

EDUCATION AND EXAMINATION REGULATIONS
Academic Year 2013 - 2014
PART B

THE MASTER'S PROGRAMME IN LOGIC

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Chapter 1 – General provisions

Article 1.1 – Applicability of the Regulations

This document consists of two parts: Part A and Part B. Part A includes general information that applies to all the Master's programmes on offer. Part B deals with specific aspects of the individual Master's programme Logic. These Master's programmes are offered by the Faculty of Science (*Faculteit der Natuurwetenschappen, Wiskunde & Informatica*, FNWI), hereinafter referred to as: the Faculty.

Chapter 2 – Content and organisation of the programme

Article 2.1 – Aim of the programme and exit qualifications

Article 2.1.1 – Aim of the programme

The aim of the Master of Science in Logic programme is to create an international, interdisciplinary and research-oriented learning environment in which students are educated as researchers in the area of Logic, Language and Information. Graduates will obtain the degree of Master of Science.

Article 2.1.2 – Exit qualifications of the programme

On the basis of the acquired knowledge, understanding and skills, students that have successfully completed the programme are able to carry out interdisciplinary research in the area of Logic, Language and Information, either as a PhD student or in an application-directed environment.

1. The insight of a graduate of the MSc Logic is based on
 - a solid foundation in the most important aspects of logic, and its applications in computer science, linguistics, philosophy and mathematics;
 - specialized knowledge at an advanced level of one or more of the following research areas: Logic & Computation, Logic & Language, Logic & Mathematics, Logic & Philosophy.
2. The acquired skills lie in the area of research and communication. More specifically, a graduate of the MSc Logic is able to
 - formulate research questions, and address these in a research plan;
 - make a contribution to the theories and research methods in the area of expertise;
 - critically evaluate contributions to their field of expertise, based on an awareness of its research traditions and conventions;
 - collaborate with others in a multidisciplinary team;
 - deliver and defend presentations of their own work, both orally and in writing.
3. Finally, a graduate possesses
 - the intellectual mobility to transcend traditional boundaries between the academic disciplines that border the specialization area.

Article 2.1.3 – Specialization areas or tracks

The MSc Logic is a two-year research master with four specialization areas ('tracks'):

- Logic and Computation (L&C)
- Logic and Language (L&L)
- Logic and Mathematics (L&M)
- Logic and Philosophy (L&P)

Article 2.2 – Organisation of the programme

This programme is provided on a full-time basis only.

Article 2.3 – Language of instruction for the programme

The language of instruction for the programme is English. This means that the Code of Conduct for Foreign Languages at the UvA 2000 and the provisions laid down in Section 7.2 of the Act apply (see Appendix 3 of part A).

Article 2.4 – Scope of the programme

The Master's Programme consists of a two-year programme with a total study load of 120 ECTS credits, which includes the preparation of a thesis. One ECTS credit equals 28 hours of study activities.

Article 2.5 – Curriculum

Article 2.5.1 – Programme structure and content

1. The MSc Logic programme consists of:
 - Obligatory courses
 - Track Courses (varied number of ECTS credits)
 - Electives (varied number of ECTS credits)
 - Thesis Master of Logic (30 ECTS credits)
2. Obligatory Courses:
 - “Logic, Language and Computation” (3 ECTS credits)
 - “Research Project Master of Logic” (6 ECTS credits). Each student will have to take a total of at least 6 ECTS credits in research projects. These projects can either be done in period c of the first, second or third semester or as individual research projects at any time.
3. Track Courses:

The courses in the obligatory part are determined by the student's area of specialization:

 - Track Logic and Computation: “Computational Complexity” (6 ECTS credits) and “Recursion Theory” (6 ECTS credits).
 - Track Logic and Language: “Meaning, Reference and Modality” (6 ECTS credits), and “Structures for Semantics” (6 ECTS credits).
 - Track Logic and Mathematics: “Model Theory” (6 ECTS credits), and “Proof Theory” (6 ECTS credits).
 - Track Logic and Philosophy: “Meaning, Reference and Modality” (6 ECTS credits), “Kant, Logic and Cognition” (6 ECTS credits), and “Philosophical Logic” (6 ECTS credits).
4. Elective courses: to be chosen out of the courses listed under Article 2.5.3.1. Up to 20 ECTS credits may be chosen from other Master's programmes.
5. Thesis Master of Logic (30 ECTS credits).
6. Students are expected to attend at least ten research colloquia and to participate in seminars such as: DIP colloquium; Logic Tea; Colloquium on Mathematical Logic; Computational Social Choice Seminar; Algebra | Coalgebra Seminar; Computational Linguistics Seminar, Seminar on Logic and Interactive Rationality. This is a requirement for starting the Thesis Master of Logic.
7. The MSc Logic offers an additional course 'Basic Logic' (6 ECTS credits) covering the basics of mathematical logic. In the admission process, the Examinations Board can require students to follow Basic Logic, or recommend that the student follows 'Basic Logic'. Other students need permission from the Examinations Board to use 'Basic Logic' as part of their course list for graduation.

