



UNIVERSITY OF AMSTERDAM

FACULTY OF SCIENCE
TEACHING AND EXAMINATION REGULATIONS
PART B

Academic year 2014-2015

MASTER'S PROGRAMME MATHEMATICAL PHYSICS

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Chapter 1. General Provisions

Article 1.1 – Definitions

In addition to part A, the following definitions are used in part B

- a. Personal Education Plan An individual study plan for the student's master programme.
- b. Research project Compulsory internship/master thesis of 42 EC always resulting in a written report
- c. Master Guidebook Booklet containing information on the master programme, including procedures and assessment criteria.

Article 1.2 – General information master's programme

1. The Master's programme Mathematical Physics, CROHO 60232, is offered on a full-time basis. The language of instruction for the programme is English. This means that the [Code of Conduct governing Foreign Languages at the UvA](#) and the provisions laid down in Section 7.2 of the Act apply.
2. The programme has a workload of 120 EC.

Article 1.3 – Enrolment

The programme starts at the beginning of the first semester (September) of the study year.

Chapter 2. Aim of the programme and exit qualifications

Article 2.1 – Aim of the programme

The aim of the programme is:

The objectives of the Master's programme is to provide students with a knowledge, abilities and insight in the field of mathematical physics to enable them to work as a mathematical physics professional at an international level, or to become qualified to pursue advanced training as scientific researcher in a Dutch or in a foreign university.

Article 2.2 – Exit qualifications

The student graduating from the programme:

- a) has a thorough theoretical and practical knowledge of modern mathematics and theoretical physics;
- b) has a good and broad overview of the problems, techniques and working methods of modern mathematical physics;
- c) is able to apply one's knowledge of mathematical physics in a broader (multidisciplinary) context;
- d) is capable of independent orientation and application of theoretical-physical as well as mathematical (international) professional literature;
- e) is able to formulate a research plan, based on a realistic problem within the discipline of mathematical physics;
- f) is able to carry out research independently into either a mathematical problem with a significant physical character, or to carry out research into a physical problem with a distinctive mathematical content;
- g) is able to analyse and formulate research results and to draw conclusions there from;
- h) is able to incorporate the obtained results and conclusions within the frame work of the results of other scientists;
- i) is able to write a scientific report;
- j) is able to exchange ideas with fellow researchers;
- k) is able to communicate with mathematicians with theoretical physicists as well in speech as in writing and by giving presentations that are comprehensive and interesting to both parties;

- l) is able to become acquainted with other sub-areas of mathematical physics within a reasonable period of time;
- m) is employable in those positions in which knowledge and research skills in the field of mathematical physics are required;
- n) has sufficient knowledge of and insight in the role of mathematical physics order to make a sound choice regarding one's own profession, as well as in the exertion of this profession.
- o) is able to form a vision on the development of scientific research in the field of study.

Chapter 3. Admission to the programme

Article 3.1 – Entry requirements

1. The Master's programme Mathematical Physics is a selective study programme.
2. Students who have successfully completed the double Bachelor's degree in *Wiskunde en Natuurkunde* awarded by the University of Amsterdam or by another Dutch University may be admitted.
3. Students who have successfully completed the following degrees may be admitted: the Bachelor's degree in *Natuurkunde* or *Natuur- en Sterrenkunde* or *Wiskunde* awarded by a Dutch university, with evident interest in physics and advanced mathematics. This interest must be made clear in a letter of application or during the intake interview.
4. Without prejudice to the provisions of paragraph 1, the Examination Board may grant admission to the study programme when concluding, that the previous education of the candidate is equivalent to the Bachelor's degree referred to in paragraphs 2 and 3.

Article 3.2 – Premaster's programme

Without prejudice to the provisions of Article 3.1 the Examination Board may grant admission to a student whose previous education does not meet aforementioned admission requirements to the study programme, when concluding that the candidate is able to meet these admission requirements within a reasonable period of time. At the request of a candidate, and when the Examination Board has decided additional education feasible, the Examination Board may draw up a programme of maximum 30 EC as an admission requirement, a so called 'conversion programme'. After completion of this conversion programme a letter of admission will be issued, exclusively for the stated Master's programme.

