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Appendices for the Bachelor's degree programme in Artificial Intelligence 2026 – 2027

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Appendix I. Learning outcomes of the Bachelor's degree programme (Art. 3.1.1)

The bachelor demonstrates knowledge, understanding, and the ability to evaluate, analyse and interpret relevant data in the field of…

1. the symbolic approach to Artificial Intelligence and has the ability to apply this.
2. the numerical, non-symbolic approach to Artificial Intelligence and has the ability to apply this.
3. computational models of cognitive processes and has expertise in constructing and applying this.
4. autonomous systems and robotics and has the ability to apply this.
5. linguistics and language technology and has the ability to apply this.
6. knowledge and agent systems and has expertise in designing, implementing and applying these.

The bachelor has knowledge and understanding of…

7. the most important philosophical theories developed in the areas of Artificial Intelligence and cognition.
8. relevant theories developed in the area of empirical sciences, psychology, biology and physics and has experience applying and analysing results thereof.

The bachelor has relevant knowledge and ability…

9. to apply methods and techniques from mathematics and logic used in Artificial Intelligence.
10. to use algorithms, data structures and important programming languages used in Artificial Intelligence.

The bachelor has the ability…

11. on an academic level, to analyse problems, critically review scientific results and communicate about this both individually as well as in a group, both oral and in written form, also in a broader societal context.
12. to critically reflect on one's own working method and to recognize the need for continued learning on a high degree of autonomy, also in the context of a master or a specialist profession.

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Appendix II. Majors and Minors (Art. 3.7.4 and 7.1.3)

The degree programme comprises a 150 ECTS **Major** and a 30 ECTS **Minor**.

The programme offers one **Major:**

- Artificial Intelligence

The **Minor** framework can be filled with:

- A broadening and/or deepening Minor, comprising course units from outside the student's own major (see Appendix IV for details)
- A study period at another university (national or abroad)
- Teacher Training Minor (Article 8.7)

The degree programme offers the following **University Minor** to students from *other programmes*:

- Artificial Intelligence

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Appendix III. Course units in the first year of the degree programme

- **List of course units (Art. 4.1.1 and 9.4.3)**
- **Compulsory order of examinations (Art. 9.3)**

List of course units

The first year consists of twelve mandatory course units (60 ECTS; Table 1), forming the first part of the major. Course details including entry requirements, modes of instruction, modes of assessment and examination are described in OCASYS.

There is no formal order of examinations for any of the course units in the first year.

Table 1. Mandatory course units - Year 1

Course code	Course unit name	ECTS
WBAI018-05	Algorithms and Data Structures	5
WBAI002-05	Autonomous Systems	5
WBAI048-05	Calculus for Artificial Intelligence	5
WBAI021-05	Cognitive Psychology	5
WBAI063-05	Fundamental Artificial Intelligence	5
WBAI022-05	General Linguistics	5
WBAI003-05	Imperative Programming	5
WBAI004-05	Introduction to Artificial Intelligence	5
WBAI012-05	Introduction to Logic	5
WBAI074-05	Introduction to Neuroscience	5
WBAI050-05	Linear Algebra and Multivariable Calculus	5
WBAI049-05	Statistics	5

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Appendix IV. Course units in the second and third years of the degree programme

- **List of course units (Art. 7.1.1 and 9.4.3)**
- **Compulsory order of examinations (Art. 9.3)**
- **University Minor Artificial Intelligence (art. 8.2)**

List of course units

Second year

The second year consists of twelve mandatory course units (60 ECTS; Table 2), forming the second part of the major. Course details including entry requirements, modes of instruction, modes of assessment and examination are described in OCASYS.

