



Teaching and Examination Regulations (TER)

Faculty of Science

Masterprogramme in Artificial Intelligence

Academic year: 2019-2020

A: Faculty section

B1: Programme specific section – general provisions

B2: Programme specific section – content of programme

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Section A: Faculty Section

1. General provisions

Article 1.1 Applicability of the Regulations

<p>1. These Regulations apply to anyone enrolled for the programme, irrespective of the academic year in which the student was first enrolled for the programme. These Regulations apply to the teaching and examinations for the following Master's degree programmes:</p> <ul style="list-style-type: none"> ▪ Artificial Intelligence ▪ Bioinformatics and System Biology ▪ Biomedical Sciences ▪ Biomolecular Sciences ▪ Business Analytics ▪ Computer Science ▪ Drug Discovery and Safety ▪ Earth Sciences ▪ Ecology ▪ Environment and Resource Management ▪ Global Health (research) ▪ Health Sciences ▪ Hydrology ▪ Information Sciences ▪ Management, Policy Analysis and Entrepreneurship in the Health and Life Sciences ▪ Mathematics ▪ Medical Natural Sciences ▪ Neurosciences (research) ▪ Parallel and Distributed Computer Systems ▪ Science Business and Innovation ▪ Stochastics and Financial Mathematics 	<p>Advice OLC, approval FGV (9.38 ub b)</p>
<p>2. These Regulations enter into force with effect from 1 September 2019.</p>	<p>Advice OLC, approval FGV (9.38 ub b)</p>
<p>3. An amendment to the Teaching and Examination Regulations is only permitted to concern an academic year already in progress if this does not demonstrably damage the interests of students.</p>	<p>Advice OLC, approval FGV (9.38 sub b)</p>

Article 1.2 Definitions

The following definitions are used in these Regulations (*in alphabetical order*):

- a. academic year: the period beginning on 1 September and ending on 31 August of the following calendar year;
- b. CvB: the Executive Board of Vrije Universiteit Amsterdam.
- c. Double degree programme: joint programme in the context of cooperation between Vrije Unviersiteit Amsterdam and the educational institution within and outside the EU, as to gain a double university degree; of the VU and the educational institution concerned; though not being the same as a 'joint degree programme' according to the art. 7.3c WHW';
- d. EC (European Credit): an EC credit with a workload of 28 hours of study;
- e. educational component: a unit of study of the programme within the meaning of the WHW;
- f. examination: the final examination of the Master's programme;
- g. exemption: Exemption from an examination/ practical/ fieldwork based on an earlier successfully completed examination, or knowledge / skills of a similar content, level and scope gained outside higher education;
- h. FGV: Faculty joint assembly – assembly of the faculty student council and faculty staff

	council;
i. interim examination:	an assessment of the student's knowledge, understanding and skills relating to a course component. The assessment is expressed in terms of a final mark. An interim examination may consist of one or more partial examinations. A resit always covers the same material as the original interim examination;
j. joint degree:	a degree awarded by an institution together with one or more institutions in the Netherlands or abroad, after the student has completed a study programme (a degree programme, a major or a specific curriculum within a degree programme) for which the collaborating institutions are jointly responsible;
k. OLC:	programme committee;
l. period:	a part of a semester;
m. practical exercise:	the participation in a practical training or other educational learning activity, aimed at acquiring certain (academic) skills. Examples of practical exercises are: <ul style="list-style-type: none"> o researching and writing a thesis or dissertation o carrying out a research assignment o taking part in fieldwork or an excursion o taking part in another educational learning activity aimed at acquiring specific skills, or o participating in and completing a work placement;
n. premaster student	those who enroll in a premaster programme;
o. Programme:	the totality and cohesion of the course components, teaching activities/methods, contact hours, testing and examination methods and recommended literature;
p. SAP/SLM:	the student information system (<i>Student Lifecycle Management</i>);
q. semester:	the first (September - January) or second half (February - August) of an academic year;
r. study guide:	the guide for the study programme that provides further details of the courses, provisions and other information specific to that programme. The Study Guide is available electronically at: https://www.vu.nl/studiegids
s. subject	see 'educational component';
t. substituting course/educational component	see under d (double degree programme). A course obtained at the educational institute, within the context of cooperation, that is mentioned in the diploma supplement as such; not being an 'exemption'.
u. thesis/ internship work placement	a component comprising research into the literature and/or contributing to scientific research, always resulting in a written report;
v. university:	Vrije Universiteit Amsterdam;
w. WHW:	the Dutch Higher Education and Research Act (<i>Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek</i>);
x. workload:	the workload of the unit of study to which an interim examination applies, expressed in terms of credits = EC credits (ECTS = European Credit and Transfer Accumulation System). The workload for 1 year (1,680 hours) is 60 EC credits.

The other terms have the meanings ascribed to them by the WHW.