Article 2.5.2.1 Track Logic and Computation

	ECTS credits	Semester
Semester 1:		
Logic, Language and Computation	3	1
Recursion Theory	6	1
(Inleiding Modale Logica/Introduction to Modal Logic)**	(6)	1
(Research Project Master of Logic)*	(6)	1
Elective courses	9/15/21	1
Semester 2:		
Computational Complexity	6	2
(Research Project Master of Logic)*	(6)	2
Elective courses	18/24	2
Semester 3:		
(Research Project Master of Logic)*	(6)	1
Elective courses	24/30	1
Semester 4:		
Thesis Master of Logic	30	2

*: In the first, second or third semester.

** : Students with a deficiency in modal logic have to take the course “Introduction to Modal Logic” as an elective course.

Article 2.5.2.2 Track Logic and Language

	ECTS credits	semester
Semester 1:		
Logic, Language and Computation	3	1
Meaning, Reference and Modality	6	1
(Research Project Master of Logic)*	(6)	1
Elective courses	15/21	1
Semester 2:		
Structures for Semantics	6	2
(Research Project Master of Logic)*	(6)	2
Elective courses	18/24	2
Semester 3:		
(Research Project Master of Logic)*	(6)	1
Elective courses	24/30	1
Semester 4:		
Thesis Master of Logic	30	2

*: In the first, second or third semester.

Article 2.5.2.3 Track Logic and Mathematics

	ECTS credits	semester
Semester 1:		
Logic, Language and Computation	3	1
Proof Theory	6	1
(Inleiding Modale Logica/Introduction to Modal Logic) **	(6)	1
(Research Project Master of Logic)*	(6)	1
Elective courses	9/15/21	1
Semester 2:		
Model Theory	8	2
(Axiomatische Verzamelingsentheorie/Axiomatic Set Theory) ***	(6)	2
(Research Project Master of Logic)*	(6)	2
Elective courses	12/18/24	2
Semester 3:		
(Research Project Master of Logic)*	6	1
Elective courses	24/30	1
Semester 4:		
Thesis Master of Logic	30	2

*: In the first, second or third semester.

** : Students with a deficiency in modal logic have to take the course “Introduction to Modal Logic” (6 ECTS credits) as an elective course.

***: Students with a deficiency in set theory have to take the course “Axiomatische Verzamelingsentheorie (Axiomatic Set Theory)” (6 ECTS credits) as an elective course.

Article 2.5.2.4 Track Logic and Philosophy

	ECTS credits	semester
Semester 1:		
Logic, Language and Computation	3	1
Meaning, Reference and Modality	6	1
(Research Project Master of Logic)*	(6)	1
Elective courses	15/21	1
Philosophical Logic	6	1
Semester 2:		
Kant, Logic & Cognition	6	2
(Research Project Master of Logic)*	(6)	2
Elective courses	12/18	2
Semester 3:		
(Research Project Master of Logic)*	(6)	1
Elective courses	24/30	1
Semester 4:		
Thesis Master of Logic	30	2

*:In the first, second or third semester.

Article 2.5.3.1 – List of elective components Master of Science in Logic

Elective courses can be chosen from the following lists.

First and third semester:

- Autonomous Agents (6 ECTS credits)
- Basic Logic (6 ECTS credits) - only for students with a weak mathematical background, students require permission of the Examinations Board to enrol.
- Capita Selecta: Modal Logic, Algebra, Coalgebra (6 ECTS credits)
- Capita Selecta: Set Theory (6 ECTS credits)
- Computational Semantics and Pragmatics (6 ECTS credits)
- Computational Social Choice (6 ECTS credits)
- Concurrency Theory (6 ECTS credits)
- Elements of Language Processing and Learning (3 ECTS credits)
- Functional Specification of Algorithms (6 ECTS credits)
- Inleiding Modale Logica (Introduction to Modal Logic; 6 ECTS credits)
- Lambda Calculus (6 ECTS credits)
- Language and Games (6 ECTS credits)
- Logic and Conversation (6 ECTS credits)
- Logic, Knowledge and Science (6 ECTS credits)
- Machine Learning: Principles and Methods (6 ECTS credits)
- Meaning, Reference and Modality (6 ECTS credits; elective only for tracks L&M and L&C, compulsory for tracks L&L and L&P)
- Philosophical Logic (6 ECTS credits; elective only for tracks L&C, L&L, L&M, compulsory for track L&P)
- Philosophy of Language: An Extensive Introduction (6 ECTS credits)
- Proof Theory (6 ECTS credits; elective only for tracks L&C, L&L and L&P, compulsory for track L&M)
- Radical Interpretation, hermeneutics and Forms of Life (12 ECTS credits)
- Rationality, Cognition and Reasoning (12 ECTS credits)
- Recursion Theory (6 ECTS credits; elective only for tracks L&L en L&P, compulsory for tracks L&M and L&C)
- Seminar Mathematical Logic (3 ECTS credits)
- The Computational Mind and its Critics (6 ECTS credits)
- Neurophilosophy of Self (6 ECTS credits)
- The Semantics of Belief (6 ECTS credits)

