distinction have been laid down in a university guideline. This guideline is attached as appendix 1 to these regulations.

#### ***Article 3.2 General learning outcomes***

The degree programme has the intention that students:

- a. acquire knowledge, understanding and skills in the relevant area;
- b. are educated on an academic level; and
- c. are prepared for an advanced study career or future (study) career.

#### ***Article 3.3 Curriculum***

1. The programme comprises the total of the units of study as described in the programme-specific part of these regulations and is aimed at the realisation of well-defined objectives in the areas of the knowledge, understanding and skills that those completing the course are deemed to possess.
2. The programme allows the student to opt for elective units of study amounting to at least 6 and a maximum of 30 EC. These free electives can be taken abroad.
3. In addition to the units of study referred to in paragraph 2, the student may add extra-curricular elective units of study to the programme.
4. In the context of the programme the student is required to write a final paper as an individual proof of competence, unless the Examination Board should decide this requirement is to be replaced by participation in a research project or by an internship that is subject to an individual report in accordance with applicable academic standards.
5. The programme allows for units of study of a philosophical nature, in total amounting to at least 6 EC.

#### ***Article 3.4 Elective programme***

1. The programme's Examination Board decides on a request for permission to attend an elective programme as intended in article 7.3d of the Act. The Examination Board will verify whether the programme fits within the degree programme's domain which the Examination Board is accountable to, if it is sufficiently coherent and if the level is adequate in the context of the programme's learning outcomes.
2. The request in question will have to be submitted at least two months prior to the start of the programme.

#### ***Article 3.5 Teaching periods and interim examinations***

The programme will be offered in an annual schedule consisting of two semesters. The programme-specific part at least arranges in which semester the opportunity is provided to attend courses and to sit the interim examinations of the units of study.

**Article 3.6 Form of education**

1. The programme-specific part of these regulations establishes the form of education for each unit of study.
2. The language/languages in which the units of study are taught is specified in the programme-specific part of these regulations.
3. The average number of contact hours, in accordance with the definition of de Radboud University, in the propaedeutic phase and the second year is at least 15 hours per week. In principle, during the first semester of the B3 year, the average number of contact hours per week is set at at least 15.

**Article 3.7 Incorporation of units of study obtained outside the programme**

1. At the request of the student, the Examination Board will incorporate elective units of study from outside the programme.
2. The incorporation of units of study as meant in paragraph 1 is only allowed before the start of that unit.
3. In the event the units that express workload and study results of the units of study to be incorporated differ from those provided for in these regulations, conversion will take place. The Examination Board will decide on the conversion, with due observance of the Radboud University memo 'Conversion of workload and study results' (Conversie van studiebelasting en studieresultaten).

**Article 3.8 Replacing of units of study**

In special cases a student may, with the permission of the Examination Board, replace an obligatory unit of study of the programme with a unit of study from another programme. In that event article 3.7, paragraph 2 will apply equally.

**Article 3.9 Exemptions**

1. At the request of a student and having heard the examiner involved, the Examination Board may exempt the student either partially or fully from sitting an interim examination, if this student:
  - a. has either completed a relevant unit of study of a university or higher professional programme that is similar both regarding content and level; or
  - b. demonstrates - after successfully passing an assessment as requested by the examiner - having adequate knowledge and skills regarding the unit of study in question as a result of relevant work experience or professional experience.
2. Exemptions must be requested before the start of the unit of study.
3. The percentage of exemptions as referred to in paragraph 1 will never be more than 50% of the programme credits.
4. No exemption as referred to in paragraph 1 will be granted for the final paper.
5. In so far as the programme has generic exemptions, these are listed in the programme-specific part of these regulations.
6. The Examination Board does not grant exemptions on the basis of results obtained in the period in which the student was barred from sitting interim examinations as referred to in article 7.12b paragraph 2 of the Act.

**Section 4 Final examinations and interim examinations**

More detailed provisions regarding the assessment of the units of study are outlined in the Rules and Regulations of the Examination Board (see: <http://www.ru.nl/fsw/onderwijs/oer-eer-rr-2017-2018>).

**Article 4.1 Structure and requirements of the interim examinations**

1. Each unit of study of the programme will be completed by an interim examination. Interim examinations may comprise more than one modular interim examination and can be taken either in writing, online or orally. Apart from written or oral examinations, tests with multiple choice and/or open questions, papers, theses, assignments, take-home examinations, reports, presentations or a combination of any of these is possible.
2. In addition to provisions set forth in paragraph 1 for units of study that also comprise a practical and/or work group, attendance levels and the degree of active participation may be included in final grading.

3. In principle, oral interim examinations are administered in public and these examinations consist of an individual test in which, normally no more than one person is tested at the same time.
4. Oral interim examinations are administered in the presence of at least a second examiner or an observer appointed by the Examination Board. Otherwise the interim examination is to be recorded. In the case that a presentation is part of the final examination, the same rules apply. The same applies to presentations that count for more than 40% of the final grade. This provision does not refer to practical assignments.
5. The Examination Board may allow students with an impairment to take the interim examinations in a form adapted to their individual impairment. Prior to making a decision on this matter, the Examination Board may seek expert advice.
6. Prior to the commencement of a semester, information will be provided for each individual unit of study on the way in which the interim examinations will be administered.
7. Representative sample questions, both in form and content, will be made available to the students on the electronic learning environment at least one week prior to the examination.
8. The course manual must be published at least one week in advance of the interim examination on the electronic learning environment. The course manual includes materials for the interim examination preparation, examination methods and weighting of various interim examination parts in the determination of the final grade. For all students assessment criteria have to be available for final assignments, theses, assignments, reports and presentations.
9. Interim examination dates must be announced no later than one month before the start of a semester.
10. If an interim examination is spread over more than one exam sitting, at least one working day must be scheduled between the last class session covering relevant new materials for the interim examination and the interim examination. If there is only one exam sitting, at least three working days must be scheduled between the last class session and the interim examination.
11. If a unit of study starts on the first day of an academic period set by the Executive Board, no requirements may be imposed on students regarding literature having been studied or assignments having been completed for that unit of study on that day. Necessary preparatory actions - such as reading course manuals or looking for an internship - are permitted.
12. If there are legitimate grounds, the Examination Board may decide that an interim examination is taken in another form than described in the study guide.

