

UNIVERSITY OF AMSTERDAM
FACULTY OF SCIENCE
TEACHING AND EXAMINATION REGULATIONS
PART B: programme-specific section

Academic year 2016-2017

MASTER'S PROGRAMME IN LOGIC

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Chapter 1. General Provisions

Article 1.1 – Definitions

Track Specialization area with prescribed components.

Article 1.2 – Study programme information

1. The Master's programme in Logic, CROHO number 60226, is offered on a full-time basis and the language of instruction is English. This means that the Code of Conduct for Foreign Languages at the UvA applies for this programme (see Code of Conduct Governing Foreign Languages at the University of Amsterdam 2000 at the website: <http://www.uva.nl/en/about-the-uva/organisation/legal-affairs/regulations/regulations.html>).
2. The MSc Logic is a two-year programme with a total study load of 120 EC.
3. Within the programme the following tracks are offered:
 1. Logic and Computation (L&C)
 2. Logic and Language (L&L)
 3. Logic and Mathematics (L&M)
 4. Logic and Philosophy (L&P)

Article 1.3 – Enrolment

The programme is offered starting in the first semester of the academic year (1 September) and starting in the second semester (1 February).

Chapter 2. Programme objectives and exit qualifications

Article 2.1 – Programme objectives

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 2.2 – Exit qualifications

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.

Chapter 3. Further admission requirements

Article 3.1 – Admission requirements

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
 - linguisticsApplicants 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 incoming students are expected to 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 3.2 – Pre-Master's programme

Not applicable.

Article 3.3 – Limited programme capacity

Not applicable.

Article 3.4 – Final deadline for registration

1. A request for admission to the Master's programme starting in September must be received before 1 April in the case of EU students (including Dutch students) and before 1 February in the case of non-EU students. For the programme starting in February, applications must be received before 1 December for EU students (including Dutch students) and before 1 October for non-EU students.
2. The Examinations Board may consider a request submitted after this closing date.

Article 3.5 – English language requirements

1. The proficiency requirement in English as the language of instruction can be met by the successful completion of one of the following examinations or an equivalent:
 1. IELTS-test: minimum score 6.5, at least 6 on each sub-score (listening/reading/writing/speaking).
 2. TOEFL Test: the minimum scores required are:
 - Internet-based test (iBT): 90
 - Computer-based test (CBT): 235
 - Paper-based test (PBT): 580
 3. A Cambridge Examination Score with a minimum test result of CAE B will also be accepted. For the CPE test a minimal score of C is required.
2. Those who have taken English at VWO level at a school in the Netherlands, have an English-language 'international baccalaureate' diploma, or have had secondary or tertiary education in a country where English is the native language satisfy the requirement of sufficient command of the English language.

Article 3.6 – Free curriculum

1. Subject to certain conditions, the student has the option of compiling a curriculum of his/her own choice which deviates from the curricula prescribed by the programme.
2. The concrete details of such a curriculum must be approved beforehand by the most appropriate Examinations Board.
3. The free curriculum is put together by the student from the units of study offered by the University of Amsterdam and must at least have the size, breadth and depth of a regular Master's programme.
4. The following conditions must at least have been met in order to be eligible for the Master's degree:
 1. at least 60 EC must be obtained from the regular curriculum;
 2. the level of the programme must match the objectives and exit qualifications that apply for the programme for which the student is enrolled.

Chapter 4. Curriculum structure

Article 4.1 – Tracks

Every student has to select one of the four tracks:

1. Logic & Computation,
2. Logic & Language,
3. Logic & Mathematics, or
4. Logic & Philosophy.

The track determines the obligatory components of the student's course list.

Article 4.2 – Composition of programme

1. The programme of the MSc Logic consists of the following components:

1. Core components (at least 72 EC)
 - a. Obligatory components
 - b. Components to resolve deficiencies
 - c. Research projects
 - d. Electives
2. Thesis Master of Logic (30 EC)
3. Free choice
2. In order to graduate, a student needs to have at least 120 EC in total, of which 72 EC have to be core components.
3. A complete list of components provided by the Master's programme can be found in Appendix 1.
4. Every component will be tested. Within the MSc Logic different types of testing are used: classroom exam, take-home exam, term paper, oral exam, presentation and various combinations of these. In the course catalogue this is described per component.
5. Within the MSc Logic different types of teaching methods are used. In the course catalogue this is described per component.

