Master's Program in Mathematics
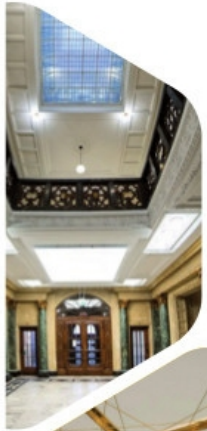
Important Organisational Information

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

Outline

- Sources of Information
- Mathematics in Bonn
- Module Types
- Study Planning
- Offers for Beginners
- Examination Affairs
- Semester Calendar

Sources of Information – Website

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

https://www.mathematics.uni-bonn.de/studium/en/ study-programs/master-program-mathematics

Sources of Information – E-Mail

Upon registration at the University, you were given a **@uni-bonn.de** e-mail account.
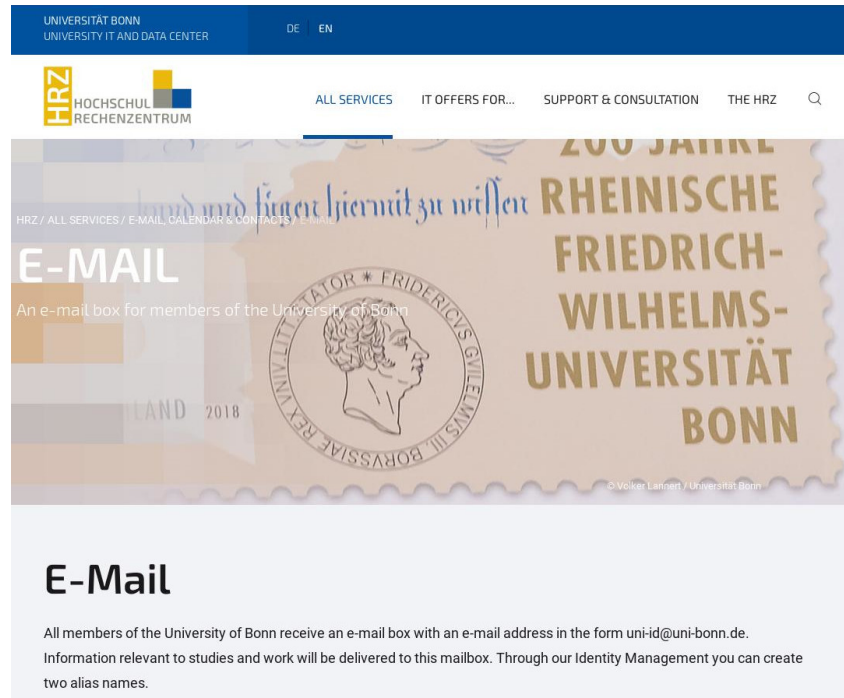
Throughout your studies, we will regularly send out **information mails** to this address (e.g. notifying you of important regulations, deadlines and events).

These messages are sent out **only** to the @uni-bonn.de e-mail accounts.

Sources of Information – E-Mail

So please **check your @uni-bonn** account **regularly** and make sure its quota is not exceeded.

Forwarding to an external e-mail account is **not** possible!

UNIVERSITÄT BONN
UNIVERSITY IT AND DATA CENTER   DE EN

HRZ HOCHSCHUL RECHENZENTRUM   ALL SERVICES   IT OFFERS FOR...   SUPPORT & CONSULTATION   THE HRZ

HRZ / ALL SERVICES / E-MAIL, CALENDAR & CONTACTS /

E-MAIL
An e-mail box for members of the University of Bonn

E-Mail

All members of the University of Bonn receive an e-mail box with an e-mail address in the form uni-id@uni-bonn.de. Information relevant to studies and work will be delivered to this mailbox. Through our Identity Management you can create two alias names.

Sources of Information – Campus Platform

!!! NEW CAMPUS PLATFORM IN MAY - PLEASE READ YOUR MESSAGES !!!