#### ***Article 4.2 Frequency of interim examinations***

1. Without prejudice to the provision of paragraph 2 students are allowed to participate in interim examinations twice per course in an academic year.
2. Contrary to the stipulation in paragraph 1, there will be only one opportunity to take an interim examination for a unit of study that was not taught in that particular academic year. The examiner can decide otherwise.

#### ***Article 4.3 Registration for interim exams***

1. Students who register through OSIRIS for units of study in the programme for which they have registered are also registered for the first following interim examination in the relevant academic year.
2. If a student should not want to sit the interim examination, he or she will have to deregister through OSIRIS, no later than five working days before the interim examination date. If the student fails to deregister in due time, non-appearance will be considered as a used opportunity for sitting the interim examination. This might have consequences for granting a distinction.
3. In the case of force majeure, students are allowed to deregister later. The Examination Board will decide whether this is the case.

#### ***Article 4.4 Re-sit of interim examinations***

1. Interim examinations may be retaken once within the same academic year, even when the result is a pass.

2. Students will have to register for a re-sit no later than five working days before the interim examination date in conformity with the provisions laid down to that purpose by or on behalf of the Examination Board.
3. If feedback has been provided within a reasonable time period, successfully passed interim examinations (essays, assignments, report etc.) cannot be retaken, unless stated otherwise in the course manual. A final paper for a programme that receives a passing grade may only be redone in the sense that an entirely new paper is written.
4. If a student re-sits an interim examination, in all cases the most recent grade will determine the final result.
5. The course manual contains provisions on retaking modular interim examinations for the different units of study of the programme.
6. Each interim examination must be passed within the academic year that students take the relevant unit of study. If students do not pass the interim examination within academic year they must retake the entire unit of study the following academic year, unless the examiner decides otherwise.

**Article 4.5**    *Validity term of interim examinations*

1. The validity term of any interim examination that has been passed will in principle be indefinite, unless indicated otherwise in the programme-specific part of these regulations and with due observance of the stipulations on this matter laid down in the Act.
2. In the case of a limited validity, the Examination Board is entitled to extend the validity term of specific interim examinations that have been passed.

**Article 4.6**    *Determination of results*

1. The final grade of an examination will be rounded to the nearest whole and half grade points, as follows: 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, unless the grade is not expressed in a figure.
2. As determined in paragraph 1, the results of an interim examination cannot be set at 5.5. For arithmetical scores between 5 and 6, a score lower than 5.50 will be rounded to 5 and a score equal to or higher than 5.50 will be rounded to 6. The degree programme's study guide contains provisions on rounding scores of modular interim examinations for the different units of study.
3. If the result of an interim examination equals or is greater than 6.0 points, the interim examination is deemed to have been passed. If the result of the interim examination equals or is less than 5.0 points, the student will be deemed to have failed the interim examination.

**Article 4.7**    *Publication of results*

1. The examiner will determine the results of a written interim examination as soon as possible and will provide the student administration office with the data required for the publication of the results.
2. In case of an oral interim examination, the examiner will determine the result immediately or within five days after the interim examination was administered. In case of written or online interim examinations, the grading period is no longer than fifteen working days after the day the interim examination was administered. The last regulation also applies to written examinations divided into parts. For open-ended questions examinations with more than 100 participants, a grading period of twenty working days applies. With respect to written assignments/papers, the rule of assessment within fifteen working days applies. If there are more than 100 papers to be marked, a period of twenty working days applies.
3. By way of exception the Examination Board may - in consultation with the examiner - extend the period referred to in paragraph 2 or reduce this period.
4. The grading period is mentioned on the examination form or the digital learning environment.
5. A minimum period of ten working days must be maintained between the date of the announcement of the result and the date of the re-sit.
6. When the results are published, the student will be informed about the right to inspect his or her marked work as referred to in article 4.8 and about the possibility of appealing at the Examinations Appeals Board as well as of the option of reassessment within the period for appeal. A request for

reassessment must be lodged with the Examination Board and shall not defer the submission term for lodging an appeal.

7. During completion of the programme's final project an independent second reader will be consulted as well as a thesis supervisor.
8. In the case of suspected fraud or plagiarism, the provisions contained in the Rules and Regulations of the Examination Board must be followed.

**Article 4.8** *The right to inspect the interim examinations*

1. For a period of a maximum of twenty working days following the publication of the results of a written interim examination the student will be allowed to inspect the questions and the work marked, as well as receive an explanation of the formal assessment criteria.
2. The inspection will take place under supervision of at least an examiner and/or another person with substantive knowledge regarding the course.
3. If deemed necessary, the Examination Board can, after consultation with the examiner, extend or shorten the period of twenty working days as mentioned in clause 1 of this article.
4. The examiner may decide that inspection will take place for all students at the same time, on a date and at a time and place set prior to the start van de unit of study.
5. Time, date and - preferably - place of the inspection referred to in paragraph 4 will be announced at least five working days in advance.
6. If a student is unable to attend the inspection referred to in paragraph 4 due to demonstrable circumstances beyond his or her control a separate inspection can be arranged upon his or her request, preferably within the period of time referred to in paragraph 1.
7. In all events, inspection will take place no later than five working days before the re-sit of the interim examination in question is administered.

