Master's Program in Mathematics

Important Organisational Information

Summer Term 2019
Welcome to Bonn!

Probability and Stochastic Analysis

Numerics and Scientific Computing

Algebra, Number Theory and Logic

Discrete Mathematics

Geometry and Topology

Analysis and Differential Equations
Welcome to Bonn!

For all affairs concerning the study organisation, please contact the Bachelor-Master-Office

bama@math.uni-bonn.de
Our Master's Program in Mathematics
Outline

• Sources of Information
• Mathematics in Bonn
• Module Types
• Study Planning
• Examination Affairs
• Semester Calendar
Sources of Information – Website

You can find most of the information given in this presentation in the internet on

www.mathematics.uni-bonn.de/study/master/

Please click on the flag for the English version.
Sources of Information – E-Mail

Upon registration at the University, you were given a @uni-bonn.de e-mail account.

During the semester, we will regularly notify you of important dates, deadlines and events by sending e-mails to your @uni-bonn.de-account.

We do not send these e-mails to any other e-mail accounts.
Sources of Information – E-Mail

So please check your @uni-bonn account regularly or set up automatic forwarding to another e-mail account.
The website https://basis.uni-bonn.de has two functions:

1. It contains the course overview for the current (and, in time, for the next) semester.

2. With your @uni-bonn.de login, you will use BASIS to register for exams. Registration periods:
   - in October/April for graduate seminars/practical trainings,
   - in December/June for lecture courses.
Mathematics in Bonn

The University of Bonn has four mathematical institutes:

• Mathematical Institute (MI, pure mathematics)
• Institute for Applied Mathematics (IAM)
• Research Institute for Discrete Mathematics (DM)
• Institute for Numerical Simulation (INS)

All institutes collaborate in offering our Bachelor, Master and PhD studies.
Mathematics in Bonn

They participate in the Hausdorff Center for Mathematics (HCM, Cluster of Excellence).

HCM is also home to the Hausdorff Research Institute for Mathematics (HIM).
Areas

A) Algebra, Number Theory, and Logic
B) Analysis and Differential Equations
C) Discrete Mathematics
D) Geometry and Topology
E) Numerical Mathematics and Scientific Computing
F) Probability and Stochastic Analysis

From each area, there are various kinds of modules offered in the Master's program.
Lecture Modules

- **Foundation** lecture course (4 h/week) with problem sessions (2 h/week), **9 CP**
  May be held in German!

- **Graduate** lecture course (4 h/week) with problem sessions (2 h/week), **9 CP**

- **Advanced topics** lecture course (4 h/week) without problem sessions, **7 CP**

- **Selected topics** lecture course (2 h/week) without problem sessions, **5 CP**
Lecture Modules

- Module code: **V/F-year-area-#**, e.g. **V4A1** (Algebraic Geometry I) or **F4B1** (Foundation in Analysis and PDE)

- The module examination can be a written or an oral exam.

- Exams take place at the end of the lecture period.

- Upon failing, a compulsory retry is scheduled at the end of the term.
Graduate Seminar Modules

- Always 6 CP

- Module code: S-year-area-#, e.g. S4D1 (Graduate Seminar on Differential Geometry)

- In a seminar the students present the mathematics.

- Normally, every student gives a 90-minute-talk on a small part of the material presented in the seminar.
Graduate Seminar Modules

- The professor or one of his assistants can help with the preparation of the talk.
- The seminar talk will be graded as the exam.
- Normally, there is a preparatory meeting for every seminar at the end of the previous semester.
- If you are interested in doing a seminar in this term you should contact the professor as soon as possible!
Practical Training Course Modules

Various practical training courses of 9 CP are also offered as optional modules in the program:

- Practical Teaching Course
- External Internship
- Practical Project in Mathematical Logic
- Combinatorial Algorithms
- Algorithms for Chip Design
- Practical Lab Numerical Simulation
Secondary Subject

If you are interested in picking up a secondary subject

• Physics
• Economics
• Computer Science
• ...

please contact the Bachelor-Master-Office.
Study Planning

• You yourself are in charge of your studies.

