

Faculty of Social Sciences
Bachelor's programme in Artificial Intelligence

Education and examination regulations 2018-2019

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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 in 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 2018-2019.
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.
 - Free elective unit of study: component to be determined by the student, which is part of the examination programme.
 - Extracurricular elective unit of study: component to be determined by the student, which is not 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) and elaborated by the 'Nederlandse Gedragscode Wetenschapsbeoefening' by the VSNU. (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 may 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 the university's Guideline for Distinctions 2015. In order to provide the student with proper and clear information this guideline is attached to these regulations as appendix 1.

Article 3.2 General learning outcomes

1. 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.

2. In addition to the general exit qualifications as described in paragraph 1 of the present article the programme also intends to realize the programme-specific learning outcomes as laid down in article 9.2 of the programme-specific part of these regulations.

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.
6. Notwithstanding the stipulations above, the programme-specific part may detail deviations of this article.

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

1. The programme will be offered in an annual schedule consisting of two semesters.
2. A semester is divided in two periods. Each period consists of seven education weeks, one week without education and two examination weeks.
3. 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. In article 9.6 and article 9.7 of the programme-specific part of these regulations the form of education for each unit of study is established.
2. In article 9.5 of the programme-specific part of these regulations the language/languages in which the units of study are taught.

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

1. 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.
2. The replacing of units of study as meant in paragraph 1 is only allowed before the start of that unit.

Article 3.9 Exemptions

1. Granting exemptions from units of study is permitted, unless provided otherwise in the programme-specific part of these regulations
2. 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.
3. Exemptions must be requested before the start of the unit of study.
4. The percentage of exemptions as referred to in paragraph 1 will never be more than 50% of the programme credits.
5. If a student is admitted to the programme based on a propaedeutic examination of another university this does not count as an exemption.
6. No exemption as referred to in paragraph 1 will be granted for the final paper.
7. In so far as the programme has generic exemptions, these are listed in the programme-specific part of these regulations.
8. 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 Examinations

More detailed provisions regarding the assessment of the units of study are outlined in the Rules and Regulations of the Examination Board

(<https://www.ru.nl/socialewetenschappen/osp/raadplegen/oer-eer-2018-2019/>)

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 the 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, by way of special examination facilities, to sit 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. In so far as facilities in the context of a 'digital test' are concerned, the Examination Board, when formatting the facility, may seek advice from the faculty's digital testing coordinator.
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 five working days 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 prospectus.

Article 4.2 Rules when administering interim examinations

For the proper course of events during examinations that are administered in RU examination rooms, the executive board has adopted House rules. In order to provide the student with proper and clear information these rules have been attached to these regulations as appendix 4.

Article 4.3 Frequency of interim examinations

1. Students are allowed to participate in interim examinations twice unit of study in an academic year, on the dates set by the director, unless provided otherwise in the programme-specific part of these regulations.
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 4.4 Registration and application for interim examinations

1. Students who register through OSIRIS for a unit of study of the programme 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.

Article 4.5 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 the academic year they must retake the entire unit of study the following academic year, unless the examiner decides otherwise.

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 as a number.
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 course manual 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 passed. If the result of the interim examination equals or is less than 5.0 points, the student has 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 takes care of registration in OSIRIS.
2.
 - a. In case of an oral interim examination, the examiner will determine the result immediately or within five days after the interim examination was administered.
 - b. 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.
 - c. 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. Students must be informed before the expiry of the deadline.
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 re-assessment 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 Regulations on Fraud during interim examinations and examinations must be followed (appendix 3).

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 paragraph 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 of the 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 Validity term of examinations

1. The validity term of any examination that has been passed is indefinite, unless provided otherwise in the programme specific part of these regulations, with due observance of the stipulations on this matter laid down in the act.
2. In case of a restricted validity term, the Examination Board, in special circumstances and in individual cases, may extend the validity term. In the event a student has been granted financial support under the Profiling Fund, as referred to in the Act, because of an impairment or chronic illness, the board of examiners extends the period, at any time, at least by the number of months that the financial support has been granted by the executive board.
3. The provisions in paragraph 1 of the present article do not apply for modular examinations. The validity term of modular examinations is always limited to the end of the relevant unit of study.