**Article 4.9** *Determination of final Bachelor's examination results*

1. When students have completed all interim examinations successfully, they must apply for the final examination themselves.
2. The Examination Board will determine the results of the examination as soon as the student has passed the interim examinations forming part of either the units of study of the programme in question or of the phase of the programme in question and has submitted proof thereof.
3. Prior to determining the results of the final examination, the Examination Board itself may conduct an inquiry into the student's knowledge with respect to one or more units of study or aspects of the degree programme. If this is the case, this will be elaborated upon in the programme-specific part of these regulations.

**Section 5** **Study progress, student counselling and course advice**

**Article 5.1** *Study progress and student counselling*

1. The dean is responsible for the registration of the study results in such a way that every student can obtain an overview of the results registered in the system OSIRIS at that moment the results are released.
2. The dean is responsible for providing adequate student counselling.

**Article 5.2** *BSA regulations*

Further rules covering binding recommendations for a student to continue his studies or not (known as binding study advice, BSA) have been laid down in appendix 2 to these regulations.

**Section 6** **Teaching evaluation**

**Article 6.1** *Teaching evaluation method*

With due observance of the quality assurance system of the university, as laid down in the Handbook Quality Assurance System Degree Programmes Radboud University (*Handboek Kwaliteitszorg Onderwijs Radboud Universiteit*), the dean sees to it that the units of study taught in the programmes will be systematically evaluated.



**Section 7      Miscellaneous stipulations****Article 7.1      Code of conduct**

The faculty has instituted a Code of conduct that both students and employees are expected to follow. This Code of conduct is attached in appendix 4 of these regulations.

**Part 3              Programme Specific Regulations****Section 8      Admission to the programme and units of study****Article 8.1      Supplementing deficiencies**

1. Deficiencies in prior education for the subjects Mathematics A or B can be compensated for by successfully completing the relevant test by the Regionaal Opleidingscentrum (ROC) Nijmegen, or by earning the relevant VWO certificate, or passing an equivalent test at another education institute.
2. The requirement of sufficient proficiency in English is met by:
  - The satisfactory completion of the English test at the level of the VWO final examination; or
  - Passing one of the following tests:
    - a. Test of English as a Foreign Language (TOEFL) with a score of at least 550 (paper-based) or at least 213 (computer-based) or at least 79 (internet-based);
    - b. International English Language Testing System (IELTS) with a score of at least 6.0;
    - c. Cambridge Certificate of Advanced English or Cambridge Certificate of Proficiency in English with a score of at least C.
3. The Examination Board will appoint one or more examiners charged with the task of administering the tests.

**Article 8.2      Exemption on the grounds of a HBO first-year diploma**

Those in possession of a HBO first-year diploma shall be exempt from the requirements set out in article 7.24 of the Act, provided they demonstrate sufficient knowledge of mathematics and English at the VWO (pre-academic) final examination level.

**Article 8.3      Colloquium Doctum**

The admission assessment referred to in article 7.29 of the Act is in relation to the following courses at the VWO level:

- a. General development;
- b. Translation and reading skills in English;
- c. Mathematics A or Mathematics B.

**Article 8.4      Programme-specific admission requirements**

1. Contrary to the provisions in the general part of these regulations, participation in the education and interim examinations of the degree programme is not possible until the requirements listed in paragraph 2 have been met.
2. With regard to the sequence of interim examinations of the units of study of the degree programme, the following regulations apply:
  1. Students must first complete their propedeuse (first year), then the second year of the Bachelor's programme (B2) and finally the third year of the Bachelor's programme (B3).
  2. Participation in units of study of the B3 year is only possible after completion of the first year (propedeuse).
  3. In order to take an elective unit of study from another degree programme, students must meet the applicable admission requirements of that programme.
  4. Students can only participate in the Bachelor's units of study listed below provided they have passed the other units of study of the Bachelor's programme listed below this point, or have been granted exemption for these other units of study:
    - Programming for AI 2 after Programming for AI 1;
    - Object Orientation after Programming for AI 2;

- Introduction to Artificial Intelligence B: Practical after Introduction to Artificial Intelligence A;
  - Functional Programming 1 after Programming for AI 2;
  - Mathematics 2 for Artificial Intelligence after Linear Algebra and after Mathematics 1A;
  - Artificial Intelligence: Search, Planning and Machine Learning after Introduction to Artificial Intelligence A;
  - Representation and Interaction after Introduction to Artificial Intelligence A;
  - Completion of the Bachelor's Thesis after achieving a minimum of 135 EC of the Bachelor's programme.
3. In individual cases the Examination Board may decide to deviate from the provisions in paragraph 2 at the student's request.

## Section 9 Structure and design

### *Article 9.1 Applicability of this section*

1. Articles 9.6 and 9.7 of this section apply to students, first enrolled in the Bachelor's programme in 2017-2018.
2. For students who were first enrolled in the programme prior to 2017-2018, the programme in principle applies as described in the EER for the year in which they started the programme.