2. Study programme structure

Article 2.1 Structure of academic year and educational components

1. The study programme will be offered in a year divided into two semesters.	Ordinance CvB, see appendix 3
2. Every semester consists of three consecutive periods of eight, eight and four weeks.	Ordinance CvB, see appendix 3
3. An educational component comprises 6 EC or a multiple thereof.	Ordinance CvB,

	see appendix 3
4. By way of exception to paragraph 3, Section B may stipulate that a unit of study comprises 3 EC or a multiple thereof. The Faculty Board requests permission from the Executive Board.	Ordinance CvB, see appendix 3

Article 2.2 Refusal or termination of registration / (iudicium abeundi)

1. Pursuant to the provisions of Article 7.42a of the Act, the Faculty Board or the Examination Board may, in exceptional circumstances, request the Executive Board to terminate or refuse a student's registration on a programme. This may be the case if the student's conduct or statements demonstrate his or her unsuitability to work in the relevant field or discipline, or to take part in the programme's practical training component.	WHW
2. If a student is suspected of being unsuitable as described in paragraph 1, the Examination Board or the Faculty Board will examine the case, and the student will be informed of this immediately. The Examination Board or the Faculty Board will only issue a recommendation after careful consideration of the interests involved and following a hearing with the student concerned.	WHW

3. Assessment and Examination

Article 3.1 Signing up for education and interim examinations

1. Every student must sign up to participate in the educational components of the programme, the examinations and resits. The procedure for signing up is described in an annex to the Student Charter.	Ordinance CvB, see appendix 3
2. Signing up may only take place in the designated periods.	Ordinance CvB, see appendix 3
3. If a student does not pass the examination and the resit of a component, he/ she is obliged to take the whole component again. This rule does not apply to practical exercises and programmes that make use of component marks that retain their validity. For further regulations see Section B of the programme involved.	Advice OLC, approval FGV (7.13 x)

Article 3.2 Type of examination

1. At the student's request, the Examination Board may permit a different form of interim examination than that stipulated in the course catalogue. If applicable, more detailed regulations on this are included in the Rules and Guidelines for the Examination Board.	Advice OLC, Approval FGV (7.13 l)
2. In an educational component is no longer offered in the academic year following its termination, at least one opportunity will be provided to sit the interim examination(s) or parts thereof and a transitional arrangement will be included in the programme-specific section for the subsequent period.	Advice OLC, approval FGV (7.13 j)

Article 3.3 Oral interim examinations

1. An oral assessment is public unless the Examinations Board on request determines otherwise.	Advice OLC; approval FGV (7.13 l and n)
2. An oral examination will be taken in the presence of a second examiner.	Advice OLC, approval FGV (art. 9.38 par. b)

Article 3.4 Determining and announcing results

1. The examiner determines the result of a written interim examination as soon as possible, but at the latest within fifteen working days. By way of departure from that stipulated in the first clause, the marking deadline for theses, internships / work placements and final assignments is no longer than twenty working days. The examiner will then immediately ensure that the marks are registered and also ensures that the student is immediately notified of the mark, taking due account of the applicable confidentiality standards.	Ordinance CvB, see appendix 3
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2. a. The examiner determines the result (i.e. mark) of an oral examination as soon as possible, though within one working day, after the examination has finished and informs the student accordingly. The third clause of the first paragraph applies. b. The examiner determines the result of an interim examination no later than five working days before the next (interim) examination will be held.	Advice OLC; approval FGV (7.13 o)
3. In the case of alternative forms of oral or written examinations, the Examination Board determines in advance how and by what deadline the student will be informed of the results.	Advice OLC; approval FGV (7.13 o)
4. A student can submit a request for reassessment to the examiner. A request for reassessment does not affect the time period for lodging an appeal.	Advice OLC; approval FGV (9.38 sub b)
5. Together with the result of an examination, the student's attention will also be drawn to their right to inspect the assessed work and have a post-examination discussion as stipulated in Art. 3.9, as well as his/her option to lodge a complaint before the Examination Board, and if necessary, to appeal to the Examinations Appeals Board (in Dutch: COBEX).	

Article 3.5 Examination opportunities

1. a. Per academic year, two opportunities to take examinations per educational component will be offered. b. The options for retaking practical components, work placements and theses are detailed in the relevant work placement manual, teaching regulations or graduation regulations.	Ordinance CvB, see appendix 3
2. The most recent mark will apply in the event of a resit. A retake is allowed for both passed and failed units of study.	Ordinance CvB, see appendix 3
3. The resit for a (partial) interim examination must not take place within ten working days of the announcement of the result of the (partial) examination being resat.	Advice OLC; approval FGV (7.13 j)
4. The Examination Board may allow a student an extra opportunity to sit an examination if that student: a) is lacking only those credits to qualify for his or her degree; b) has failed the examination during all the previously offered attempts, unless participation in an examination was not possible for compelling reasons. The extra opportunity can only be offered if it concerns a written examination, a paper or a take home examination. This provision excludes the practical assignments and the Master's thesis. Requests for an additional examination opportunity must be submitted to the Examination Board no later than 15 July. If necessary, the method of examination may deviate from the provisions in the study guide.	Ordinance CvB, see appendix 3

Article 3.6 Marks

1. Marks are given on a scale from 1 to 10 with no more than one decimal point.	Ordinance CvB, see appendix 3															
2. The final marks are given in whole or half points.	Ordinance CvB, see appendix 3															
3. Final marks between 5 and 6 will be rounded off to whole marks: up to 5.5 rounded down; from 5.5 rounded up. To pass a course, a 6 or higher is required. In case the examination of a component consists of two or more parts, each of which are graded separately, the (weighted) mean of these marks (meaning: the final mark) must be rounded off using the following table:	Ordinance CvB, see appendix 3															
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>From</th> <th>Up to</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>1,00</td> <td>1,25</td> <td>1</td> </tr> <tr> <td>1,25</td> <td>1,75</td> <td>1,5</td> </tr> <tr> <td>1,75</td> <td>2,25</td> <td>2,0</td> </tr> <tr> <td>2,25</td> <td>2,75</td> <td>2,5</td> </tr> </tbody> </table>		From	Up to	Grade	1,00	1,25	1	1,25	1,75	1,5	1,75	2,25	2,0	2,25	2,75	2,5
From	Up to	Grade														
1,00	1,25	1														
1,25	1,75	1,5														
1,75	2,25	2,0														
2,25	2,75	2,5														