Second and fourth semester:

- Axiomatische Verzamelingsentheorie (Axiomatic Set Theory; 6 ECTS credits)
- Category Theory and Topos Theory (8 ECTS credits)
- Causality and Explanations (6 ECTS credits)
- Cognitive Models of Language and Music (6 ECTS credits)
- Combinatorics with Computer Science Applications (6 ECTS credits)
- Computational Complexity (6 ECTS credits; elective only for tracks L&L, L&M and L&P, compulsory for track L&C)
- Concurrent System Design by Abstraction (6 ECTS credits)
- Cooperative Games (3 ECTS credits)
- Ethics, ontology, life – Wittgenstein's later work (12 ECTS credits)

- Kant, Logic and Cognition (6 ECTS credits; elective only for tracks L&M, L&L and L&C, compulsory for track L&P)
- Kolmogorov Complexity (6 ECTS credits; will NOT be given in 2013-2014, but again in 2014-2015)
- Mathematical Structures in Logic (6 ECTS credits)
- Model Theory (6 ECTS credits; elective only for tracks L&L, L&C and L&P, compulsory for track L&M)
- Music Cognition (6 ECTS credits)
- Pragmatics and the Lexicon (6 ECTS credits)
- Quantum Computing (6 ECTS credits; will NOT be given in 2013-2014, but again in 2014-2015)
- Statistical Structure in Language Processing (6 ECTS credits)
- Strategic Game Theory (6 ECTS credits)
- Structures for Semantics (6 ECTS credits; elective only for tracks L&M, L&P and L&C, compulsory for track L&L)
- Topics in Dynamic Epistemic Logic (6 ECTS credits)
- Transcendental Logic, Space and Time (6 ECTS credits)
- Unsupervised Language Learning (6 ECTS credits)

Article 2.5.3.2 – Rules applying to elective components

1. In exceptional cases students may choose Bachelor's-level elective components as part of their programme. The Examinations Board will determine whether an elective component at the Bachelor's level will be seen as part of the programme and the number of credits that will be allocated to the elective component.
2. In terms of content, elective components must not show too much similarity to the components of the student's standard curriculum. The acceptable degree of similarity will be decided by the Examinations Board.
3. An elective component will only be seen as part of the programme if the Examinations Board has given its prior approval.

Article 2.6 – Components completed elsewhere

1. Exemptions for components successfully completed at a higher education institution prior to beginning the Master's programme may only be granted on the basis of Article 3.9 of part A of these Regulations.
2. In particular, a student may apply to the Examinations Board for the approval of transfer credits for courses taken at a different programme. This is only possible for courses at Master's level that are directly relevant to the MSc Logic programme and only in case there is no overlap with other courses taken by the student. By default, all transfer credits are registered with a pass grade and will not be taken into account to compute the student's grade point average. At most 40 ECTS credits of the student's course programme can consist of such transfer credits.
3. A student may also apply to the Examinations Board for exemption from the requirement to take a track-specific obligatory course if they already possess the knowledge taught in that course. Such requests will only be granted in highly exceptional circumstances. If such a request is granted, the student must take additional elective courses to obtain a sufficient number of ECTS credits for graduation.
4. Components successfully completed elsewhere during the programme may supplement the student's examination programme, subject to prior permission from the Examinations Board.

Article 2.7 – Free curriculum

Subject to certain conditions, the student has the option of compiling a curriculum of his/her own choice which deviates from the curricula mentioned in Article 2.5 of these Regulations. The concrete details of such a curriculum require the prior permission of the relevant Examinations Board.

Article 2.8 – Admission to the study programme

1. Students have to apply for admission to the Master's Programme in Logic. For a detailed description, see <http://www.ilc.uva.nl/MScLogic/application/>.
2. Applicants must have at least a Bachelor's or equivalent degree in one of the following fields:
 - computer science
 - artificial intelligence
 - mathematics
 - philosophy
 - linguistics

Applicants with a first degree in another field may also be considered, provided they have an appropriate formal background. The final decision lies with the Examinations Board.