### *Article 9.2 Programme-specific learning outcomes*

1. Supplementary to the general learning outcomes described in Article 3.2 of these regulations, the degree programme aims to achieve the following programme-specific learning outcomes:
  - a. The student possesses knowledge, skills and insight in the area of artificial intelligence and in particular the cognitive scientific approach to it;
  - b. The student is sufficiently prepared for a future professional career in the area of artificial intelligence, with the right to be admitted to the Master's degree programme Artificial Intelligence at Radboud University.
2. Further elaboration of this objective is included in Appendix 5.
3. The specific learning outcomes for each unit of study are included in the course description in the most recent prospectus.

### *Article 9.3 Programme study load*

The programme has a study load of 180 EC.

### *Article 9.4 Programme type*

The programme is only offered full time.

### *Article 9.5 Programme language*

The programme is taught in English.

### *Article 9.6 Composition of the first-year (propedeuse) programme*

1. In accordance with the provisions in Section 3 of these regulations, the first year comprises the following units of study with reference to the corresponding semester (x) and the corresponding study load in EC (total 60):

Note: course name details are subject to change.

- Introduction cognitive psychology for AI (1) .....	4
- Introduction artificial intelligence A (1) .....	4
- Linear algebra for AI (1) .....	3
- Mathematics 1A (for AI) (1) .....	3
- Formal thinking (1) .....	6
- Programming for AI 1 (1) .....	3
- Programming for AI 2 (1) .....	3
- Research and professional skills 1 (1) .....	4
- Introduction artificial intelligence B: practical (2) .....	3
- Introduction human-computer-interaction (2) .....	6
- Introduction robotics (2) .....	6

- Brain for AI (2) .....6
  - Research skills (2) .....3
  - Object orientation (2) .....6
2. A description of the units of study listed in paragraph 1, including contact hours, a summary of the learning objectives, and teaching and assessment methods, is included in the degree programme prospectus.
  3. The Examination Board may, on request and in individual cases, decide to deviate from the points stipulated in paragraph 1.
  4. The first-year studies of the *Informatica* (Computing Science) degree programme at Radboud University may also count as the first-year of the Artificial Intelligence degree programme.

#### **Article 9.7 Composition post-propedeutic phase**

In accordance with the provisions in section 3 of these regulations, the post-propaedeutic phase comprises the following units of study, with reference to the corresponding semester (x) and the corresponding study load in EC (total 120 EC):

Note: unit of study name details are subject to change.

- |  |    |
|--|----|
| B2-year .....  | 60 |
| - Functional programming for AI (1) .....                                  | 3  |
| - Mathematics 2 for AI (1).....  | 6  |
| - Bayesian statistics (1).....   | 6  |
| - Data mining (1).....   | 6  |
| - Language in action (1) .....   | 4  |
| - Cognitive Robotics (1).....  | 6  |
| - Asserting and proving (2).....   | 6  |
| - Artificial intelligence: search, planning and machine learning (2) ..... | 6  |
| - Neural networks (2).....   | 6  |
| - Frequentist statistics (2) .....   | 6  |
| - Theoretical cognitive science 1: Foundations and Implications (2).....   | 5  |
| B3-year .....  | 60 |
| - Representation and interaction (1) .....                                 | 6  |
| - Cognitive modeling and the web (1).....                                  | 4  |
| - Introduction brain-computer interfacing (1) .....                        | 6  |
| - Computational and formal modelling (1).....                              | 6  |
| - Academic and professional skills 2 (1) .....                             | 2  |
| - Modern software development techniques (1).....                          | 6  |
| - Bachelor thesis (2).....   | 12 |
| - Free electives (2).....  | 18 |
2. A description of the units of study described in paragraph 1, including contact hours, a summary of the learning objectives and teaching methods, has been included in the degree programme prospectus.
  3. Contrary to the provisions in paragraph 1, the programme of the post-propaedeutic phase for students with a first year (propedeuse) certificate in Computing Science is determined by the Examination Board.
  4. In special cases a student may, with the permission of the Examination Board, replace an obligatory unit of study of the programme with a unit of study from another university –level programme. In deciding whether to grant this permission, the Examination Board determines to what degree the EER of the other programme is applicable and how to coordinate this with the relevant programme's Examination Board.

#### **Article 9.8 Programme specific regulations regarding elective units of study**

1. The Bachelor's degree programme offers room for 18 EC for elective units of study.
2. These electives cannot be filled with units of study of too low a level or overlapping with other units of study in the student's curriculum.

3. In filling up the free space, it is not permitted to let the same unit of study be part of the compulsory curriculum of both the Bachelor's and Master's final examination in Artificial Intelligence, or of another academic examination.
4. In individual cases the Examination Board may grant exemption from the electives if the student has an academic Propedeuse, Bachelor's or Master's degree in a discipline other than Artificial Intelligence.

#### ***Article 9.9 Participation in education***

1. Unless otherwise indicated in the prospectus, the following applies to participation in education:
  - a. Participation in practicals is compulsory, unless the practical is meant to provide assistance with doing assignments that have to be handed in.
  - b. Participation in lectures and question-and-answer sessions is optional.
  - c. Participation in work groups is optional.
2. Meeting the participation requirements and any sanctions resulting from failing to meet these requirements must be outlined in the course manual of the unit of study in question.
3. If the conditions described in paragraph 2 have not been met, mandatory participation cannot be enforced.

### **Section 10 Interim examinations**

#### ***Article 10.1 Participation in interim examinations***

1. If a student does not pass an examination during the course of the academic year, he or she can take the examination again the following academic year. In this case, the examination will cover the course content of that year or the content of a unit of study designated by the degree programme to replace it.
2. Contrary to the provisions in paragraph 1 as well as section 4, the interim examinations of units of study given by other degree programmes must meet the interim examination regulations and be applicable to the degree programme or faculty in question.

