



## Appendices

### Master's degree programme Applied 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 Applied Mathematics.

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

The degree programme has the following specializations:

- Computational Science and Numerical Mathematics
- Systems, Control and Optimization

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

The degree programme has the following specializations:

- Computational Science and Numerical Mathematics
- Systems, Control and Optimization

The master programme comprises 120 ECTS.

The requirements on the programme are the following.

<i>Parts</i>	<i>Constraints</i>	<i>ECTS</i>
<b>Student colloquium</b>		5
<b>At least five modules from the list of modules given at the University of Groningen, the modules in the specialization area are compulsory</b>	<p><i>Specialization Algebra and Geometry (Mathematics):</i></p> <ul style="list-style-type: none"> <li>- Caput Algebra and Geometry (annual)</li> <li>- Applied Geometry (annual)</li> </ul> <p><i>Specialization Dynamical Systems and Analysis (Mathematics):</i></p> <ul style="list-style-type: none"> <li>- Dynamical Systems and Chaos (annual)</li> <li>- Caput Dynamical Systems (every two years, 2010-2011)</li> <li>- Caput Mathematical Physics (every two years, 2011-2012)</li> </ul>	≥ 25



	<p><i>Specialization Statistics and Probability (Mathematics):</i></p> <ul style="list-style-type: none"> <li>- Contemporary Statistics with Applications (every two years, 2010-2011)</li> <li>- Statistical Genomics (every two years, 2011-2012)</li> </ul> <p><i>Specialization Computational Science and Numerical Mathematics ;</i></p> <ul style="list-style-type: none"> <li>- Computational Fluid Dynamics (annual)</li> <li>- Computational Engineering (every two years, 2010-2011)</li> <li>- Boundary Layers (every two years, 2011-2012)</li> </ul> <p><i>Specialization Systems, Control and Optimization:</i></p> <ul style="list-style-type: none"> <li>- Robust Control (annual)</li> <li>- Modeling and Identification (every two years, 2010-2011)</li> <li>- Introduction to Optimization (every two years, 2011-2012)</li> </ul>	
<b>At least three modules from the Mastermath programme</b>	<p>From these modules at least two have to be in the specialization area and at least one has to be outside the specialization area.</p> <p>For information on the modules of the Mastermath programme see <a href="http://www.mastermath.nl">http://www.mastermath.nl</a></p>	$\geq 18$
<b>Advanced modules of programmes taught at the University of Groningen other than the master programmes mathematics and applied mathematics</b>	<p>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).</p>	$\geq 10$
<b>Free choice</b>		$\leq 5$
<b>Final Research Project</b>	<p>Research project in the specialization area. An internship of at least 15 ECTS is part of this project.</p>	50

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

<b>module</b>	<b>offered</b>	<b>ECTS</b>	<b>assessment</b>	<b>practical</b>
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	

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)**

For students admitted to the programme there are no entry requirements for the individual modules.

## **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 Applied Mathematics:

- 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 1<sup>st</sup> 2012 for EU student
- April 15<sup>th</sup> 2012 for non-EU students

Deadlines for decision are:

- July 1<sup>st</sup> 2012 for EU student
- June 15<sup>th</sup> 2012 for non-EU students