	2,75	3,25	3,0		
	3,25	3,75	3,5		
	3,75	4,25	4,0		
	4,25	4,75	4,5		
	4,75	5,50	5,0		
	5,50	6,25	6,0		
	6,25	6,75	6,5		
	6,75	7,25	7,0		
	7,25	7,75	7,5		
	7,75	8,25	8,0		
	8,25	8,75	8,5		
	8,75	9,25	9,0		
	9,25	9,75	9,5		
	9,75	10,0	10		
4. The Examination Board can allow to use symbols rather than numbers, such as: pass, fail, (un)satisfactory, good, VRS (exemption). In case a student does not take part in any (interim) examination, the examiner will register the mark 'ns' (c.q. no show).					Ordinance CvB, see appendix 3

Article 3.7 Exemption

1. At the written request of the student, the Examination Board may exempt the student from taking one or more examination components, if the student: <ol style="list-style-type: none"> has passed a course component of a university or higher professional education programme that is equivalent in terms of content and level; has demonstrated through his/her work and/or professional experience that he/she has sufficient knowledge and skills with regard to the relevant course component. The Examination Board will make a decision within six weeks after receiving the request.	Advice OLC; approval FGV (7.13 r)
2. The Master's thesis, the final work placement (c.q. internship) and the final project (c.q. final paper) are excluded from this exemption possibility.	Advice OLC; approval FGV (9.38 sub b)
3. A maximum of 18 EC for a one one-year master programme and 36 EC for a one two-year master programme can be accumulated through granted exemption. The substituting courses (educational components) are not included.	Advice OLC, approval FGV (art. 7.13 par. 2, under r WHW jo art. 9.38 par. b)

Article 3.8 Validity period for results

1. The validity period of interim examinations passed and exemption from interim examinations is unlimited, unless otherwise specified in Section B.	WHW
2. The validity period of a partial examination is limited to the academic year in which it was sat or until the end of the unit of study concerned, as stipulated for the relevant unit of study in Section B.	Advice OLC; approval FGV (9.38 sub b)

Article 3.9 Right of inspection and post-examination discussion

1. For twenty working days after the announcement of the results of a written interim examination, the student can, on request, inspect his or her assessed work, the questions and assignments set in it, as well as the standards applied for marking. The place and time referred to in the previous clause will be announced at the time of the interim examination on VUnet or Canvas.	Advice OLC; approval FGV (7.13 p en q)
2. If a collective post-examination discussion has been organized, individual post-examination discussions will be held only if the student has attended the collective	Advice OLC; approval FGV (7.13 q)

discussion or if the student was unable to attend the collective discussion through no fault of his or her own.	
3. Students who meet the requirements stipulated in paragraph 1 can submit a request for an individual post-examination discussion to the relevant examiner. The discussion shall take place at a time and location to be determined by the examiner.	Advice OLC; approval FGV (7.13 p en q)

Article 3.10 Fraud and plagiarism

1. The provisions of the Rules and Guidelines for the Examination Board apply in full.	Ordinance CvB
2. Electronic detection software programmes may be used to detect plagiarism in texts. In submitting a text, the student implicitly consents to the text being saved in the database of the detection programme concerned.	Ordinance CvB

4. Academic student counselling and study progress

Article 4.1 Administration of study progress and academic student counselling

1. The faculty board is responsible for the correct registration of the students' study results. After the assessment of an educational component has been registered, every student has the right to inspect the result for that component and also has a list of the results achieved at his or her disposal in VUnet.	Advice OLC; approval FGV (7.13 u)
2. Enrolled students are eligible for academic student counselling. Academic student counselling is in any case provided by: <ol style="list-style-type: none"> The Student General Counselling Service Student psychologists Faculty academic advisors 	Advice OLC; approval FGV (7.13 u)

Article 4.2 Adaptations for students with a disability

1. A student with a disability can, at the moment of submission to VUnet, or at a later instance, submit a request to qualify for special adaptations with regard to teaching, practical training and interim examinations. These adaptations will accommodate the student's individual disability as much as possible, but may not alter the quality or degree of difficulty of a unit of study or an examination. In all cases, the student must fulfil the exit qualifications for the study programme.	Advice OLC; approval FGV (7.13 m)
2. The request referred to in the first paragraph must be accompanied by a statement from a doctor or psychologist. If possible, an estimate should be given of the potential impact on the student's study progress. In case of a chronic disability a single (one time) request suffices.	Advice OLC; approval FGV (7.13 m)
3. Students who have been diagnosed with dyslexia must provide a statement from a BIG, NIP or NVO registered professional who is qualified to conduct psychological evaluation.	Advice OLC; approval FGV (7.13 m)
4. The faculty board, or on behalf of the faculty board, the educational director, or the programme director, decides on the adaptations concerning the teaching facilities and logistics. The Examination Board will rule on requests for adaptations with regard to examinations.	Advice OLC; approval FGV (7.13 m)
5. In the event of a positive decision in response to a request as referred to in paragraph 1, the student will make an appointment with the study adviser to discuss the details of the provisions.	Advice OLC; approval FGV (7.13 m)
6. A request for adaptations will be refused if it would place a disproportionate burden on the organization or the resources of the faculty or university were it upheld.	Advice OLC; approval FGV (7.13 m)
7. If the disability justifies an extension of the interim examination time, the Examination Board will grant permission testifying to this entitlement to an extension. If a disability justifies other measures to be taken, the Examination Board will advise the Faculty Board on the necessary measures to be taken.	Advice OLC; approval FGV (7.13 m)
8. The decision as referred to in paragraph 7, is valid for a maximum period of one year with the exception for the chronic diseases and disabilities.	Advice OLC; approval FGV