#### ***Article 10.2 Validity of credits earned***

With regard to units of study for an exam that was completed and passed more than six years ago, notwithstanding the provisions in article 4.5, the Examination Board may, for valid content-related or educational reasons, decide that the student must take a supplementary or replacement exam before being allowed to take the final Bachelor's examination. A replacement or supplementary exam does not result in additional credits earned.

## **Part 4 Transitional and final provisions**

### **Section 11 Transitional provisions**

#### ***Article 11.1 Transitional provisions for the programme***

For students whose enrolment in the Bachelor's programme was uninterrupted until September 1, 2016, the transitional provisions apply until September 1, 2018 as described in Appendix 7 attached to these regulations.

#### ***Article 11.2 Transitional provisions regarding distinctions***

Until September 1, 2018, for students whose enrolment in the degree programme was uninterrupted until September 1, 2015, the regulations regarding distinctions are applicable as outlined in the EER that was valid at the start of their studies.

### **Section 12 Final provisions**

#### ***Article 12.1 Safety net scheme and hardship clause***

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

**Article 12.2 Amendments**

1. Notwithstanding the provisions in article 7 of the Structure Regulations of Radboud University, these regulations are drawn up or amended by the dean after receiving advice from the Programme Committee and after having obtained the approval of the faculties' joint meeting.
2. In exceptional cases, an amendment to these regulations may be related to the current academic year, but only if this does not disproportionately damage the interest of the students.

**Article 12.3 Publication**

1. The dean is responsible for publishing these regulations and any amendments thereto.
2. Any interested party can consult the EER on the faculty website.

**Article 12.4 Entry into force**

These regulations shall come into force on September 1, 2017.

The Education and Examination Regulations applicable before this date will then expire.

As established by the dean on June 22, 2017.

*These Education and Examination Regulations are a translation of the original Dutch version (Onderwijs- en examenregeling bacheloropleiding Kunstmatige intelligentie 2017-2018) as drawn up by the dean, June 22, 2017, which, should any doubts arise concerning the interpretation of the English version, is the legally binding text.*

## Appendices

### Appendix 1 Distinctions

1. With due observance of the provisions set out in this article, the Examination Board will determine whether a distinction will be awarded and, if so, which distinction will be awarded.
2. The distinction:
  - a. 'cum laude' will be awarded if the weighted average result of the final assessment of the units of study referred to in paragraph 3 equals or is higher than 8.0; or
  - b. 'summa cum laude' will be awarded if the weighted average result of the final assessment of the units of study referred to in paragraph 3 equals or is higher than 9.0.
3. The distinction will be calculated on the basis of all units of study of the examination programme for which a mark has been awarded on a scale of 1 to 10, except for extra-curricular units of study.
4. The number of EC of the units of study referred to in paragraph 3 will serve as the weighting ratio for the calculation of the weighted average result, unless provided otherwise in the programme-specific part of these regulations.
5. The distinction will not be awarded if more than 10 percent of the total study load of the examination programme (being one or more units of study) has been resat or if interim examinations have been resat more than once, notwithstanding the authority of the Examination Board to decide otherwise, stating reasons therefore.
6. The distinction will not be awarded if fraud was established in one of the examination programme's units of study.

#### *Transitional provision for distinctions*

Until September 1, 2018, the distinction rule will apply to students who were enrolled for the programme without interruption up to September 1, 2015 in the manner that it applied at the beginning of these students' studies.

### Appendix 2 Study advice first year

#### *Article 1 Study advice in the first year (BSA)*

1. On behalf of the dean, the First Year Study Recommendations Committee (Commissie Studieadvies Eerste Jaar) will advise students on continuing their degree programme at the end of the first year, but no later than 31 August, that the student has been registered for the propaedeutic phase of the full-time Bachelor's degree programme as referred to in article 7.8b of the Act.
2. The Propaedeutic phase of the Bachelor's degree programme is the first study year of the Bachelor's degree programme and contains a study load of 60 EC.
3. The First Year Study Recommendations Committee will advise students positively on continuing their degree programme if a student has achieved a minimum of 42 EC in the Propaedeutic phase referred to in paragraph 2.
4. The First Year Study Recommendations Committee will advise students negatively on continuing their degree programme if a student does not meet the requirements referred to in paragraph 3, unless personal circumstances as referred to in article 3 of these regulations should play a role. A negative study advice is a recommendation not to continue the degree programme in question and is binding.
5. The First Year Study Recommendations Committee will notify students of its intention to give a binding advice not to continue their degree programme and will provide students with the opportunity to be heard before the binding advice not to continue their degree programme becomes final.
6. When determining the required number of EC referred to in paragraph 3, the EC that have been granted for exemptions will not be taken into account. When granting the exemptions, the Examination Board may provide otherwise and set alternative or additional requirements.
7. Students will be heard by the First Year Study Recommendations Committee.
8. The First Year Study Recommendations Committee will give binding advice on continuing their degree programme to students registered for a part-time programme at the end of their second study year and to students who registered for a full-time programme after 31 January. The First Year

Study Recommendations Committee will then advise students positively on continuing their degree programme if the Propaedeutic phase has been successfully concluded.