Table 2. Mandatory course units - Year 2

Course code	Course unit name	ECTS
WBAI017-05	Advanced Logic	5
WBAI009-05	Architectures of Intelligence	5
WBAI011-05	Data Analytics and Communication	5
WBAI040-05	Ethics in Artificial Intelligence	5
WBAI056-05	Introduction to Machine Learning (for AI)	5
WBAI057-05	Knowledge and Agent Systems	5
WBAI065-05	Applied Machine Learning	5
WBAI059-05	Natural Language Processing	5
WBAI045-05	Object-Oriented Programming (for AI)	5
FI203AI	Philosophy of AI and Cognition	5
WBAI076-05	Scientific Skills	5
WBAI016-05	Signals and Systems (for AI)	5

Third year

The third year consists of:

- Major (30 ECTS):
  - Bachelor's Project (15 ECTS; Table 3)
  - Specialisation (15 ECTS; see below)
- Minor framework (30 ECTS), consisting of one of the following:
  - A broadening and/or deepening Minor, comprising of course units from outside the student's own major, with the following options:
    - Elective course units from the Artificial Intelligence programme (Table 4) or pre-approved electives from other degree programmes (Table 5)
    - Electives from other degree programmes, not listed in Table 5
    - University Minor (Article 8.2)
    - Faculty Minor (Article 8.3)
    - Personal Minor (Article 8.4)
  - A study period at another university (national or abroad)
  - Teacher Training Minor (Article 8.7)

Approval of the Board of Examiners

To attend elective course units from other degree programmes, a personal minor, or a study period at another university, formal approval of the Board of Examiners is required.

As stated in Article 8.2.2, students are free to take any University or Faculty Minor without explicit permission from the Board of Examiners. Exceptions to this rule are the Minors:

- Data Wise: Data Science in Society, organized by the Faculty of Behavioural and Social Sciences, as the content significantly overlaps with the Artificial Intelligence BSc programme.
- Artificial Intelligence, organized by our own Programme as the content significantly overlaps with the Artificial Intelligence BSc programme.

It is also not possible to include a course from a University Minor if an equivalent or similar course is already taught in the Artificial Intelligence BSc programme.

Specialisations

The Artificial Intelligence programme offers five specialisations. These specialisations are coherent sets of elective courses that cover a particular subfield of Artificial Intelligence. Students are therefore strongly advised to choose one of the following specialisations:

- Computational Neuroscience
  - Cognitive Neuroscience *(this course will be offered from 2027/2028)*
  - Computational Modelling of the Brain [WBAI079-05]
  - Neural Computation [WBAI078-05]
- Hybrid Intelligence
  - Human Factors [WBAI055-05]
  - Hybrid Intelligence [WBAI069-05]
  - Social Robotics [WBAI071-05]
- Language and AI
  - Human Language Learning [WBAI072-05]
  - Large Language Models [WBAI068-05]
  - Structural Analysis of Language for Cognitive Modelling [WBAI052-05]
- Machine Learning
  - Neural Networks [WBAI028-05]
  - Reinforcement Learning [WBAI061-05]
  - Uncertainty in Machine Learning [WBAI054-05]
- Robotics
  - Introduction to Robotics [WBAI067-05]
  - Neural Networks [WBAI028-05]
  - Social Robotics [WBAI071-05]

Students are also allowed to define their own specialisation, which must consist of three courses from Table 4.

Table 3. Mandatory course units - Year 3

Course code	Course unit name	ECTS
WBAI901-15	Bachelor's Project	15

Table 4. Elective course units from the Artificial Intelligence programme

Course code	Course unit name	Part of specialisation	ECTS
WBAI046-05	Agent Technology Practical		5
WBAI080-10	AI Engineering Practical		10
WBAI020-05	Cognitive Modelling Practical		5
WBAI077-05	Computational Methods in Neuroscience Practical		5
WBAI079-05	Computational Modelling of the Brain	X	5
WBAI055-05	Human Factors	X	5
WBAI072-05	Human Language Learning	X	5
WBAI069-05	Hybrid Intelligence	X	5
WBAI067-05	Introduction to Robotics	X	5
WBAI014-05	Knowledge Technology Practical		5
WBAI027-05	Language Technology Practical		5
WBAI068-05	Large Language Models	X	5
WBAI084-05	Legal Aspects of AI		5
WBAI028-05	Neural Networks	X	5
WBAI078-05	Neural Computation	X	5
WBAI085-05	Probability Theory (for AI)		5
WBAI061-05	Reinforcement Learning	X	5
WBAI015-05	Reinforcement Learning Practical		5
WBAI066-05	Robotics Practical		5
WBAI071-05	Social Robotics	X	5
WBAI062-05	Social Robotics Practical		5
WBAI052-05	Structural Analysis of Language for Cognitive Modelling	X	5
WBAI054-05	Uncertainty in Machine Learning	X	5