	(7.13 m)
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5. Hardship clause

Article 5.1 Hardship clause

In instances not regulated by the Teaching and Examination Regulations or in the event of demonstrable extreme unreasonableness and unfairness, the faculty board responsible for the study programme will decide, unless the matter concerned is the responsibility of the Examinations Board.	Advice OLC; approval FGV (9.38 sub b)
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Article 5.2. Publication

1. The faculty board will ensure the appropriate publication of these Regulations and any amendments to them.	WHW
2. The Teaching and Examination Regulations will be posted in the study guide or on VUnet.	WHW

Approved by authorized representative advisory body FGOV of the Faculty of Science on 3 September 2019.

Adopted by the Faculty Board on 30 August 2019.

Section B1: Programme specific – general provisions

6. General programme information and characteristics

Article 6.1 Study programme information

1. The programme Msc Artificial Intelligence, CROHO number 66981, is offered on a full-time basis.	Advice OLC; approval FGV (7.13 i)
2. The language of instruction is English.	Advice OLC; approval FGV (9.38 sub b)

Article 6.1a Deviant size of educational component

By way of derogation from art. 2.1 par 3, a unit of study comprises 6 EC or a multiple, the units listed below have a deviant size:				Approval OLC (art 7.13 lid 2, under e.. Approval CvB.
Coursecode	Coursename	EC	Level	
B_DYNAMICA	Linear System Dynamics	3	300	
B_ENERFLOW	Energy Flow Models	3	200	
B_PERCACTION	Perception for Action	3	500	

Article 6.2 Teaching formats used and modes of assessment

1. The degree programme uses the teaching formats as specified in the Study Guide.	Advice OLC; approval FGV (7.13 x)
2. The modes of assessment used per educational component are specified in the study guide.	Advice OLC; approval FGV (7.13 l)

7. Further admission requirements

Article 7.1 Intake date(s)

1. The programme starts on September 1.	Advice OLC; approval FGV (9.38 sub b)
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Article 7.2 Admission requirements

<p>Admission to the Master's programme is possible for an applicant who has obtained a Bachelor's degree obtained at an institution of academic higher education, which demonstrates the following knowledge, understanding and skills:</p> <ol style="list-style-type: none"> 1. Applicants will be admitted to the degree programme if they hold a letter of acceptance, issued by or on behalf of the Faculty Board because they have demonstrated that they meet the knowledge, understanding and skills requirements of the final level of attainment in a university Bachelor's degree programme. 2. Applicants will be admitted to the degree programme if they hold a Bachelor's degree in Artificial Intelligence from a Dutch university or a Bachelor's degree in Computer Sciences, or Psychology with a specialization in Cognitive Science. Their English proficiency must be equivalent to pre-university final-exam (VWO) level. 3. If the degree programme encompasses distinct programmes, the Examination Board will assess whether the applicant has met the applicable requirements. 4. Those not yet in possession of a Bachelor's degree, but who meet the admission requirements as regards the knowledge, insight and skills specified in paragraph 2, may on request be granted conditional admission to the associated Master's programme, insofar as failure to grant admission would result in undue unfairness. 	Partly legal provision & ordinance CvB, see appendix 3. Admission requirements excepted from participation in WHW
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2. The Admissions Board will investigate whether the applicant meets the admission requirements.	Legal provision
3. In addition to the requirements referred to in the first paragraph, the Admissions Board can also assess requests for admission in terms of (at least two of) the following criteria: a. talent and motivation; b. level of relevant knowledge and understanding; c. proficiency in methods and techniques; d. academic attitude and critical thinking; e. proficiency in the language(s) of instruction	Partly legal provision & ordinance CvB, see appendix 3. Admission requirements excepted from participation in WHW

Article 7.3 Pre-Master's programme

1. a) Students with a Bachelor's degree of a university of applied science (HBO) in a field that corresponds to a sufficient extent with the subject area covered by the Master's programme can request admission to the pre-Master's programme. b) Students with a Bachelor's degree from an institution of academic higher education in a field that does not sufficiently corresponds with the subject area covered by the Master's programme can request admission to the pre-Master's programme.	Advice OLC; approval FGV (9.38 sub b)
2. The pre-Master's programme comprises 30 EC and is made up on individual basis.	Advice OLC; approval FGV (9.38 sub b)
3. A successfully completed pre-Master's programme serves as proof of admission to the specified Master's programme in the subsequent academic year.	Legal provision
4. A candidate can only participate in one pre-Master's programme at the Vrije Universiteit.	Ordinance CvB, see appendix 3

8. Interim examinations and results

Article 8.1 Sequence of interim examinations

1. Students may participate in interim examinations [or practical exercises] of the components below only if they have passed the interim examination or examinations for the components mentioned hereinafter: <i>article is not applicable</i> .	Advice OLC; approval FGV (7.13 h, s & t)
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Article 8.2 Validity period for results