• You have to select courses yourself and make sure all requirements for the Master's degree are met.

• If you have questions concerning your study plan, you should contact your mentor.

• For each area (A to F) there is one (or sometimes two) mentor(s) for all Master students with their major in this area.
Mentors A to C

Mentors of the summer term 2019 and times of the first meetings:

A. Prof. Catharina Stroppel
   Fri 5 April 2019, 10:30h, room 4.007 EN60

B. Prof. Juan Velázquez
   Tue 2 April 2019, 10:00h, room 2.023 EN60

C. Prof. Stephan Held
   Tue 2 April, 13:45h
   Gerhard-Konow-Hörsaal, Lennéstr. 2
Mentors D to F

Mentors of the summer term 2019 and times of the first meetings:

D. Prof. Stefan Schwede  
   Tue 2 April, 12:00h, room 2.008 EN60

E. Prof. Carsten Burstedde  
   Tue 2 April, 15:30h, room 2.041 EN19b

F. Prof. Andreas Eberle  
   Wed 3 April, 16:45h, room 4.049 EN60
How to Find Your Mentor on BASIS
Requirements for the Master's Degree

- **120** Credit Points (CP).

- At least **48** CP in lecture courses, with at least **23, 16 resp. 9** CP from three different areas.

- **12** CP in graduate seminars (at least 2 graduate seminars).

- **30** CP Master's thesis.

- **6** CP Master's thesis seminar.

- **24** CP from other lecture modules, graduate seminars, optional practical training courses, or modules from an optional secondary subject.
Master Studies

Lecture Courses
Area 1
at least 23 CP

Lecture Courses
Area 2
at least 16 CP

Lecture Courses
Area 3
at least 9 CP

Graduate Seminars
at least 12 CP

Remaining 24 CP
more lecture courses, seminars, practical training courses,
second subject, …

Master’s Thesis
30 CP

Master’s Thesis Seminar
6 CP
Module Handbook

All the modules offered in the Master's program are listed in the module handbook.

You can download the module handbook from our website: www.mathematics.uni-bonn.de/study/master/documents/

Not all modules are offered every semester.

You can find the actual course overview on https://basis.uni-bonn.de.
Who Can Help with Your Study Plan?

• All **academic** questions concerning your studies: Your Mentor

• All **organisational** questions concerning your studies and examinations:
  The Bachelor-Master-Office
  bama@math.uni-bonn.de
Examination Affairs

Every module has a module examination.

Grading:

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
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<tbody>
<tr>
<td>1.0, 1.3</td>
<td>Very good</td>
</tr>
<tr>
<td>1.7, 2.0, 2.3</td>
<td>Good</td>
</tr>
<tr>
<td>2.7, 3.0, 3.3</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>3.7, 4.0</td>
<td>Sufficient</td>
</tr>
<tr>
<td>5.0</td>
<td>Fail</td>
</tr>
</tbody>
</table>
Failing a Module Examination

• A lecture course module examination is failed if both the exam at the end of the lecture period and the retry at the end of the term are failed.

• A graduate seminar or practical training course module examination is failed if the seminar talk or the presentation / report / project in the practical training course was graded with 5.0 (fail).

• If a module examination is failed, you may repeat the module examination once. Repetition is possible in a later semester in which the module is offered again.
Failing the Master Studies

• If the Master's thesis seminar is failed twice, the Master studies are failed.

• If the repeated Master's thesis receives the grade “fail”, the Master studies are failed.
Reporting Ill

• If you are ill on the date of your exam, you have to report ill to the Bachelor-Master Office on the same day.