The campus platform has several functions:

1. It contains the **course overview** for each semester.

2. It contains the link to the **eCampus** course of a lecture or seminar, if available.

3. If you use your @uni-bonn.de login, you can
    - register for **exams**,
   - access and download your current **transcript of records**.

https://studienservice.uni-bonn.de

until 30 April 2025: **https://basis.uni-bonn.de**

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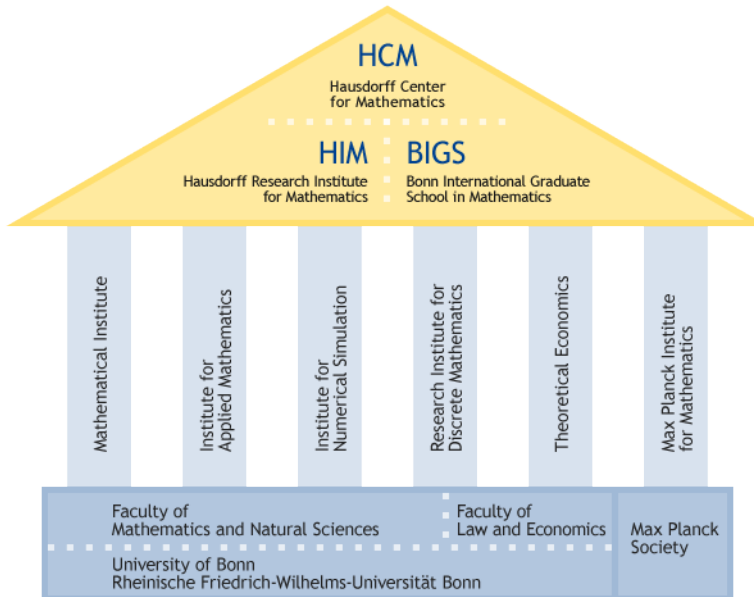
All institutes collaborate in offering our Bachelor, Master and PhD studies.

They participate in the **Hausdorff Center for Mathematics** (HCM, Cluster of Excellence) which is also home to the **Hausdorff Research Institute for Mathematics** (HIM).
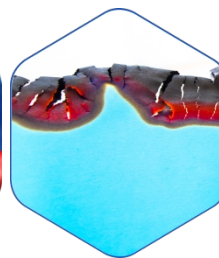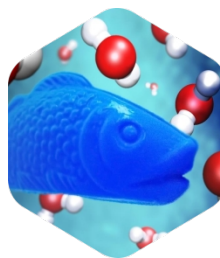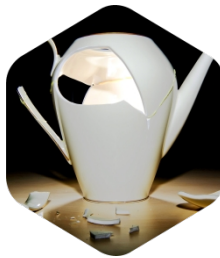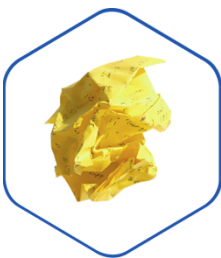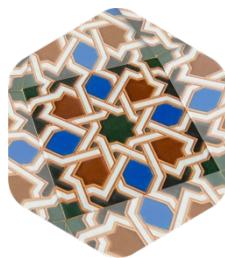
Areas

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.

Module V4A1	Algebraic Geometry I		
Credit Points 9	Workload: 270 h	Duration: 1 semester	Offered: every se...etry I/II. Algebra
Person in Charge	Responsible professor for area A		
Instructors	Any lecturer of area A		
Purpose of Module	Program Master Mathematics	Mode optional mod...	
Learning Targets	Broad overview and understanding of area of algebraic geometry. Compet... of the methods and techniques and... results to concrete problems.		

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 the 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 semester 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
- Programming Labs