1. See Article 3.8 of the Teaching and Examination Regulations, section A. No further specific provisions.	Advice OLC; approval FGV (7.13)
2. A student may request the Examination Board to extend the validity of an exam. If the exam shows that a student's knowledge is insufficient or outdated, or if the student's skills and insights evaluated in the exam are demonstrably outdated, the Examination Board may impose a supplementary examination, impose a replacement examination or refuse to extend the period of validity.	Legal provision
3. In situations where a limited period of validity applies, the period of validity of examinations may be extended in the event of extenuating circumstances as stipulated in WHW Article 7.51, paragraph 2, with at least the period of allocated financial assistance specified in WHW Article 7.15, paragraph 1.	Legal provision

Article 8.3 Maximum Exemption(s)

A maximum of 36 EC of the curriculum can be accumulated through granted exemptions, based on previous results within other master's programmes.	Advice OLC, approval FGV (7.13 par. 2, under r jo art. 9.38 sub b)
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Article 8.4 Degree

<p>Degree Students who have successfully completed their Master's final Examination are awarded a Master of Science degree (MSc). The degree awarded is stated on the diploma.</p> <p>The track name Cognitive Science will be stated on the diploma, if one has successfully completed all the compulsory courses of this track; otherwise no track name will be stated on the diploma.</p>	Legal provision, WHW
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Section B2: Programme specific – content of programme

9. Programme objectives, specializations and exit qualifications

Article 9.1 Workload

1. The programme has a workload of 120 EC	Advice OLC; (7.13 a)
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Article 9.2 Specializations

The programme has the following specializations: - Cognitive Science	Advice OLC; (7.13 a)
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Article 9.3 Programme objective

<p>The Master's programme in Artificial Intelligence is a scientific programme that aims to provide the student with the knowledge, experience and insights needed to autonomously carry out his/her professional duties. The programme is designed to prepare the student for further education as a scientific researcher (PhD studies) as well as to offer a solid basis for a career in business at an academic level. Moreover, the programme aims to educate the student to acquire a practical understanding of the position of the field of Artificial Intelligence within a broad scientific, philosophical and societal context.</p> <p>Students who want to take the Master's programme in Artificial Intelligence are expected to possess basic knowledge and skills in the field at Bachelor's level, including skills and attitudes of a general academic nature. The aim of the Master's programme is to extend and enhance the knowledge and skills acquired at Bachelor's level and, by concentrating on a specific area within the field of Artificial Intelligence, to lead the student towards the frontiers of design and application or towards some of the major research issues in his/her chosen specialization.</p>	Advice OLC; (7.13 a)
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Article 9.4 Exit qualifications