Table 5. Pre-approved elective course units from other degree programmes

Course code	Course unit name	ECTS
WBCS052-05	Advanced Algorithms	5
WBCS053-05	Advanced Programming	5
WBCS033-05	C++ Fundamentals	5
WBCS044-05	Computational Complexity	5
LIX025B05	Computational Grammar	5
WBCS019-05	Computer Graphics	5
WBCS004-05	Information Security	5
WBEC001-05	Introduction to Science Communication	5
WBCS027-05	Languages and Machines	5
PSB3E-CP09	Learning and memory	5
LIX032B05	Machine Translation	5
FI202LBG	Philosophy of Mind: Body, Brain, Mind [1]	7
WBCS034-05	Programming in C++	5
WBEC004-05	Teach like a scientist	5

PSB3E-CP08	Thinking and deciding	5
WBCS008-05	Web Engineering	5

[1] *This course unit is taught in Dutch.*

Compulsory order of examinations

The examinations for the course units listed in Table 6, may not be taken before the examinations for the courses listed in the Entry Requirements column have been passed.

Table 6. Entry requirements

Course unit name and code	**Entry requirements [2]**
Advanced Logic [WBAI017-05]	Introduction to Logic [WBAI012-05]
AI Engineering Practical [WBAI080-10]	Introduction to Machine Learning (for AI) [WBAI056-05]
Applied Machine Learning [WBAI065-05]	Introduction to Machine Learning (for AI) [WBAI056-05]
Bachelor's Project [WBAI901-15]	Completion of all first-year course units Completion of at least 135 ECTS credit points from the AI bachelor's programme Data Analytics and Communication [WBAI011-05] Statistics [WBAI049-05] Submission of study programme in Progress Portal
Cognitive Modelling Practical [WBAI020-05]	Architectures of Intelligence [WBAI009-05]
Human Language Learning [WBAI072-05]	General Linguistics [WBAI022-05]
Introduction to Machine Learning (for AI) [WBAI056-05]	Linear Algebra and Multivariable Calculus [WBAI050-05]
Language Technology Practical [WBAI027-05]	Natural Language Processing [WBAI059-05] *or* Participation in the course Large Language Models [WBAI068-05]
Neural Networks [WBAI028-05]	Introduction to Machine Learning (for AI) [WBAI056-05]
Signals and Systems (for AI) [WBAI016-05]	Calculus for AI [WBAI048-05]
Structural Analysis of Language for Cognitive Modelling [WBAI052-05]	General Linguistics [WBAI022-05]
Uncertainty in Machine Learning [WBAI054-05]	Introduction to Machine Learning (for AI) [WBAI056-05]

[2] *In the event that a student has applied for a course to count as a course replacement, this replacement course also counts as a valid alternative for the course entry requirement in question.*

University Minor Artificial Intelligence

The Bachelor's degree programme Artificial Intelligence offers the University Minor *Artificial Intelligence*. This minor is not accessible to students enrolled in the Bachelor's degree programme Artificial Intelligence.

Table 7. Course units University Minor Artificial Intelligence

Course code	Course unit name	ECTS
WBAI081-05	Overview of AI	5
LIX040B05	Machine Learning	5
RGBSP70005	AI and Law	5
WBAI082-05	Humans and AI	5
LIX052B05	Foundation Models	5
WBAI083-05	Final Project Minor AI	5

Appendix V. Contact hours (art. 3.6.1)

Table 8.1

Degree programme year 1	
Structure contact hour	**Contact hours per year (approx. 637)**
Lectures	Approx. 270
Tutorial	Approx. 180
Practicals	Approx. 90
Tutoring / Mentor Hours	Approx. 10
Final Examinations and Re-examinations	Approx. 30
Mid-term Examinations	Approx. 15
Miscellaneous Sessions (e.g. Q&A)	Approx. 42