  Practical Project in Mathematical Logic

  Combinatorial Algorithms / Algorithms for Chip Design

  Practical Lab Numerical Simulation /
  Practical Lab Advanced Scientific Computing
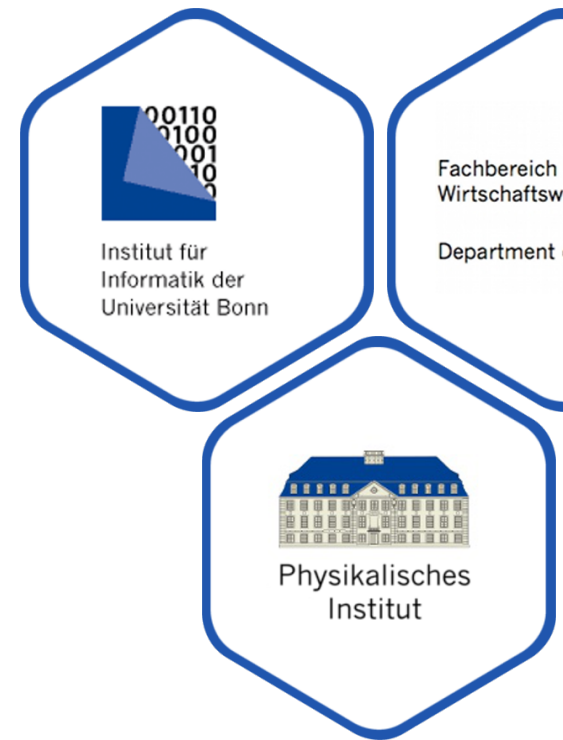
  Practical Lab Mathematical Biology and Data Science

Secondary Subject

If you are interested in picking up
a secondary subject

- Physics
- Economics
- Computer Science
- …

please contact the **Bachelor-Master Office Mathematics**.

Study Planning

- **You yourself are in charge of your studies.**

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

-

- Help and support can be found in several ways...

Program for Beginners: Academic Mentoring

Upon admission to the Master's program you are assigned to a **professor** of your indicated **major** area as your **mentor**. Your mentor will help you to design your optimal study plan and will answer your **academic** questions.

- Within the following days each of the mentors will have a **joint** introductory meeting with all their mentees.

- At the end of your first semester, you will have an **individual** counselling talk with your mentor.

This mentoring program is **obligatory**.

Mentors A to C

Introductory meetings of the mentors:

(MZ = Mathematikzentrum, Endenicher Allee 60)

A. Prof. Jan Schröer
  Mon 7 Apr. 10:15 a.m., MZ 1.007

B. Prof. Juan Velázquez
  Tue 8 Apr. 2:15 p.m., MZ 2.025

C. Prof. Stephan Held
  Tue 8 Apr. 1:50 p.m.,
  Seminar room Arithmeum (Lennéstr. 2)
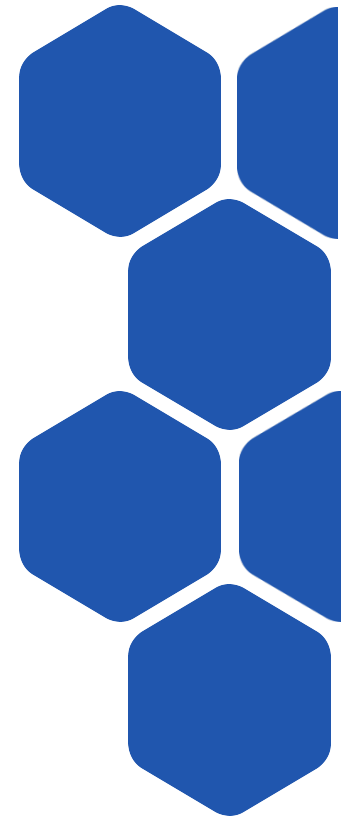
Mentors D to F

Introductory meetings of the mentors:
(MZ = Mathematikzentrum, Endenicher Allee 60)