Article 4.10 Determination of final Bachelor's examination results

1. When students have completed all interim examinations successfully, they must apply for the final Bachelor's examination themselves.
2. The Examination Board will determine the results of the final 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 Bachelor's 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 updated overview of the results registered in the system OSIRIS at that moment.
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 5 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 (or an international equivalent) certificate, or passing an equivalent test at another educational 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 (or an international equivalent) 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 (or an international equivalent) 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. Participation in units of study of the B3 year is only possible after completion of the first year.

2. In order to take an elective unit of study from another degree programme, students must meet the applicable admission requirements of that programme.
3. 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 for AI 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 2018-2019.
2. For students who were first enrolled in the programme prior to 2018-2019, the programme in principle applies as described in the EER for the year in which they started the programme.
3. Contrary to the provisions in paragraph 2, for students of cohort 2017 and earlier the transitional provisions as stipulated in paragraph 11.1 of these regulations apply.

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 6.
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 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.

- SOW-BKI110A: Introduction cognitive psychology for AI (1)	4
- SOW-BKI121: Introduction artificial intelligence A (1)	4
- SOW-BKI124: Linear algebra for AI (1)	3
- SOW-BKI104: Mathematics 1A (for AI) (1)	3
- NWI-IPK001: Introduction formal reasoning (1)	6
- SOW-BKI131: Programming for AI 1 (1)	3
- SOW-BKI132: Programming for AI 2 (1)	3
- SOW-BKI126: Academic and professional skills 1 (1)	4
- SOW-BKI122A: Introduction artificial intelligence B: practical (2)	3
- SOW-BKI114: Introduction human-computer-interaction (2)	6
- SOW-BKI115A: Introduction robotics (2)	6
- SOW-BKI108: Brain for AI (2)	6
- SOW-BKI123: Academic skills 2 (2)	3
- NWI-IPI005: 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 course manual.
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-propaedeutic phase

1. 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
- NWI-IBC015: Functional programming for AI (1).....	3
- SOW-BKI326: Mathematics 2 for AI (1)	6
- SOW-BKI107: Frequentist statistics (1).....	6
- NWI-IBI011: Data mining (1).....	6
- SOW-PSB3BC20E: Language in action (1)	4
- SOW-BKI212A: Artificial intelligence: search, planning and machine learning (1).....	6
- SOW-BKI329: Representation and interaction (2)	6
- NWI-IPI004: Logic and Applications (2)	6
- SOW-BKI230A: Neural networks (2)	6
- SOW-BKI203: Bayesian statistics (2)	6
- SOW-BKI244: Theoretical cognitive science 1: Foundations and Implications (2).....	5
B3-year	60
- SOW-BKI323: Introduction brain-computer interfacing (1).....	6
- SOW-BKI211: Computational and formal modelling (1)	6
- SOW-BKI328: Professional skills 2 (1)	2
- SOW-BKI324: Modern software development techniques (1)	6
- SOW-PSB3BC25E: Neurophysiology of cognition and behaviour	4
- Free electives (1)	6
- SOW-BKI300: 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 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 24 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. Assessment of level and overlap is at the discretion of the Examination Board.
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 Propaedeutic, 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.

PART 4 TRANSITIONAL AND FINAL PROVISIONS

Section 11 Transitional provisions

Article 11.1 Transitional provisions for the programme

1. For students of cohort 2017, the following the following deviations apply to the curriculum as described in the EER of study year 2017-2018:
 - Free elective courses to the amount of 6 EC instead of the unit of study "Cognitive Robotics";
 - The unit of study "Neurophysiology" (SOW-PSB3BC25) instead of "Cognitive modelling and the web".
2. Students of earlier cohorts who cannot complete the curriculum of their starting year due to delay should contact the study advisor for an individually adapted curriculum.