Article 3.3 – Restrictions on the number of students admitted to the Master's programme

Not applicable.

Article 3.4 – Intake dates

A request for admission to the programme must be submitted to the Faculty of Science and Master's programme before 1 May in the case of Dutch students, before 1 April in the case of EU students and before 1 February in the case of non-EU students. Under exceptional circumstances, the Examinations Board may consider a request submitted after this closing date.

Article 3.5 – English Language Requirements

1. Admission to the programme requires sufficient command of the English language. A student may take one of the following tests to establish language competence:
 - IELTS: 6.5
 - TOEFL paper based test: 580
 - TOEFL internet based test: 92-93
 - Cambridge Advanced English: C

2. Those possessing a Bachelor's degree from a Dutch university 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 mentioned in article 4.1 of these Regulations. The concrete details of such a curriculum require permission of the Examinations Board.
2. In order to be considered for a degree of this programme, at least one half of the proposed curriculum has to consist of components of the programme, including Thesis Research Project Mathematical Physics.

Chapter 4. Content and organisation of the programme

Article 4.1 – Organisation of the programme

The curriculum comprises the following:

Components	EC
Compulsory components	56
Elective components	4
Thesis Research Project Mathematical Physics	42
Master Thesis and Presentation	6
Seminar Mathematical Physics	6
Academic Skills	6
Total EC	120 EC

Article 4.2 – Compulsory components

1. The compulsory components are listed in Appendix 1. The contents and format of the compulsory components are further described in the Course Catalogue, stating the entry requirements for successful participation in the component.
2. The Academic Skills in the regular programme consist of components with a study load of 6 EC, 3 EC of which must be the English Academic Course (5524ENAC3Y), unless the student is a native speaker. The student may complete the Academic Skills in the regular programme by participating in the relevant components as described in the Course Catalogue.
3. Thesis Research Project Mathematical Physics and Master Thesis and Presentation:
 - a. At the end of the thesis research project and the master thesis and presentation the responsible lecturer checks on the basis of the assessment form, if the student has sufficiently achieved the set exit qualifications. The assessment criteria are described in the master guidebook.
 - b. In the assessment of the thesis research project and the master thesis and presentation
 - i. the advice of a second staff member will be obtained;
 - ii. the final report will be attended by the responsible lecturer, the second reviewer and a member of the Examinations Board;
 - iii. the result of the thesis research project and the master thesis and

- presentation will be determined in a private meeting of the responsible lecturer, the second reviewer and a member of the Examinations Board;
- c. Students write a short non-specialist summary in either Dutch or English.

Article 4.3 – Practical components

Not applicable.

Article 4.4 – Elective components

1. Elective courses are listed in Appendix 1.
2. Course components successfully completed elsewhere or that are not included in the list of elective components may be included in the student's programme, subject to prior permission from the Examinations Board.
 - a. The courses have to be followed at an accredited university or institute that are according to the Examinations Board of a comparable level.
 - b. The course has to be relevant to the programme.
3. In terms of content, elective components must not show too much similarity to other components of the student's curriculum. The acceptable degree of similarity will be decided by the Examinations Board.

Article 4.5 – Sequence and admission requirements

1. Participation in a course may be restricted to students that have not completed certain other components. Information about admission requirements can be found in the study guide.

Article 4.6 – Participation practical training and tutorials

Not applicable.

Article 4.7 – Exemption

1. At the written request of the student, the Examinations Board may exempt the student from taking one or more examination components, if the student:
 - a. Has passed a component of an accredited academic or higher professional education programme that is equivalent in both content and level;
 - b. Has demonstrated through his/her work and/or professional experience that he/she has sufficient knowledge and skills with regard to the relevant component.
2. This exemption does not apply to the Master's research project.
3. Exemptions from examinations (or parts thereof), if granted, will be valid for the same period of examinations.
4. A maximum of 60 EC in the programme in the case of two-year programmes can be accumulated through granted exemptions.

Article 4.8 – Validity period of examinations

1. The validity period of passed examinations is three years.
2. In individual cases, the Examinations Board is authorised to extend the validity period of successfully completed examinations for a period that it determines or to decide that an additional or replacement examination must take place.
3. The validity period of passed interim examinations is maximally until the end of the academic year (31 August).