D. Prof. Markus Hausmann
    Mon 7 Apr. 12:15 p.m., MZ 1.007

E. Prof. Ira Neitzel
    Mon 7 Apr. 10:30 a.m.,
    INS 2.041 (Friedrich-Hirzebruch-Allee 7)

F. Prof. Andreas Eberle
    Mon 7 Apr. 10:15 a.m.,
    MZ 4.049
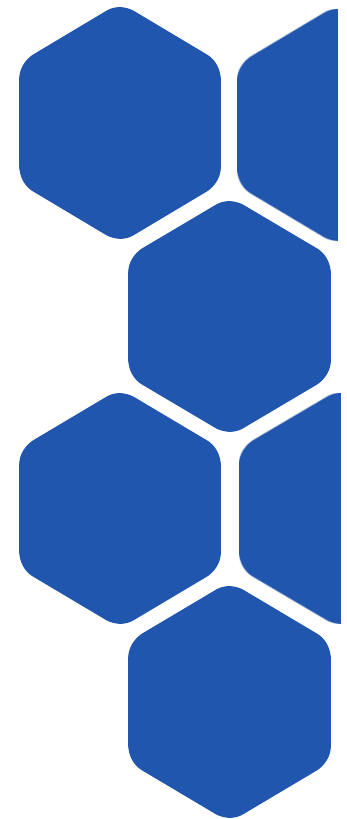
How to Find Your Mentor on BASIS

Who Can Help with Your Study Plan?

- For **academic** questions concerning your studies, please turn to **your mentor.**

- For **organisational** questions concerning your studies and examinations please turn to the **Bachelor-Master Office Mathematics** (bama@math.uni-bonn.de).

- If you are looking for **support** from fellow students you can contact the student council ('Fachschaft') (master@fsmath.uni-bonn.de).

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

Electives
Lecture Courses, Seminars, Practical Training Courses, Secondary Subject,…
at most **24** CP

Master's Thesis
30 CP

Master's Thesis Seminar
6 CP

Module Handbook

Module Handbook
for the Master's Program in Mathematics
at the University of Bonn
Version of 14 March 2017

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/studium/en/study-programs/master-program-mathematics#po-mh

You can find the **actual course overview** on https://basis.uni-bonn.de.
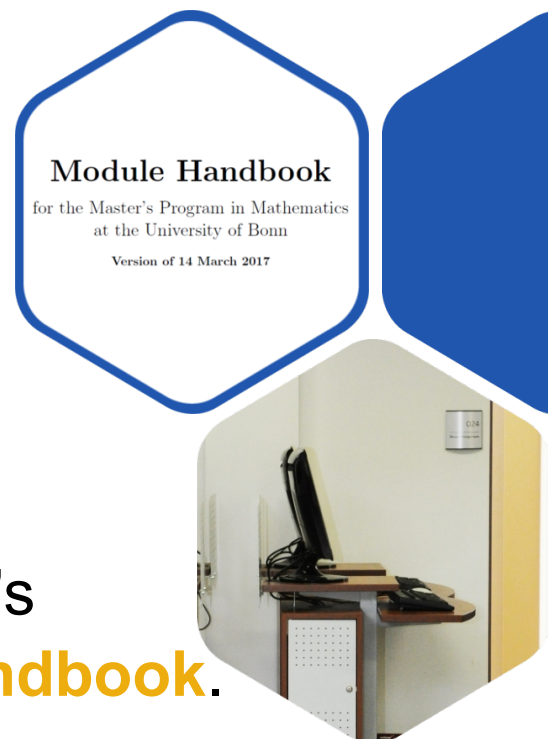
Module Examinations

Every module has a module examination which is normally graded.

Grading table:

1.0 / 1.3	Sehr gut	Very Good
1.7 / 2.0 / 2.3	Gut	Good
2.7 / 3.0 / 3.3	Befriedigend	Satisfactory
3.7 / 4.0	Ausreichend	Sufficient
5.0	Nicht bestanden	Fail

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.
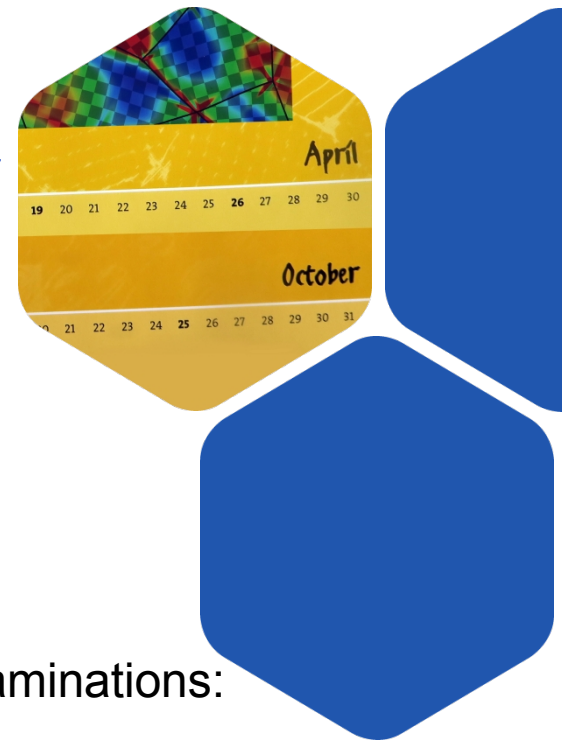
Reporting III