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, 2018.

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

As established by the dean on June 21, 2018.

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 per cent 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.

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 recognized 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 REGULATIONS ON FRAUD

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 harmonisation 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. 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 the 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 a 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
 - having materials available which are not permitted under the House Rules Examinations Rooms RU Regulations (Regeling Huisregels Tentamenruimten RU);
 - copying or exchanging information;
 - passing oneself off as someone else, or being represented by someone else during interim examinations;
 - b. fraud when producing theses and other papers, including
 - 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; insofar as it leads to the description in paragraph 1.
 - fabricating (making up) and/or falsifying (distorting) research data;

- submitting a thesis or another paper that was written by someone else.
 - c. other fraud in the context of interim examinations or examinations, including
 - taking possession of assignments, answer keys and the like, prior to the time the interim examination or examination is to take place;
 - changing answers to assignments in an interim examination or examination after it has been handed in for assessment;
 - providing incorrect information when applying for an exemption, extension of validity period, and the like, of an interim examination or an 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 examination board 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 examination board or the examiner will allow the student to complete the interim examination or the examination.
2. The examination board or the examiner may order the student to make any material related to the suspicion of fraud available to them.
3. The examination board or the examiner drafts a report of the suspicion of fraud. If the examiner drafts the report, he will send this report to the examination board without delay.
4. The examiner can have him- or herself be represented by an invigilator or another RU employee.

Article 6 Procedure for investigation and determination of fraud

1. The examination board makes the report referred to in article 5 available to the student without delay and then starts an investigation into the matter. The examination board provides the student with the opportunity to respond to the report in writing. The examination board 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 examination board 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 examination board declares the relevant interim examination or examination invalid.
4. If fraud is established, the examination records both the fact that fraud was committed and the sanction imposed in the student's student file.

Article 7 Sanctions

1. If the examination board has established fraud has been committed, the board may:
 - a. determine that the student may not sit one or more interim examinations or examinations during a period to be set by the examination board, 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 or recommend that the student's participation in the honours programme of the university or the faculty should be ended.

If the examination board has established that serious fraud has been committed, the board 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 examination board has established that serious fraud has been committed, the executive board - upon examination boards' 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

Does not apply.

Paragraph 4 Final provisions

Article 8 Decisions and legal protection

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 examination board, the content must also be confirmed by that dean or that examination board. Without any comments by the dean or the examination board 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 examination board will include these regulations, every year, as an appendix to the Education and Examination Regulations (Onderwijs- en Examenregeling, OER) and as an appendix to the Rules and Guidelines (Regels en Richtlijnen, RR) of the programme.

APPENDIX 4 REGULATIONS EXAMINATION ROOMS RU

Paragraph 1 Introductory provisions

Article 1 Purpose of the regulations

1. For the proper course of events during examinations that are taken in examination rooms at the Radboud University (hereinafter: RU), the executive board of RU adopts the following regulations.
2. For the harmonisation 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 the regulations

1. 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 the 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.

Article 4 Examiners and invigilators

1. For the supervision and execution of the provisions in these regulations, the relevant examination board appoints at least one examiner. On behalf of the examiner(s) appointed, one or more invigilators may be present in the examination rooms, by or on behalf of the executive board.
2. When invigilators are deployed, as referred to in the first paragraph of this article, the relevant examiner is also present in the examination room or, as appropriate, contactable.

Article 5 Guidelines and instructions

These regulations include guidelines for the purpose of article 7.1 2b WHW. The examiner must comply with the guidelines laid down in these regulations.

Article 6 Rules and instructions

1. These regulations include instructions for the purpose of Article 7.57h WHW. The examiner can also give instructions to the student. The student must comply with the rules and instructions laid down in these regulations.
2. The student who fails to comply with the rules under these regulations, or who fails to follow the instructions, may be denied access to the examination room by or on behalf of the examiner. Not complying with the rules or not following instruction may also lead to a suspicion of fraud in the sense of the Regulations on Fraud (Regeling Fraude).

