Master's degree programme Mathematics

Appendix A Teaching outcomes of the degree programme (art. 1.3)

The degree programme aims to train the students in such a way that they acquire the insight, skills and knowledge that allows the recipient of the degree to establish a professional career in the field of Mathematics.

Appendix B Specializations of the degree programme (art. 2.2)

The degree programme has a P-variant and an M-variant with the following specializations:
P-variant:

- Algebra and Geometry
- Dynamical Systems and Analysis
- Statistics and Probability

M-variant:

- Science, Business and Policy

Appendix C Content of the degree programme (art. 2.3)

P-variant

The P-variant of the degree programme has the following specializations:

- Algebra and Geometry
- Dynamical Systems and Analysis
- Statistics and Probability

The master programme comprises 120 ECTS.

The requirements on the programme are the following.

Parts	*Constraints*	*ECTS*
Student colloquium		*5*
At least five modules from the list of modules given at the University of Groningen, the modules in the specialization area are compulsory	*Specialization Algebra and Geometry:* - Caput Algebra and Geometry (annual) - Applied Geometry (annual) *Specialization Dynamcial Systems and Analysis:* - Dynamical Systems and Chaos (annual) - Caput Dynamical Systems (every two years, 2010-2011) - Caput Mathematical Physics (every two years, 2011-2012)	≥ 25

	Specialization Statistics and Probability: - Contemporary Statistics with Applications (every two years, 2010-2011) - Statistical Genomics (every two years, 2011-2012) *Specialization Computational Science and Numerical Mathematics (Applied mathematics) ;* - Computational Fluid Dynamics (annual) - Computational Engineering (every two years , 2010-2011) - Boundary Layers (every two years, 2011-2012) *Specialization Systems, Control and Optimization (Applied mathematics):* - Robust Control (annual) - Modeling and Identification (every two years, 2010-2011) - Introduction to Optimization (every two years, 2011-2012)	
At least three modules from the Mastermath programme	From these modules at least two have to be in the specialization area and at least one has to be outside the specialization area. For information on the modules of the Mastermath programme see http://www.mastermath.nl	≥18
Advanced modules of programmes taught at the University of Groningen other than the master programmes mathematics and applied mathematics	These modules have to be of at least third year bachelor level, and have to be relevant for the master Mathematics (at the discretion of the exam committee).	≤ 10
Free choice		≤ 5
Final Research Project	Research project in the specialization area.	50

M-variant

The M-variant of the degree programme is called *Science, Business and Policy*.
The master programme comprises 120 ECTS and consists of a mathematical component (60 ECTS) and a Business and Policy component (60 ECTS)

The requirements on the programme are the following.

Mathematical component (60 ECTS)		
Parts	*Constraints*	*ECTS*
At least three modules from the list of modules given at the University of Groningen. At two modules have to be chosen from the modules of the specialization area.	*Specialization Algebra and Geometry:* - Caput Algebra and Geometry (annual) - Applied Geometry (annual) *Specialization Dynamical Systems and Analysis:* - Dynamical Systems and Chaos (annual) - Caput Dynamical Systems (every two years, 2010-2011) - Caput Mathematical Physics (every two years, 2011-2012) *Specialization Statistics and Probability:* - Contemporary Statistics with Applications (every two years, 2010-2011) - Statistical Genomics (every two years, 2011-2012) *Specialization Computational Science and Numerical Mathematics ;* - Computational Fluid Dynamics (annual) - Computational Engineering (every two years , 2010-2011) - Boundary Layers (every two years, 2011-2012) *Specialization Systems, Control and Optimization:* - Robust Control (annual) - Modeling and Identification (every two years, 2010-2011) - Introduction to Optimization (every two years, 2011-2012)	≥ 15
At most three modules from the Mastermath programme	For information on the modules of the Mastermath programme see http://www.mastermath.nl	≤ 18
Advanced modules of programmes taught at the University of Groningen other than the master programmes mathematics and applied mathematics	These modules have to be of at least third year bachelor level, and have to be relevant for the master Mathematics (at the discretion of the exam committee).	≤ 10
Mathematical Research Project	Research project in the specialization area.	30

Business and Policy component (60 ECTS)		
Parts	*Constraints*	*ECTS*
Module Science, Business and Policy		20
Internship Science, Business and Policy		40

The Mathematics and Applied Mathematics modules given at the University of Groningen are

module	**offered**	**ECTS**	**assessment**	**practical**
Caput Algebra and Geometry	annual	5	Take home exam followed by an oral discussion of the problems	
Applied Geometry	annual	5	Homework, oral presentation, final assignment, report	
Boundary Layers	every two years	5	Oral examination	x
Caput Dynamical Systems	every two years	5	Oral presentation, essay	
Caput Mathematical Physics	every two years	5	Oral presentation, essay	
Computational Engineering	every two years	5	Assignments, oral presentation	
Computational Fluid Dynamics	annual	5	Assignments, oral examination	x
Contemporary Statistics with Applications	every two years	5	Homework, final project, examination	
Dynamical Systems and Chaos	annual	5	Oral presentation, essay	
Final Research Project	annual	50	Assessment of performance, report, oral presentation	
Introduction to Optimization	every two years	5	Homework, oral examination	
Mathematical Research Project	annual	30	Assessment of performance, report, presentation	
Modeling and Identification	every two years	5	Take home exams followed by an oral discussion of the problems	
Robust Control	annual	5	Take home exam followed by an oral discussion of the problems	
Statistical Genomics	every two years	5	Homework, final project, examination	
Student Colloquium	annual	5	Oral presentation, article	

The modules of the Business and Policy component are

module	offered	ECTS	assessment	practical
Science, Business and Policy	annual	20	Assignment, examination	
Internship Science, Business and Policy	annual	40	Assessment of performance, reports	

For information on the modules of the Mastermath programme see http://www.mastermath.nl.

For information on the modules of programmes of the University of Groningen other than the master programmes mathematics and applied mathematics see the teaching and examination regulations of the corresponding programme.

Appendix D Optional modules (art. 2.4)

See Appendix C.

Appendix E Entry requirements and compulsory order of examinations (art. 3.2)

The entry requirement for the internship Science, Business and Policy is a successful completion of the module Science, Business and Policy (20 ECTS) and the mathematical research project (30 ECTS).

Appendix F Admission to the degree programme and different specializations (art. 4.1.1 + art. 4.2)

Holders of the following Bachelor's degree from the University of Groningen are considered to have sufficient knowledge and skills and will be admitted to the Master's degree programme in Mathematics on that basis:

- BSc Mathematics
- BSc Applied Mathematics

Appendix G Application deadlines for admission and deadlines for decision (art. 4.5.1 +4.5.3)

Deadlines for application are:

- June 1st 2012 for EU student
- April 15th 2012 for non-EU students

Deadlines for decision are:

- July 1st 2012 for EU student
- June 15th 2012 for non-EU students