<p>1. At all events, a graduate of the study programme will have: The objectives of the master can be specified into final qualifications. To comply with international standards these qualifications are presented below in terms of the Dublin descriptors for the master's profile.</p> <p>A. Knowledge and Understanding The master demonstrates knowledge and understanding in a field of study that builds upon and supersedes their bachelor's degree. Knowledge, understanding, and abilities are typically at a level at which the master is able to formulate a feasible research plan in one's own specialization.</p> <p>We distinguish three levels of qualification: a basic understanding, corresponding to the minimal level of knowledge that is expected of a Bachelor student, an advanced understanding, meaning students must have in-depth knowledge about a topic that they could easily develop to become a specialist, and specialist knowledge, meaning students are highly skilled (and specialized) in the key area in question.</p> <p>Qualifications:</p> <p>1. Basic understanding of all (8) key areas of Artificial Intelligence. The 8 key areas are:</p> <ul style="list-style-type: none"> ▪ Cognitive Science Computational Linguistics; 	Approval OLC (7.13 c)
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<ul style="list-style-type: none"> ▪ Context of Artificial Intelligence (History, Philosophy, Ethics); ▪ Intelligent Autonomous Agents and Multi-Agent Systems; ▪ Interaction (Perception, Human-Computer Interaction, Communication); ▪ Knowledge Representation and Reasoning; ▪ Machine Learning; ▪ Problem Solving (Search, Decision Making, Optimization). <ol style="list-style-type: none"> 2. An advanced understanding in some of the key areas of Artificial Intelligence; 3. Specialist knowledge of at least one of the key areas in Artificial Intelligence, up to a level that the master can appreciate the forefront of research in that field; 4. Has a solid academic knowledge of and insight in the field of hybrid artificial intelligence, including the required background knowledge of socially aware artificial intelligence, ambient intelligence, and ubiquitous computing, which builds upon and goes beyond the level of a Bachelor degree in any of those disciplines; 5. Has basic knowledge of physiological, psychological, or social aspects of human functioning that can be exploited in socially aware artificially intelligent systems. <p>B. Applying Knowledge and Understanding</p> <p>Masters can apply their knowledge and understanding in a manner that indicates a scientific approach to their work or vocation. They are able to handle complex and ill-defined problems for which it is not a priori known if there is an appropriate solution, how to acquire the necessary information to solve the sub-problems involved, and for which there is no standard or reliable route to the solution.</p> <p>Qualifications:</p> <ol style="list-style-type: none"> 1. The ability to formulate a project plan for an open problem in a field related to Artificial Intelligence in general and the own specialization in particular. 2. The ability to determine the feasibility of a proposal to lead to a solution or design as specified. 3. The ability to contribute autonomously and with minimal supervision to an interdisciplinary project team and to profit from the abilities, the knowledge, and the contributions of other team members. 4. The ability to choose, apply, formulate, and validate models, theories, hypotheses, and ideas from the key areas of Artificial Intelligence. 5. The ability to submit an argument in the exact sciences (or humanities) to critical appraisal and to incorporate its essence in the solution of Artificial Intelligence problems. 6. The ability to translate academic knowledge and expertise into social, professional, economic, and ethical contexts. 7. Awareness of, and responsibility concerning, the ethical, normative and social consequences of developments in science and technology, particularly resulting from original contributions. <p>C. Making Judgments</p> <p>The master is able to formulate an opinion or course of action on the basis of incomplete, limited and in part unreliable information.</p> <p>Qualifications:</p> <ol style="list-style-type: none"> 1. Competence in the search and critical processing of all sources of information that help to solve an open and ill-defined problem; 2. The ability to demonstrate a professional attitude conform the (international) scientific conduct in Artificial Intelligence; 	
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<p>3. The ability to provide and receive academic criticism conform the standards in one specialism of Artificial Intelligence-research;</p> <p>4. The ability to formulate an opinion and to make judgments that include social and ethical responsibilities related to the application of one's own contributions;</p> <p>5. The master is able to judge the quality of his or her work or the work of others from scientific literature.</p> <p>D. Communication</p> <p>The master can communicate information, ideas, problems and solutions to audiences of specialist in (other) research areas and to a general audience.</p> <p>Qualifications:</p> <p>The master has academically appropriate communicative skills; s/he can:</p> <ol style="list-style-type: none"> 1. Communicate original ideas effectively in written form; 2. Make effective oral presentations, both formally and informally, to a wide range of audiences; 3. Understand and offer constructive critiques of the presentations of others. <p>E. Learning Skills</p> <p>The master has developed those learning skills that are necessary for a successful further career at the highest professional level. The master is able to detect missing knowledge and abilities and to deal with them appropriately.</p> <p>Qualifications:</p> <ol style="list-style-type: none"> 1. Being able to reflect upon one's competences and knowledge and, if necessary, being able to take the appropriate corrective action; 2. The ability to follow current (scientific) developments related to the professional environment; 3. Showing an active attitude towards continued learning throughout a professional career. 	
<p>2. Without prejudice to the provisions of paragraph 1, a graduate of the specialization Cognitive Science will have the following additional knowledge and understanding:</p> <p>A. Knowledge and Understanding</p> <ol style="list-style-type: none"> 1. Has advanced understanding of Cognitive Science; 2. Has knowledge of the experimental methods and findings from research into the cognitive psychology of behavior; <p>B. Applying Knowledge and Understanding</p> <ol style="list-style-type: none"> 1. Can apply empirical methods to improve the understanding of neurobiological processes and phenomena; 2. Is capable of modelling behavior to create opportunities for simulation and further analysis, exploiting the potential and limits of various representations, coupled with studies of computational mechanisms. 	Approval OLC (7.13 b)

10. Curriculum structure

Article 10.1 Composition of the programme

1. The programme comprises at least a package of compulsory components and an individual Master's thesis or academic internship.	Ordinance CvB, see appendix 3
2. Additionally the programme can offer: <ul style="list-style-type: none"> - Practical exercises; - Electives 	Advice OLC; (7.13 a)
3. Educational components are categorized as specialized (400), research oriented (500) and highly specialized (600) level.	Ordinance CvB, see appendix 3

Article 10.2 Compulsory educational components

A detailed description per educational component can be found in the Study Guide.

Educational component	course code	nr of EC	level	Advice OLC; (7.13 a)
Knowledge Representation	XM_0059	6	400	
Multi-Agent Systems	XM_0052	6	400	
Social Intelligent Robotics	XM_0074	6	400	
AI and Society	XM_0075	6	400	
Experimental Design and Data Analysis	X_405078	6	400	
Natural language Processing Technology	L_AAMAALG005	6		
Evolutionary Computing	X_400111	6	400	
Master Project AI	X_400285	30	600	
Constrained Choice (compulsory at least 1 course)				
- Cognitive Psychology and its Application	XM_40010	6	400	
- Skills for AI	XM_0077	6	400	
Constrained Choice ML (compulsory at least 1 course)				
- Data Mining Techniques	X_400108	6	500	
- Machine Learning for the Quantified Self	XM_40012	6	400	
Cognitive Science track:				
Brain Imaging	P_MBRIMAG_AI	6	400	
Seminar Cognitive Neuroscience AI	P_MSEMCNS_AI	6	400	
Neural Models of Cognitive Processes AI	P_NEUMOD_AI	6	400	
Constrained Choice Final Project:				
M Thesis Rsrch Prjct Cogn. Science	P_MTHRCSC	30	400	
Master Project AI	X_400285	30	600	

Article 10.3 Elective educational components

1. The student can take one or more of the following electives without prior consent from the Examination Board:				Advice OLC; (7.13 a)
Name of educational component	course code	nr of EC	Level	
Artificial Intelligence (Deepening)				
Advanced Machine Learning	XM_0010	6	400	
Intelligent Interactive systems (uva)	XMU_418023	6	400	
Knowledge and Media	X_405065	6	500	
Planning and Reinforcement Learning	XM_0055	6	400	
Knowledge Engineering	X_405099	6	400	
Behaviour Dynamics in Social Networks	X_400113	6	400	