3. All applicants must have a reasonable background in logic, affinity with mathematical and formal thinking and some familiarity with mathematical proofs. In practice, this means that we expect that incoming students have had a formal introduction to logic up to the completeness theorem for first-order logic and have taken courses requiring mathematical or formal reasoning.
4. In addition, applicants are required to have a strong academic record, and must satisfy the English language requirements.

Article 2.9 – Graduation procedure Master of Science in Logic

1. The official graduation procedure MSc in Logic (approved by the Examinations Board) can be read and downloaded from the ILLC website:
<http://www.ilc.uva.nl/MScLogic/graduation/index.html>.
2. Before starting with the Thesis students have to fill in the 'Approval of individual programme content MSc Logic' (to be downloaded from the website). Students can only do so when they have finished all coursework except for at most 20 ECTS credits. See Article 3.2.2.

Article 2.10 – Enrolment

Students can start the study programme in semester 1 (September) or in semester 2 (February).

Chapter 3 – Teaching

Article 3.1 – Participation in courses and rules for priority admission

1. Every student must enrol for every component. To participate in courses, the student must enrol within the period indicated in the UvA Course Catalogue and according to procedures mentioned there. The student may be refused the opportunity to participate if he/she does not enrol or fails to enrol in time.
2. Admission to courses with limited capacity takes place based on previously established and published admission criteria and rules for priority admission, on the understanding that students enrolled in the programme are given priority over others when enrolling for courses in the compulsory part of their programme.
3. Persons who are not enrolled at the University have no right to participate in teaching and examinations.

Article 3.2 – Sequence and admission requirements

1. The student may participate in examinations of a component only after the student has shown that he/she has the necessary prerequisite knowledge. To that end, a student must have passed the subjects stated in the study guide (per course or component), which are considered to be prerequisite knowledge for that course or component.
2. The student may start with the thesis only if no more than 20 registered ECTS credits of the total of 90 ECTS credits for all courses are missing, and the student's study programme has been approved by the Examinations Board.
3. The student cannot defend his/her thesis before all other courses from his study programme are passed and all grades are registered.
4. At the request of a student, the Examinations Board may deviate from the provisions of paragraphs 1 and 2 for the benefit of this student.

Article 3.3 – Number of examination opportunities

1. In accordance with Article 3.3 of Part A of these Regulations, a student is entitled to a single resit examination, which must take place in the same academic year.
2. Contrary to the provisions of paragraph 1, the assessment of projects in which several students have worked on an assignment will only be made at the end of the relevant teaching period. In principle, an individual resit is not possible.
3. If a student feels that on account of exceptional circumstances the assessment, referred to in paragraph 2, is not a realistic assessment of his/her effort, knowledge, skills or insights, the student may request the Examinations Board to nevertheless permit an individual test and/or resit.

Article 3.4 – Internship

1. A part of the free elective space may be used for an external internship.
2. For that purpose the student will prepare a subject description including the aim and content of the internship. The student will seek a supervisor for the internship amongst the staff of the master programme (or the staff of the related research institute).
3. An internship may amount to a maximum of 12 ECTS credits.
4. Participation in a summer school may also be regarded as an external internship.
5. The approval of the Examinations Board is required for a internship to be included in the student's study programme.

Article 3.5 – Double Master's Programme

In order to be awarded two Master's degrees or to have stated on the Master's diploma that two Master's programmes have been completed within the discipline, the following requirements must be met:

- The total programme of the candidate should amount to at least 180 ECTS credits.
- The candidate's work for the programme (lectures, research work, etc.), must be of such a standard that all the compulsory requirements of each of the two programmes have been met.
- The candidate must have conducted separate research work for both Master's degrees. This may consist of two separate Master theses with supervisors from the respective study programmes.
- The Examinations Boards of both study programmes must approve the student's double Master's programme before the student commences the double Master's programme.

Chapter 4 – Transitional and final provisions

Article 4.1 – Amendments

1. The dean shall establish amendments to the part B of these Regulations by independent decision – having heard the programme committee and with due regard for the authority of the relevant advisory bodies.
2. Amendments to the part B of these Regulations do not apply to the current academic year unless they can be reasonably assumed not to damage the students' interests.

Article 4.2 – Effective date

Part B of these Regulations shall come into force as of

Thus drawn up by the Dean of the Faculty of Science (*Faculteit der Natuurwetenschappen, Wiskunde & Informatica*, FNWI) on