Article 4.9 – Degree

A student who passes the final examination of a programme is awarded a Master of Science degree. The degree awarded is stated on the diploma.

Article 4.10 – Joint National Master’s Programme

Students taking courses as part of the national Master Mathematics may also be subject to rules and regulations which have been agreed on nationally. These regulations can be found on: www.mastermath.nl -> ‘Courses and Exams’.

Article 4.11 – Double Master’s programme (two-year programmes)

In order to be awarded two Master’s degrees, the following requirements must be met:

1. The total programme of the candidate should amount to at least 180 EC credits.
2. The candidate’s work for the programme (lectures, research work, etc.), must be of such a standard that all the exit qualifications 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 research projects with supervisors from the respective study programmes. In the case of an integrated research project, this must be supervised by two staff members appointed from the two study programmes. Both staff members must assess the work as a pass.
4. The Examinations Boards of both study programmes must approve the student’s double Master’s programme before the student commences on the double Master’s programme.

Chapter 5. Transitional and final provisions

Article 5.1 – Amendments

1. The dean shall establish amendments to the part B of these Regulations by independent decision – having heard the board of studies and with due regard for the authority of the relevant advisory bodies.
2. Amendments to these regulations take place following a recommendation by the board of studies relating to the regulations in their entirety, and with the endorsement of a joint meeting of those sections which do not relate to the subject of Article 7.13 paragraphs 2a to g, and paragraph 3 of the Act and the admission requirements for Master’s programmes.
3. 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 student’s interest.

Article 5.2 – Cancelled programme components

Not applicable.

Article 5.3 – Publication

1. The dean shall ensure a fitting publication of part A and B of these Regulations and the rules and guideline referred to in the Act.
2. These regulations can be accessed at the website of the Faculty of Science and the UvA Course Catalogue.

Article 5.3 – Effective date

Part B of these Regulations shall come into force as of September 1st, 2014

Adopted by the dean on 30 September 2014

Appendix 1. Description of the content and study load of the components

Compulsory components

Component	Code	Study load (EC)	Period	Teaching Method
Seminar Mathematical Physics	5324SEMP6Y	6	1,2	Presentations
Algebraic Geometry	53348ALG8Y	8	4,5	Lectures
Algebraic Topology	53348ALT8Y	8	1,2	Lectures
Mirror Symmetry	5324MISY6Y	6	4,5	Lectures
Non-commutative Geometry	5324NOCG6Y	6	4,5	Lectures
Quantum Field Theory	5354QUFT6Y	6	2	Lectures
Semisimple Lie Algebras	5334SELA8Y	8	4,5	Lectures
Statistical Physics and Condensed Matter Theory I	53541SPC6Y	6	1	Lectures
Symplectic Geometry	53248SYG8Y	8	1,2	Lectures
Master Thesis and Presentation	5324MATP6Y	6	All	Presentations
Thesis Research Project Mathematical Physics	5324TRM42Y	42	All	Project
English Academic Course	5524ENAC3Y	3	2,3,5,6	Lectures

Constrained choice Academic Skills components

Component	Code	Study load (EC)	Period	Teaching Method
Academic Skills	5524ACSK2Y	2	All	
Academic Skills; Critical Thinking	5524ASCT3Y	3	3,6	Lectures
Science in Perspective	5524SCPE6Y	6	4,5	Lectures
Survival Guide for Scientists	5524SGFS3Y	3	6	Lectures

Elective components

Component	Code	Study load (EC)	Period	Teaching Method
Abelian Varieties	53348ABV8Y	8	1,2	Lectures
Advanced Quantum Mechanics	53548AQM6Y	6	1	Lectures
Differentiaalmeetkunde	51228DIF6Y	6	1,2	Lectures
General Relativity	5354GERE6Y	6	4	Lectures
Quantum Field Theory, extension	5354QFTE3Y	3	3	Lectures
Statistical Physics and Condensed Matter Theory II	53542SPC6Y	6	5	Lectures
Statistical Physics and Condensed Matter Theory, extension	5354SPCM3Y	3	3	Lectures
String Theory	5354STTH6Y	6	5	Lectures