Paragraph 2 House Rules

Article 7 *Admission to the examination room and leaving it*

1. The examination room is accessible for the student at least 15 minutes before the interim examination starts.
2. Except in the circumstances described in paragraphs 3 and 4 of the present article, the student is no longer admitted into the examination room after the interim examination has commenced.
3. The student who arrives too late at the examination room is given the opportunity, 15 minutes following the commencement of the interim examination, to be as yet admitted into the examination room.
4. During the interim examination the student is permitted to use the toilets.
5. For 30 minutes following the commencement of the interim examination and for 30 minutes before the end of the interim examination, the student is not permitted to leave the examination room.

Article 8 *Student ID*

1. In the examination room the student must be able to furnish proof of identity, at any time, by producing an RU student card or a valid identity card.
2. The student who cannot furnish proof of identity as laid down in the first paragraph of the present article will not be admitted into the examination room or can as yet be denied access to that room.

Article 9 *Commencement interim examination*

The examiner starts the interim examination in time and sees to it that the examination time available can be fully used by the student.

Article 10 *Materials permitted in interim examinations*

1. When taking the interim examination, the students are not allowed to have materials available that serve or could serve as auxiliary materials for the examination paper, unless the use of that material has been explicitly permitted by the examiner before the interim examination's commencement.
2. Materials for the purpose of these regulations include, amongst other things: textbooks and dictionaries, notes and lecture notes, and watches, laptops, tablets, telephones and other smart device's and/or wearables

Article 11 *Handing in examination papers*

When the interim examination ends, the student must hand in the examination paper to the examiner. In relevant circumstances, the student may also be requested to hand in other examination materials, such as examination question papers and/or note paper used during the interim examination.

Article 12 *Peace and order and layout of the examination room*

1. Both during and after completion of the interim examination, the examiner sees to it that measures are taken that are required for adequate surveillance and for maintaining the necessary peace and

order in the examination room. Eating and drinking is allowed during the interim examination, with due observance of the provisions in these regulations.

2. When interim examinations take place, each examination room will have at least one clock which is clearly visible for each student.

Paragraph 3 Transitional provisions

Does not apply.

Paragraph 4 Final provisions

Article 13 Departure from rules and house rules

In special circumstances the examiner may depart from the provisions in these regulations.

Article 14 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 examination board, the content must also be confirmed by that dean or that examination board. Without any comments by the dean or the examination board as referred to in the first paragraph of the present article, confirmation will take place five months after the regulations have been adopted.

Article 15 Effect

With due observance of the provisions in Article 14, these regulations take effect on 1 September 2018. These regulations will then replace any previous regulations.

Article 16 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 examination board will include these regulations, every year, as an appendix to the Education and Examination Regulations (Onderwijs- en Examenregeling (OER) and as an appendix to the Rules and Guidelines (Regels en Richtlijnen (RR)) of the programme.

APPENDIX 5 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.

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 examiners are jointly responsible for the successful functioning of the educational process and 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 6 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.

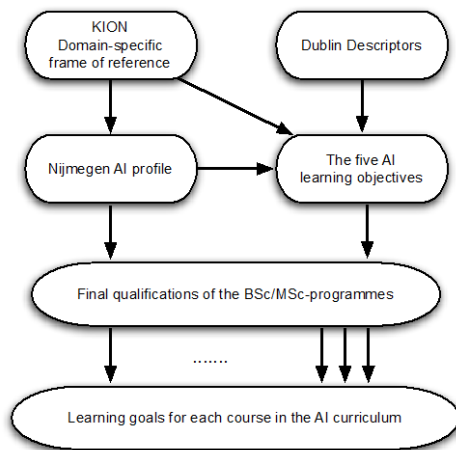


Figure 1

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.

	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

Table 1

Correspondence between the five AI learning objectives and the ten learning outcomes of the BSc programme.

K/U represents Knowledge and Understanding.

APPENDIX 7 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.