• You have to hand in a medical certificate within one week. The certificate has to confirm that you have been unable to do an exam ("Prüfungsunfähigkeit"). The yellow form “Arbeitsunfähigkeitsbescheinigung” is not sufficient.
Semester Calendar

Next steps:

• Registration for the Master examination: as of now until 10 April 2019
• Registration for graduate seminars and practical trainings: 01 - 30 April 2019
• Registration for lecture course module examinations: 01 - 20 June 2019

The registration is done online on www.basis.uni-bonn.de.
Exception: External internships

All information available on www.mathematics.uni-bonn.de/study/master
Courses Area A – ST 2019

F4A1-1 **Algebra I** - Dr. T. Heidersdorf

**V4A2** **Algebraic Geometry II** - Prof. G. Oberdieck

**V4A3** **Representation Theory I**
- Prof. C. Stroppel

**V4A8** **Models of Set Theory I** - Dr. P. Lücke

**V5A2** **Sel. Top. in Algebra** - Prof. P. Scholze

**V5A4** **Sel. Top. in Algebraic Geometry**
- 1) Dr. H.-Y. Lin - 2) Dr. A. Ivanov
- 3) D. Izquierdo

**V5A5** **Sel. Top. in Math. Logic** - Prof. P. Koepke
Courses Area B – ST 2019

F4B1-1 PDE & Modelling - Prof. B. Niethammer

V4B2 Nonlinear PDE II - Prof. S. Müller

V4B3 Advanced Global Analysis I
- Dr. B. Güneysu

V4B5 Real and Harmonic Analysis
- Prof. C. Thiele

V5B1 Adv. Top. in Anal. & PDE - Prof. J. Velázquez

V5B5 Adv. Top. in Anal. & Calc. Var.
- Dr. F. Gmeineder

V5B7 Adv. Top. in Analysis
- 1) Dr. F. Gonçalvez - 2) Dr. P. Zorin-Kranich

V5B8 Sel. Top. in Analysis - Dr. K. van den Dungen
Courses Area C – ST 2019

F4C1-1 Linear and Integer Optimization  
   - Dr. U. Brenner

V4C2 Approximation Algorithms  
   - Prof. S. Hougardy

V4C3 Chip Design  
   - Prof. S. Held

V5C2 Sel. Top. in Discrete Mathematics  
   - Prof. J. Vygen
Courses Area D – ST 2019

F4D1-2 Topology II - Dr. D. Kasprowski

V4D2 Algebraic Topology II
- Dr. B. Böhme/Prof. S. Schwede

V4D3 Advanced Geometry I
- Dr. C. Blohmann

V4D4 Advanced Geometry II
- Dr. B. Pozzetti

V5D2 Sel. Top. in Topology - Dr. F. Misev
V5D3 Adv. Top. in Geometry - Dr. B. Petri
Courses Area E – ST 2019

F4E1-2 Scientific Computing II
  - Prof. C. Burstedde

V4E2 Numerical Simulation
  - Prof. M. Rumpf

V5E2 Sel. Top. in Numerical Methods in Science and Technology
  - Prof. J. Garcke
Courses Area F – ST 2019

F4F1-1 Stochastic Processes
   - Prof. M. Gubinelli

V4F1 Stochastic Analysis
   - Prof. A. Eberle

V5F5 Adv. Top. in Applied Probability
   - Prof. A. Bovier
# Bachelor-Master Office Mathematics

<table>
<thead>
<tr>
<th>Study Counselling Study Organisation</th>
<th>Regular Office Hours Secretariat</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Dr. Antje Kiesel</td>
<td>Ute Lemmer</td>
</tr>
<tr>
<td>Hildegard Gebertz</td>
<td>Sabine George</td>
</tr>
<tr>
<td>Endenicher Allee 60</td>
<td>Endenicher Allee 60</td>
</tr>
<tr>
<td>Room 0.005 / 0.010</td>
<td>Room 0.004</td>
</tr>
<tr>
<td>- 0228/73 -2468 / -2934</td>
<td>- 0228/73-3180</td>
</tr>
<tr>
<td>- Office hours:</td>
<td>- Office hours:</td>
</tr>
<tr>
<td>- Tue 11 a.m. - 1 p.m.</td>
<td>Mon, Tue, Thu 9 - 12 a.m.</td>
</tr>
<tr>
<td>Fri 10 - 12 a.m.</td>
<td>Wed 1 - 4 p.m.</td>
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Three Things to Remember

• Check regularly
  www.mathematics.uni-bonn.de/study/master

• Use or forward your
  @uni-bonn.de e-mail account

• and…
Enjoy your studies!

We wish you great and fruitful studies in Bonn!