9. The dean is entitled to lay down additional rules for students who have registered for two degree programmes recognised as dual degree programme under or pursuant to these Education and Examination Regulations.
10. Students who terminate their registration before 1 March will not be given any advice for that academic year. If they register again for this degree programme in the following academic year, they will be given binding advice on continuing their degree programme or not at the end of that second study year. The provisions of the last sentence of paragraph 8 will equally apply.
11. Students may appeal to the Examination Appeals Board against a binding advice not to continue their degree programme within six weeks following this recommendation. The appeal will have no suspensive effect.

#### *Article 2 Provisional recommendations*

1. In anticipation of the advice referred to in article 1 of these regulations, the First Year Study Recommendations Committee will make provisional recommendations, at the end of the first semester, before 1 March, to students on continuing their degree programmes on the basis of their results to date.
2. The provisional recommendation is especially meant 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 see how the study results could be improved or whether an alternative degree programme might be advisable.

#### *Article 3 Personal circumstances*

1. When deciding on the binding advice to continue a degree programme, the First Year Study Recommendations Committee will take into consideration personal circumstances as referred to in article 2.1 of the implementation decree ('Uitvoeringsbesluit') of the Act, in so far as a student advisor, a student dean, or any other person appointed to this end has been notified, without delay, of these circumstances by or on behalf of the student in question. The student may be requested to substantiate why personal circumstances have played a role or to argue convincingly that these circumstances should be taken into consideration.
2. Personal circumstances will exclusively be considered as such if they have been specified under or pursuant to the Act.

#### *Article 4 Duration of advice*

1. If binding advice has been given not to continue the degree programme, the student in question will neither be entitled, for a period of three years, to register for the same bachelor's degree programme nor for any other bachelor's degree programmes that have their propaedeutic phases partially or entirely in common, as designated by the dean.
2. In the event a student should register again for the degree programme after the period referred to in paragraph 1, this registration will be considered as a first registration under this paragraph and the relevant provisions will apply in full.

#### *Article 5 No binding negative advice or deferral of the decision*

1. On the basis of the circumstances referred to in article 3, the dean, having heard the First Year Study Recommendations Committee, may decide not to attach binding consequences to their negative advice to students to continue their degree programme. Having heard the First Year Study Recommendations Committee, the dean may also decide, on the basis of the circumstances referred to, not to attach binding consequences as yet to the negative advice.
2. If binding advice not to continue the degree programme is not yet given pursuant to paragraph 1, the First Year Study Recommendations Committee will give their binding advice as referred to in article 1 before the end of the second study year if, at that time, the student has not yet obtained the 60 EC of the Propaedeutic year.

### **Appendix 3 Fraud and plagiarism**

1. Notwithstanding the provisions in article 1.2, paragraph 2 of the EER, fraud during a written examination/resit with multiple-choice and/or open-ended questions may consist of:

- a. copying from others or a cheat sheet;
- b. using study aids (e.g. dictionaries, calculators, mobile telephone, cameras, etc.) during an interim examination/resit without permission;
- c. exchanging information inside or outside the examination room during the interim examination/resit;
- d. impersonating someone else during an interim examination/resit or allowing someone else to represent oneself during an interim examination/resit;
- e. being in possession of the assignments for an interim examination/resit before it is held;
- f. taking a copy of the exam or duplicating it, and/or distributing it without authorisation from the examiner, either during or after the interim examination/resit, or during the inspection.

The above list is not exhaustive.

2. Fraud during other exam formats may consist of the fabrication of data and/or falsifying of data and/or plagiarism. Fabrication is defined as inventing or otherwise fabricating research data. Falsification is defined as manipulating or falsely presenting research data and results. Plagiarism is defined as the following and comparable behaviour:

- a. copying texts, thoughts and/or reasoning of others and presenting these as one's own;
- b. submitting previously submitted or similar texts for assignments from other programme components without acknowledging the source;
- c. submitting papers obtained from a commercial organisation or written by someone else - whether in return for payment or not.

The above list is not exhaustive.

3. In addition to the perpetrator, accomplices may also be punished in cases of fraud and plagiarism. If the work copied from a fellow student was copied with the permission and/or assistance of that fellow student, he or she will in any case be considered an accomplice as defined in the previous sentence.
4. Suspicions of fraud or plagiarism may be determined before, during or after an interim examination/resit.
5. If the proctor believes he or she has discovered a student committing fraud during a written interim examination/resit, he or she will immediately make note of this on the exam protocol. The proctor will also make note of this on the answer sheet of the participant suspected of fraud, either at the time the fraud is discovered or when the participant submits the examination papers. After the interim examination, the proctor will make a written report of the detected fraud. The examinee will be given the opportunity to add a written comment to the report. The written report and any comments will be handed to the relevant examiner, who is then required to contact the Examination Board for further handling.
6. An examiner may use a plagiarism detection program to investigate plagiarism.
7. If the examiner or any other party involved thinks they may have discovered fraud or plagiarism before, during, or after the assessment of other exam formats, he or she must report this to the Examination Board and submit a file with evidence to prove the fraud or plagiarism.
8. The Examination Board will determine whether fraud has been committed after investigating the matter.
9. If an examinee is found guilty of fraud, the Examination Board may exclude him or her from further participation in the interim examination/resit in question, as well as from participation in other interim examinations/resits for up to one year after the fraud is discovered.
10. In the event of serious fraud, the Examination Board may recommend that the student's enrolment for the degree programme be terminated.

#### **Appendix 4 Faculty of Social Sciences code of conduct**

The Faculty of Social Sciences seeks to offer a work environment where employees and students work and study with effort, joyfully, and aimed towards results. To facilitate this, the faculty has adopted a number of rules governing conduct within the faculty. These rules of conduct are taken to form the foundation of a motivating and inspiring work environment. It is the mutual responsibility of employees and students to follow them.