Article 4.3 – Core components

1. A student must have at least 72 EC in Core components.
2. Obligatory components. The list of obligatory components is determined by the track the student has chosen. The obligatory components are:

Track Logic & Computation (total of 15 EC)	EC
Logic, Language and Computation	3
Computational Complexity	6
Information Theory	6

Track Logic & Language (total of 15 EC)	EC
Logic, Language and Computation	3
Meaning, Reference and Modality	6
Structures for Semantics	6

Track Logic & Mathematics (total of 15 EC)	EC
Logic, Language and Computation	3
Model Theory	6
Proof Theory	6

Track Logic and Philosophy (total of 15 EC)	EC
Logic, Language and Computation	3
Meaning, Reference and Modality	6
Philosophical Logic	6

3. Components to resolve deficiencies. All students are expected to know the basics of mathematical logic; students in the tracks L&C and L&M are expected to know the mathematical theory of modal logic; students in the track L&M are expected to know axiomatic set theory.
4. Students who do not have the required knowledge mentioned in 3. are required to take the corresponding courses in order to resolve deficiencies. The basics of mathematical logic are taught in Basic Logic (6 EC), the mathematical theory of modal logic is taught in Introduction to Modal Logic (Inleiding Modale Logica), and axiomatic set theory is taught in Axiomatic Set Theory (Axiomatische Verzamelingentheorie).
5. Concerning Basic Logic, the Examinations Board decides for each student whether they are required to take Basic Logic, allowed to take Basic Logic (see item 9.), or prohibited from taking Basic Logic.
6. For Introduction to Modal Logic (Inleiding Modale Logica) and Axiomatic Set Theory (Axiomatische Verzamelingentheorie), the Examinations Board decides for all students in the tracks L&C and L&M whether they are required to take these courses. Students who are not required to take the courses can take them as Electives.
7. Research Projects. Every student must have at least 6 and at most 24 EC in research projects. Projects can either be done in period c of a semester for which he or she is enrolled as a student or as individual research projects at any time. Credits for any learning activity that is not taught in the usual style of courses and/or that is not part of a regular Master's programme of a university, such as, e.g., internships and summer schools, are counted towards the maximum of 24 EC in research projects.
8. Electives. Students can choose elective components from the list below.
9. Students who have been allowed to take Basic Logic (see 5.) can take Basic Logic in the list of Electives.
10. Students who have not been required to take Introduction to Modal Logic (Inleiding Modale Logica) and/or Axiomatic Set Theory (Axiomatische Verzamelingentheorie) (see 6.) can take these courses as Electives.

List of Elective Components	EC
Advanced Topics in the Philosophy of Language	6
Axiomatische Verzamelingsentheorie (Axiomatic Set Theory)	6
Basic Probability: Theory	3
Basic Probability: Programming	3
Capita Selecta: Modal Logic, Algebra, Coalgebra	6
Capita Selecta: Set Theory	6
Category Theory	6
Causal Inference: Philosophical Theory and Modern Practice	6
Cognition and Language Development	6
Cognitive Models of Language and Music	6
Computability and Interaction	6
Computational Complexity	6
Computational Semantics and Pragmatics	6
Computational Social Choice	6
Concurrency Theory	6
Distributed Algorithms (VU)	6
Dynamic Epistemic Logic	6
Early Modern Philosophy of Language	6
Ethics, Ontology, Life: Wittgenstein's Later Work	6
Foundations of Neural and Cognitive Modelling	6
Functional Discourse Grammar	6
Functional Specification of Algorithms	6
Game Theory	6
Generative Grammar	6
Information Theory	6
Inleiding Modale Logica (Introduction to Modal Logic)	6
Introduction to the Philosophy of Language	6
Intuitionistic Logic	6
Intuitionistic Mathematics	8
Kant, Logic & Cognition	6
Knowledge Representation	6
Knowledge Representation on the Web	6
Kolmogorov Complexity	6
Lambda Calculus	6
Logic and Conversation	6
Logic, Knowledge and Science	6
Logical Methods in Cognitive Science	6
Logical Verification (VU)	6
Mathematical Structures in Logic	8
Meaning, Reference and Modality	6
Model Theory	6
Music Cognition	6
Natural Language Processing 1	6
Natural Language Processing 2	6
Philosophical Logic	6
Philosophy of Mathematics	6
Possible Worlds: Logic and Metaphysics	6
Protocol Validation (VU) (course not taught in 2016-2017)	6
Proof Theory	6
Quantum Computing	8
Rationality, Cognition and Reasoning	6
Recursion Theory	6
Seminar Mathematical Logic	3
Set Theory (VU)	8
Structures for Semantics	6
Techno-Science and Epistemology	6

Term Rewriting Systems (VU)	6
Time	6
Unsupervised Language Learning	6

Article 4.4 – Research colloquia/seminars and the Thesis Master of Logic

1. As part of their research training students are expected to regularly attend 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; LEGO Seminar; Theoretical Computer Science Seminar; Seminar on Logic and Interactive Rationality.
2. The Thesis Master of Logic comprises 30 EC. The thesis is a report on a substantial piece of scientific work, usually including a significant amount of original research, that clearly demonstrates the student's capacity to independently conduct research in an interdisciplinary environment.