Mini master project AI	XM_400428	6	500
Learning Machines	XM_0061	6	500
Advanced Logic	X_405048	6	500
The Social Web	X_405086	6	400
Entrepreneurship for AI and CS	XM_0009	6	400
Data Mining Techniques	X_400108	6	500
Knowledge Representation on the web	XM_0060	6	400
Machine Learning for Quantified Self	XM_40012	6	400
Seminar	X_405111	6	400
Seminar Combining Symbolic and Statistical Methods in AI (uva)	5204SCSS6Y		
Language Technology			
Programming in Python for Text	L_AAMPLIN021	6	500
Computational Lexicon	L_AAMPLIN013	6	500
Subjectivity Mining	L_AAMPLIN018	6	500
Machine Learning for NLP	L_AAMPLIN024	6	500
Text Mining Domains	L_PAMATLW003	6	400
Applied Text Mining	L_PAMATLW002	6	400
Cognitive Science			
Aging and Age related disorders	P_MAGINGD	6	400
Memory and Memory Disorders	P_MMEMORY	6	400
Seminar Attention	P_MSEMATT	6	400
Brain Imaging	P_MBRIMAG_AI	6	400
Seminar Cognitive Neuroscience	P_MSEMCNS_AI	6	400
Neural Models of Cognitive Processes	P_NEUMOD_AI	6	400
Behaviour Dynamics in Social Networks	X_400113	6	400
Social Robotics			
Essentials of Media Psychology	S_EMP	6	500
Social Robotics	S_SR	6	500
Social Intelligent Robotics Project	XM_0076	6	500
Application domain: Health Sciences			
Health psychology	AM_470730	6	400
Health promotion and disease prevention	AM_470811	6	500
Prevention of Mental Health Problems	AM_470840	6	400
Application domain: Human Movement Sciences			
Linear System Dynamics	B_DYNAMICA	3	300
Energy Flow Models	B_ENERFLOW	3	200
Coordination Dynamics: Prin. Clin. Appl.	B_CLINCORDYN	6	400
Perception for Action	B_PERCACTION	3	500
Application domain: Criminology			
Misdaadanalyse en daderprofilering	R_Misd.anaC	6	400
Spatial Criminology	R_SpaCrim	6	600
Application domain: ICT4D			

ICT4D	X_405101	6	400	
ICT4D in the field	XM_0008	6	400	
Others				
Internet Programming	X_405082	6	400	
History of digital cultures	XMU_418107	6	400	
2. If the student wishes to take a different educational component than listed, advance permission must be obtained in writing from the Examinations Board.				Advice OLC; (7.13 a)

Article 10.4 Participation in practical training and tutorials

1. In the case of a practical training, the student must attend at 100% of the practical sessions. Should the student attend less than 100% , he or she must repeat the practical training, or the Examinations Board may have one or more supplementary assignments issued.	Approval OLC (7.13 d)
2. Student are expected to participate actively in all degree components for which they are registered.	
3. In addition to the general requirement regarding active participation, the study guide details additional requirements for each degree component, including attendance requirements.	
4. At the start of each degree component, a specification will be made available which details: <ul style="list-style-type: none"> ▪ The final attainment levels of the degree component; ▪ The study guidelines for passing the degree component; ▪ The way in which the final attainment levels are assessed; ▪ The regulations for examinations and resits; ▪ The guidance provided by lecturers during scheduled hours and otherwise; ▪ Component attendance requirements; ▪ The provision of feedback to the student on assignments and reports submitted, and presentations given during the degree component. 	
5. If a student is prevented by force majeure from attending a required degree component, then the student must send written notification of his or her absence to the examiner and the study advisor as soon as possible. The examiner may, after consultation with the study advisor, give the student an alternative assignment.	
6. Absence from degree components with required attendance is only allowed in the case of force majeure.	
7. In the event of inadequate participation, either qualitative or quantitative, the examiner may exclude the student from further participation in the degree component or a part of the degree component. The details of the student's inadequate participation must be recorded in advance and approved by the Director of Studies.	

11. Evaluation and transitional provisions

Article 11.1 Evaluation of the education

The education provided in this programme is evaluated in accordance with the (attached) evaluation plan. The faculty evaluation plan offers the framework.	Approval OLC (7.13 a1)
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Article 11.2 Transitional provisions

By way of departure from the Teaching and Examination Regulations currently in force, the following transitional provisions apply for students who started the programme under a previous set of Teaching and Examination Regulations: <i>article is not applicable</i> .	Advice OLC (7.13 a)
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Advice and approval by the Programme Committee, on 13 February 2019.

Approved by the Faculty Joint Assembly, on 3 September 2019.

Adopted by the board of the Faculty of Science on 30 August 2019.

Appendix I Overview of articles that must be included in the OER

Based on Section 7.13, paragraph 2, of the WHW and other Sections of the Act.