*Points of reference*

The faculty seeks to provide an atmosphere characterised by:

- mutual respect and personal development;
- openness and trust;
- cooperation and responsibility.

*This implies that*

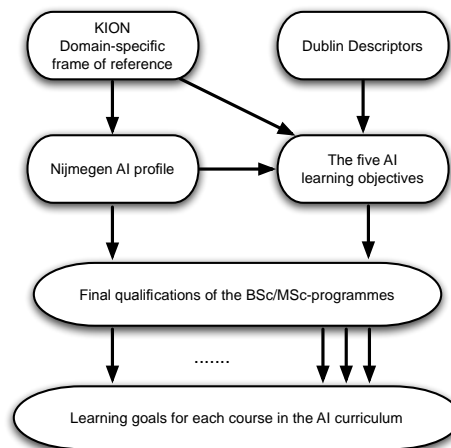
- everyone should be treated with respect, without being offensive or hurtful;
- you should treat others as you wish to be treated. This goes for all forms of all contact on campus that occurs between staff and students and for all forms of communication, including verbal, written, e-mail, Blackboard, chat rooms, and course evaluations;
- everyone makes sure to familiarise themselves with and act according to the rules in the various regulations (e.g. EER, student-act, regulation on academic integrity, the terms of use for the RU-network and SURFnet) as well as the agreements made with respect to attendance, deadlines, review periods, completing assignments, among others;
- one sticks to the rules and agreements once made;
- students and lecturers are jointly responsible for the successful functioning of the educational process. They can and may appeal to their responsibility;
- one assumes good intentions of each other and one does not adhere to prejudicial judgements;
- everyone makes sure to be familiar with relevant information and recent changes in the educational organisation and content;
- everyone respects each other's property and takes good care of spaces and materials used.

Basically, this all boils down to the same thing: treat each other with respect. The faculty trusts that students and employees will act accordingly.

**Appendix 5 Further elaboration on the objectives and learning outcomes of the Bachelor's programme**

For both the BSc/MSc programmes, the integration of knowledge and skills, as well as imparting a critical and academic stance are central goals. These can be operationalised in terms of five AI learning objectives that reflect the Nijmegen AI profile and fully adhere to the five "Dublin Descriptors", which describe the desired level of the Bachelor's and Master's programmes in general terms.

The five AI learning objectives are implemented through ten learning outcomes for the Bachelor's programme and eleven for the Master's. Both the learning objectives and learning outcomes fit the description of the KION domain-specific frame of reference (KION-FoR), while doing justice to the AI profile in Nijmegen. The learning outcomes form an excellent means to enforce the five objectives on the one hand, and to provide solid requirements for the implementation of the educational learning environment on the other hand. As illustrated in figure 1, it is through the specification, assessment and evaluation of the learning goals of each individual course that the BSc/MSc programmes implement a high-quality educational learning environment, which adheres to academic standards as well as to the KION-FoR.



**Figure 1.** Implementation scheme for the intended learning outcomes of the BSc/MSc-programmes: profile, objectives, final qualifications and course goals.

### ***Objectives for the Bachelor's programme***

The five learning objectives for the Bachelor's programme in Artificial Intelligence are described below. Through achieving these learning objectives, students acquire research skills in the area of artificial intelligence and are able to develop computational models that implement aspects of artificial or natural intelligence, as well as thoroughly analyse such models. They will be able to formulate relevant research hypotheses, adequately test these, and develop well-rounded arguments in order to draw conclusions in their research.

#### ***Objective 1 Acquisition of knowledge and understanding***

Students acquire up-to-date knowledge and understanding across the full breadth of the artificial intelligence discipline. This comprises the core concepts and theories from mathematics, computer science, cognitive psychology, philosophy, neuroscience and language.

#### ***Objective 2 Application of knowledge and understanding***

Students can apply acquired knowledge in order to understand the theoretical and practical problems in artificial intelligence. Through supervision, students are able to define a given research question and use computational resources in order to provide an answer to the given question.

#### ***Objective 3 Critical judgment***

Students are able to reason critically and academically. This implies that students can form an opinion on the scope and applicability of existing and new scientific insights. Students are aware of presuppositions and social consequences of research and are able to critically reflect on their own professional opinions, actions and behaviour.

#### ***Objective 4 Communication***

Students are able to adequately express their knowledge, insights and findings both orally and in writing. They are trained in presenting, understanding and evaluating research results, enabling them to effectively communicate with fellow students, professionals and laymen. As a result, graduated Bachelor's students will be capable of communicating about artificial intelligence in various contexts.

#### ***Objective 5 Learning skills***

Students are responsible for their own education and are able to guide their own learning process with guidance and supervision, thus helping them to become aware of their own strengths, limitations and weaknesses. Students should possess the skills to complete the Bachelor's programme with a high degree of independence in order to continue their academic training and development within the professional field.

As shown in figure 1, the learning outcomes of the Bachelor's programme are derived from the five Artificial Intelligence learning objectives. The profile of Bachelor's graduates in Artificial Intelligence is specified below in relation to the learning outcomes:

1. *Relevant disciplines:* Bachelor's graduates possess essential knowledge and understanding regarding relevant aspects of psychology, informatics, mathematics, logic, linguistics, philosophy and neuroscience. This enables them to develop and apply original ideas, with supervision.