Article 4.5 – Free Choice

1. In addition, students may choose components from other Master's programmes.
2. In terms of content, free choice components must not show too much similarity to the core components of the student's curriculum. The acceptable degree of similarity will be decided by the Examinations Board.

Article 4.6 – Practical exercise

Not applicable.

Article 4.7 – Sequence of examinations

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 components stated in the course catalogue (per component), which are considered to be prerequisite knowledge for that course or component.
2. 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 4.8 – Participation in practical exercise and study group sessions

Not applicable.

Article 4.9 – Maximum exemption

1. A student may apply to the Examinations Board for the approval of transfer credits for components taken at a different programme, provided those components have not been used towards a degree. This is only possible for components at Master's level that are directly relevant to the MSc Logic programme and only in case there is no overlap with other components 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.
2. At most 36 EC of the student's 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 component if they already possess the knowledge taught in that component. Such requests will only be granted in exceptional circumstances. If such a request is granted, the student must take additional elective components to obtain a sufficient number of EC for graduation.
4. Components successfully completed elsewhere during the programme may supplement the student's examination programme, subject to permission from the Examinations Board.

Article 4.10 – Validity period of examinations

The validity period of interim examinations and exemptions from interim examinations is limited, as described in part A, article 4.8.

Article 4.11 – Degree

Students who have successfully completed their Master's examination are awarded a Master of Science degree. The degree awarded is stated on the diploma.

Article 4.12 – Graduation procedure

1. To be able to graduate, the student's overall study programme has to be approved by the Examinations Board. To request approval a student should submit an approval form (which can be downloaded from the ILLC website: <http://www.illc.uva.nl/MScLogic>). Students can only do so when they have finished all coursework except for at most 18 EC.
2. The student may start with the Thesis only if no more than 18 registered EC of the total study programme excluding the Thesis is 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 components from his/her study programme are passed and all grades are registered.
4. The official graduation procedure of the MSc Logic (approved by the Examinations Board) is available at the ILLC website: <http://www.illc.uva.nl/MScLogic>.

Article 4.13 – 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:

1. The total programme of the candidate should amount to at least 180 ECTS credits.
2. 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.
3. 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.
4. 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.
5. The Examinations Board will require a student to satisfy the same conditions as regular students. In particular, they must write a relevant Master thesis and choose components from the MSc Logic programme adding up to a total of at least 102 EC (see also Article 4.4 on elective components).

Chapter 5. Transitional and final provisions

Article 5.1 - Amendments and periodic review

1. Any amendment to the Teaching and Examination Regulations will be adopted by the dean after taking advice from the relevant Board of Studies. A copy of the advice will be sent to the authorised representative advisory body.
2. An amendment to the Teaching and Examination Regulations requires the approval of the authorised representative advisory body if it concerns components not related to the subject of Section 7.13, paragraph 2 sub a to g and v, and paragraph 4 of the WHW and the requirements for admission to the Master's programme.
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.

Article 5.2 – Transitional provisions

If the curriculum changes, the new curriculum and regulations also apply to students already enrolled. Students can however request the Examinations Board to have the curriculum as it was when they started their studies apply to them.

Article 5.3 - Publication

1. The Dean of the faculty will ensure the appropriate publication of these Regulations and any amendments to them.
2. The Teaching and Examination Regulations will be posted on the faculty website and deemed to be included in the course catalogue.

Article 5.4 – Effective date

These Regulations enter into force with effect from 1 September, 2016.