Table 8.2

Degree programme year 2 and 3	
Structure contact hours	**Contact hours (approx. 1168)**
Lectures	Approx. 520
Tutorial	Approx. 120
Practicals	Approx. 420
Supervision during an internship or project	Approx. 8
Final Examinations and Re-examinations	Approx. 60
Miscellaneous Sessions (e.g. Q&A)	Approx. 40

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Appendix VI. Additional requirements Open Degree programmes (Art. 7.3)

Students wishing to pursue an open degree programme in Artificial Intelligence may file a request with the Board of Examiners; an Open Degree Programme must always be approved in advance. The Board of Examiners will evaluate whether the proposed curriculum meets the learning outcomes of the Artificial Intelligence programme. An Open Degree Programme in Artificial Intelligence must include the complete major component as defined in Appendices III and IV.

Appendix VII. Transitional provisions (Art. 12.1)

For students who were registered in the programme before 2026-2027, the transitional provisions below apply. The provisions are listed in reverse-chronological order. General provisions are described through text.

Course units that are a direct replacement for discontinued course units are listed in table format. Students who have completed a discontinued course (Table 9.1-9.3) are excluded from taking the respective replacement course and can still count the discontinued course as part of their programme.

Any cases not listed in the Teaching and Examination Regulations, through either the current curriculum or the transitional provisions, are to be handled by the Board of Examiners.

Students who started in 2025-2026 or before:

Table 9.1

Discontinued course unit			**Replacement course unit**		
Course Code	**Course Name**	**ECTS**	**Course Code**	**Course Name**	**ECTS**
WBAI075-05	Interaction Design Practical	5	NA		

From 2026-2027 onwards Conversational Interfaces [LIX029B05] is no longer part of the specialisation Language and AI. Students who started in 25-26 or before are still allowed to count this course as part of their specialisation.

For students who started in 2025-2026 or before, the specialisation Computational Neuroscience consists of two courses (10 ECTS). Students still need to obtain a total of 180 ECTS in their BSc AI programme and should include at least 15 ECTS of elective courses from the Artificial Intelligence programme in their major component.

Students who started in 2024-2025 or before:

Table 9.2

Discontinued course unit			**Replacement course unit**		
Course Code	**Course Name**	**ECTS**	**Course Code**	**Course Name**	**ECTS**
WBAI010-05	Basic Scientific Skills	5	WBAI076-05	Scientific Skills	5
WBAI025-05	Cognitive Ergonomics Practical	5	WBAI075-05	Interaction Design Practical	5
WBAI064-05	Data Science	5	WBAI011-05	Data Analytics and Communication	5
WBAI058-05	Domain Analysis	5	NA		
WBAI026-05	Introduction to the Brain	5	WBAI074-05	Introduction to Neuroscience	5
WBAI070-05	Machine Learning for Industry Practical	5	WBAI080-10	AI Engineering Practical	10

Students who started in 2023-2024 or before:

Table 9.3

Discontinued course unit			**Replacement course unit**		
Course Code	**Course Name**	**ECTS**	**Course Code**	**Course Name**	**ECTS**
WBAI023-05	Artificial Intelligence 1	5	WBAI063-05	Fundamental Artificial Intelligence	5
WBAI011-05	Data Analytics and Communication	5	WBAI064-05	Data Science	5
WBAI007-05	Language and Speech Technology	5	WBAI073-05	Speech Technology	5
WBAI060-05	Machine Learning Practical	5	WBAI065-05	Applied Machine Learning	5
WBAI029-05	Robotics Practical 1	5	WBAI066-05	Robotics Practical	5

Students are allowed to count Language and Speech Technology [WBAI007-05] instead of Natural Language Processing [WBAI059-05] as part of their mandatory programme. If they choose to do so, Natural Language Processing [WBAI059-05] may be used as an elective option instead.

Students are allowed to take Neural Networks [WBAI028-05] instead of Applied Machine Learning [WBAI065-05] as part of their mandatory programme.

Students who passed the course Machine Learning Practical [WBAI060-05] can choose to either:

1. use the course as an elective If they choose to do so, they must take the previously mandatory course Neural Networks [WBAI028-05].
2. use the course as part of their mandatory programme.

From 24-25 onwards, Robotics Practical 2 [WBAI030-05] is not offered. Students who started in 23-24 or earlier are still allowed to include this course as an elective.