2. *Cognition*: Bachelor's graduates possess essential knowledge and understanding regarding human cognition, such as problem-solving, perception, language and motor skills.
3. *Methods and technology*: Bachelor's graduates have essential knowledge and understanding regarding methods and techniques in artificial intelligence, such as search techniques, deduction methods, learning methods and logic.
4. *Analytical skills*: Through supervision, Bachelor's graduates are able to analyse an abstract problem, develop a solution using a computer program, and, if relevant, formalise a theoretical generalisation of the problem. In addition, they are able to translate a theory into an algorithm or model, and formalise and validate the theoretical predictions.
5. *Paradigms*: Bachelor's graduates are able to describe and comment on relevant aspects of current research, for example similarities and differences in architecture and functionality of different models such as the classic-symbolic, the connectionist and the modern dynamic and probabilistic models. They also understand the theoretical implications of these aspects, and understand the relevance of different types of models for different areas of application.
6. *Philosophy*: Bachelor's graduates have an eye for the philosophical foundations and implications of the influential paradigms and model types in artificial intelligence, as well as the social and ethical implications of developments in the field, for instance regarding topics like autonomy, agency and social implications of robotics.
7. *Communication*: Bachelor's graduates are able to express themselves in writing in accordance with the acceptable norms within artificial intelligence for scientific publications, relating to both form and content, for example IEEE [Institute of Electrical and Electronics Engineers], Computer Society, APA [American Psychology Association], and are able to effectively process articles in relevant journals. Additionally, they should be equipped to express themselves orally with accurate terminology to such an extent that they can report on conducted research and can communicate clearly with specialists in artificial intelligence and non-specialists alike.
8. *Research*: Bachelor's graduates are able to design, conduct and analyse empirical research through the application of the acquired methods and techniques, as well as observing, consolidating, expanding and applying their knowledge and understanding acquired through this research. The product is potentially suitable for publication in peer-reviewed forums such as the BNAIC.
9. *Practical application*: Bachelor's graduates are able to think and act in a practical manner. They can translate practical requirements (for instance from the user group) into design of and improvements to a computer program. They are able to apply the acquired competences in different practical applications, such as major programming tasks that demand a working product to be tested through demonstration sessions, or designing empirical or theoretical research projects regarding the design, implementation and testing of software products.
10. *Critical attitude*: Bachelor's graduates have a critical scientific attitude towards research in general and artificial intelligence in particular. They are able to critically evaluate and assess arguments, assumptions, abstract concepts and (possibly incomplete) data in terms of reliability and validity. They have the ability to integrate and develop (partially under supervision) multidisciplinary knowledge and scientific research questions and to tackle these questions largely independently and autonomously.

**Table 1:** Correspondence between the five AI learning objectives and the ten learning outcomes of the BSc programme.

	1 Discip.	2 Cogn.	3 Meth.	4 Analy.	5 Paradi.	6 Phil.	7 Com.	8 Res.	9 Prac.	10 Crit.
1. Acquisition of K/U	x	x	x		x	X				
2. Application of K/U	x			x	x			x	x	
3. Critical Judgement						x		x		x
4. Communication	X						x			
5. Learning skills	x	x	x	x	x	x	x	x	x	x

K/U represents Knowledge and Understanding.

## Appendix 6 Scientific integrity

Scientific integrity has been an ongoing topic of attention in the world of research. In 2012, a severe breach of scientific integrity shocked the national and international research communities. As a result, in 2012 and early 2013, several reports were published on this topic (e.g., by the Executive Board, the Royal Netherlands Academy of Arts and Sciences [KNAW Schuyt Commission] and Faculty of Social Sciences). The Schuyt Commission has identified three categories in which the violation of scientific integrity is evident:

- Fabrication: fraud with research data; to make up or fabricate research data.
- Falsification: to manipulate or falsely present research data and findings, e.g. by leaving out outcomes that negatively influence the research outcomes.
- Plagiarism: the practice of taking someone else's work or ideas and passing them off as one's own, without appropriately referring to the source of the work or ideas.

Scientific integrity is not just a matter for researchers, students and teaching staff must obey and promote internationally recognised principles of scientific integrity as well. Pending detailed instructions from the Executive Board and Faculty of Social Sciences, the following rules of conduct should be obeyed in any research project, be it for the graduation thesis or any other course assignment. These hold for both the student performing the research and the supervisor(s) guiding the student:

- Strictly avoid the three categories of violating scientific integrity listed above.
- When using the work of others, make the use clear by proper referencing. Never claim credit for the work of others (software/ideas/text), neither implicitly (not mentioning the original author) nor explicitly (claiming authorship yourself).
- Respect one another: this includes staff, fellow students, as well as other peers.
- In case of questionable practices, or cases where it is unknown which procedure to follow, consult the Examination Board.
- Each research report must contain (a reference to) a detailed justification of methods and data used in the research, unless such justification is obvious.
- After performing the research, the student must hand over all data, source code and results that the supervisor deems relevant, in a format as required by the supervisor. The supervisor must take care of proper archiving of these materials, following the standards and guidelines of the Master programme in AI.

Please note that these rules of conduct are not exhaustive. A careful and professional attitude is expected from the supervisors. In addition, it is expected that this will help the student adopt such an attitude during the course of the degree programme that he/she will possess an appropriate level of scientific integrity upon graduation.

## Appendix 7 Transitional provisions regarding the language of the degree programme

1. Students whose enrolment in the Bachelor's degree programme was uninterrupted until September 1, 2016, have the right to be tested in Dutch for an unit of study, provided they submit a written request to the Examination Board.
2. The request described in paragraph 1 must be submitted no later than two weeks before the start of the unit of study in question.