Thus drawn up by the Dean of the Faculty of Science on 18 July 2016

Appendix 1 List of components provided by the study programme

Component	Code	Study load (EC)	Semester	Teaching method	Assessment
Advanced Topics in Philosophy of Language	187413186Y	6	2	PR	Written, oral
Axiomatische Verzamelingentheorie (Axiomatic Set Theory)	5122AXVE6Y	6	2	L, CP	Written, oral
Basic Logic	5314BALO6Y	6	1	L, PR	Written
Basic Probability: Theory	53141BPC3Y	3	1	PR	Written
Basic Probability: Programming	53142BPC3Y	3	1	PR, CP	Written
Capita Selecta: Modal Logic, Algebra, Coalgebra	5314CSML6Y	6	1	L	Written
Capita Selecta: Set Theory	5314CSET6Y	6	1	L	Written
Category Theory	5314CATH6Y	6	2	L	Written
Causal Inference: Philosophical Theory and Modern Practice	187413216Y	6	1	PR	Written, oral
Cognition and Language Development	5244COLD6Y	6	1	L	Written, oral
Cognitive Models of Language and Music	5244CMLM6Y	6	2	L, PR	Written, oral
Computability and Interaction	5314COIN6Y	6	2	L, GP	Written
Computational Complexity	5314COCO6Y	6	2	L, PR	Written
Computational Semantics and Pragmatics	5314COSP6Y	6	1	L, PR	Written, oral
Computational Social Choice	5314COSC6Y	6	2	L, PR	Oral
Concurrency Theory	5284COTH6Y	6	1	L, PR, CP	Written
Distributed Algorithms (VU)	52848DIA6Y	6	1	L, PR	Written
Dynamic Epistemic Logic	5314DYEL6Y	6	1	L, PR	Written
Early Modern Philosophy of Language	187413196Y	6	1	L	Written, oral
Ethics, Ontology, Life: Wittgenstein's Later Work	187413226Y	6	2	PR	Written, oral
Foundations of Neural and Cognitive Modelling	5244FNCM6Y	6	1	PR, CP	Written, oral
Functional Discourse Grammar	184410046Y	6	1	PR	Written
Functional Specification of Algorithms	5314FUSA6Y	6	1	L, PR, CP	Written
Game Theory	5314GATH6Y	6	2	L	Written
Generative Grammar	184410036Y	6	1	PR	Written, oral
Information Theory	5314INTH6Y	6	1	L, PR	Written, oral
Inleiding Modale Logica (Introduction to Modal Logic)	5122INML6Y	6	1	L, PR	Written
Introduction to the Philosophy of Language	187413017Y	6	1	L, PR	Written
Intuitionistic Logic	5314INLO6Y	6	2	L	Written
Intuitionistic Mathematics	53348INM8Y	8	1	L	Written
Kant, Logic & Cognition	187413066Y	6	2	L, PR	Written, oral
Knowledge Representation	5204KNRE6Y	6	1	L, PR, CP	Written
Knowledge Representation on the Web	5204KROT6Y	6	2	L, CP, GP	Written
Kolmogorov Complexity	5314KOCO6Y	6	2	L, PR	Written
Lambda Calculus	5314LACA6Y	6	1	L, PR	Written
Logic and Conversation	5314LOCO6Y	6	1	L	Written
Logic, Knowledge and Science	5314LOKS6Y	6	2	L	Written
Logic, Language and Computation	5314LOLC3Y	3	1	L	Written
Logical Methods in Cognitive Science	5314LMIC6Y	6	2	L	Written
Logical Verification (VU)	52848LOV6Y	6	2	L, PR	Written
Mathematical Structures in Logic	53148MAS8Y	8	2	L, PR	Written
Meaning, Reference and Modality	187413096Y	6	1	L	Written
Model Theory	5314MOTH6Y	6	2	L, PR	Written
Music Cognition	5244MUCO6Y	6	2	L, PR	Written
Natural Language Processing 1	52041NLP6Y	6	1	L, CP	Written
Natural Language Processing 2	52042NLP6Y	6	2	L, CP	Written, oral
Philosophical Logic	5314PLO6Y	6	1	L, PR	Written
Philosophy of Mathematics	187413176Y	6	2	L, PR	Written, oral
Possible Worlds: Logic and Metaphysics	187415116Y	6	2	L	Written
Proof Theory	5314PRTH6Y	6	1	L, PR	Written
Quantum Computing	5334QUCO8Y	8	2	L	Written
Rationality, Cognition and Reasoning	187413086Y	6	1	PR	Written, oral
Recursion Theory	5314RETH6Y	6	1	PR	Written

Research Project Master of Logic	53142RPL6Y	6	1&2	IC	Written
Seminar Mathematical Logic	5314SEML3Y	3	1	L	Oral
Set Theory (VU)	53348SET8Y	8	1	L	Written, oral
Structures for Semantics	187413106Y	6	2	PR	Written, oral
Techno-Science and Epistemology	187415106Y	6	2	PR	Written, oral
Term Rewriting Systems (VU)	52848TER6Y	6	1	L, PR	Written
Thesis Master of Logic	5314TML30Y	30	1 & 2	IC	Written, oral
Time	187413077Y	6	2	PR	?
Unsupervised Language Learning	5204UNLL6Y	6	2	L, CP	Written, oral

L = Lectures, LS = Lab sessions, CP = Computer practical, PR = practical, IC = Individual coaching, GP = Group project