Section B1: Programme specific – general provisions

6. General programme information and characteristics	
Article 6.1 Study programme information	7.13 paragraph 2 sub i, r
Article 6.2 Teaching formats used and modes of assessment	7.13 paragraph 2 sub l, x
[option:] Article 6.3 Academic student counselling	7.13 paragraph 2 sub u
7. Further admission requirements	
Article 7.2 Admission requirements	7.30b paragraph 2
8. Interim examinations and results	
Article 8.1 Sequence of interim examinations	7.13 paragraph 2 sub h, s, t
[option 1:] Article 8.2 Validity period for results	7.13 paragraph 2 sub k
[option 2:] Article 8.2 Validity period for results	7.13 paragraph 2 sub k

Section B2: Programme specific – content of programme

9. Programme objectives, specializations and exit qualifications	
Article 9.1 Workload	7.13 paragraph 2 sub g
Article 9.2 Specializations	7.13 paragraph 2 sub a
Article 9.3 Programme objective	7.13 paragraph 2 sub a
Article 9.4 Exit qualifications	7.13 paragraph 2 sub b, c
10. Curriculum structure	
Article 10.1 Composition of the programme	7.13 paragraph 2 sub a
Article 10.2 Compulsory educational components	7.13 paragraph 2 sub a
[Optional] Article 10.3 Elective educational components	7.13 paragraph 2 sub a
[Optional] Article 10.4 Practical exercise	7.13 paragraph 2 sub d
Article 10.5 Participation in practical training and tutorials	7.13 paragraph 2 sub d
11. Evaluation and transitional provisions	
Article 11.1 Evaluation of the education	7.13 paragraph 2 sub a1
Article 11.2 Transitional provisions	7.13 paragraph 2 sub a

Appendix II Overview of rights to prior consultation (advice) and rights to approve OLC and FGV (Dutch only)

Onderwerpen Onderwijs – en Examenregeling (OER) 7.13 paragraph 2 WHW	FGV		OplC	
	I	A	I	A
a. de inhoud van de opleiding en van de daaraan verbonden examens				
a1. de wijze waarop het onderwijs in de desbetreffende opleiding wordt geëvalueerd				
b. de inhoud van de afstudeerrichtingen binnen een opleiding				
c. de kwaliteiten op het gebied van kennis, inzicht en vaardigheden die een student zich bij beëindiging van de opleiding moet hebben verworven				
d. waar nodig, de inrichting van praktische oefeningen				
e. de studielast van de opleiding en van elk van de daarvan deel uitmakende onderwijseenheden				
f. de nadere regels, bedoeld in de artikelen 7.8b, zesde lid, en 7.9, vijfde lid (BSA)				
g. ten aanzien van welke masteropleidingen toepassing is gegeven aan artikel 7.4a, achtste lid (verhoogde studielast)				
h. het aantal en de volgtijdelijkheid van de tentamens alsmede de momenten waarop deze afgelegd kunnen worden				
i. de voltijdse, deeltijdse of duale inrichting van de opleiding				
j. waar nodig, de volgorde waarin, de tijdvakken waarbinnen en het aantal malen per studiejaar dat de gelegenheid wordt geboden tot het afleggen van de tentamens en examens				
k. waar nodig, de geldigheidsduur van met goed gevolg afgelegde tentamens, behoudens de bevoegdheid van de examencommissie die geldigheidsduur te verlengen				
l. of de tentamens mondeling, schriftelijk of op een andere wijze worden afgelegd, behoudens de bevoegdheid van de examencommissie in bijzondere gevallen anders te bepalen				
m. de wijze waarop studenten met een handicap of chronische ziekte redelijkerwijs in de gelegenheid worden gesteld de tentamens af te leggen				
n. de openbaarheid van mondeling af te nemen tentamens, behoudens de bevoegdheid van de examencommissie in bijzondere gevallen anders te bepalen				
o. de termijn waarbinnen de uitslag van een tentamen bekend wordt gemaakt alsmede of en op welke wijze van deze termijn kan worden afgeweken				
p. de wijze waarop en de termijn gedurende welke degene die een schriftelijk tentamen heeft afgelegd, inzage verkrijgt in zijn beoordeelde werk				
q. de wijze waarop en de termijn gedurende welke kennis genomen kan worden van vragen en opdrachten, gesteld of gegeven in het kader van een schriftelijk afgenomen tentamen en van de normen aan de hand waarvan de beoordeling heeft plaatsgevonden				
r. de gronden waarop de examencommissie voor eerder met goed gevolg afgelegde tentamens of examens in het hoger onderwijs, dan wel voor buiten het hoger onderwijs opgedane kennis of vaardigheden, vrijstelling kan verlenen van het afleggen van een of meer tentamens				
s. waar nodig, dat het met goed gevolg afgelegd hebben van tentamens voorwaarde is voor de toelating tot het afleggen van andere tentamens				
t. waar nodig, de verplichting tot het deelnemen aan praktische oefeningen met het oog op de toelating tot het afleggen van het desbetreffende tentamen, behoudens de bevoegdheid van de examencommissie vrijstelling van die verplichting te verlenen, al dan niet onder oplegging van vervangende eisen				
u. de bewaking van studievoortgang en de individuele studiebegeleiding				
v. indien van toepassing: de wijze waarop de selectie van studenten voor een speciaal traject binnen een opleiding, bedoeld in artikel 7.9b, plaatsvindt (excellentietraject binnen een opleiding)				
x. de feitelijke vormgeving van het onderwijs				
alle overige onderwerpen die in de OER zijn geregeld maar die niet als zodanig zijn genoemd in art. 7.13 WHW onder a t/m x.				

De lettering komt overeen met de lettering van artikel 7.13 lid 2 WHW

Appendix III Ordinances VU CvB and Binding Guidelines

Section B1, article:	Concerns:	CvB ordinance / guideline
7.2.1	Admission criteria; at least WO Bachelor's degree	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
7.2.3	Additional admission criteria; type of criteria	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
Section B1, article:	Concerns:	CvB ordinance / guideline
10.1	Composition programme	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017
10.2	Categorization of components	Richtlijn Bachelor en Masteronderwijs, revised on 6 June 2017