- 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** (in person at the Bachelor-Master office): **as of now until 30 October/April**

- Registration for **graduate seminars** and **practical trainings**: **1-30 October/April**

- Registration for **lecture course** module examinations: Starting on **1 December/June**, ending
    - 2 weeks before the date of the 1st exam for **written** exams,
    - 2 weeks before the end of the lecture period for **oral** exams

Registration for exams **online** on the Campus platform,

exception: Additional Modules and External Internships

All information available on
www.mathematics.uni-bonn.de/studium/en/study-organization/calendar/master-mathematics

Bachelor-Master Office Mathematics

Study Counselling Study Organisation	Secretariate
Dr. Antje Kiesel Hildegard Gebertz	Frauke Grimm Sabine George
Endenicher Allee 60 Room 0.005 / 0.010	Endenicher Allee 60 Room 0.004
0228/73 -2468 / -2934	0228/73-3180
Office hours: Tue 11-13 Fri 10-12	Office hours: Mon, Tue, Thu 9-11 Wed 13-15 (1-3 p.m.)

Studying abroad / Erasmus

- Erasmus coordinator:
  Dr. Thoralf Räsch

- Annual information event at the beginning of the winter semester

www.mathematics.uni-bonn.de/studium/en/study-abroad

Diversity - Gender Equality

Topics

- diversity
- gender equality
- accessibility

Offers

- ombudspersons
- study room in N1.002
- newsletter
- student community
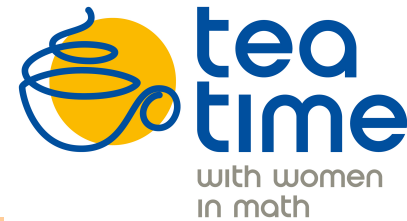
Events

- Tea Time with Women in Mathematics
- Ally Day
- GROW conference
- excursions

www.mathematics.uni-bonn.de/hcm/community

Three Things to Remember

✔ Check regularly
www.mathematics.uni-bonn.de/studium/en

✔ Check regularly
your **@uni-bonn.de e-mail** account

and…

… enjoy your studies!

We wish you great and fruitful studies in Bonn!

Lectures Area A – Summer 2025

F4A1-1 **Algebra I** - Dr. G. Martin

V4A2 **Algebraic Geometry II** - Prof. D. Huybrechts

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

V4A5 **Advanced Algebra I** - Prof. J. Franke

V5A2 **Sel. Top. in Algebra**
 - Prof. J. Franke - Dr. J. Rodríguez Camargo

V5A4 **Sel. Top. in Algebraic Geometry**
 - Dr. R. Carini - Prof. P. Scholze

V5A6 **Sel. Top. in Repr. Th.** - Dr. A. Langlois-Rémillard

V5A9 **Adv. Top. in Number Th.** - Dr. N. Technau

V5A10 **Sel. Top. in Number Th.** - Dr. M. Daas

V5A12 **Sel. Top. in Computer-assisted Math.**
 - Prof. F. van Doorn

List on BASIS

F4B1-2 **PDE & Modelling** - Prof. S. Müller

V4B2 **Nonlinear PDE II** - Prof. J. Velázquez

V4B5 **Real & Harmonic Analysis** - Dr. M. Alexis

V5B1 **Adv. Top. in Analysis & PDE** - Dr. D. Cobb

V5B2 **Sel. Top. in Analysis & PDE**
    - Dr. J. Bohr - Dr. R. Liu

V5B3 **Adv. Top. in PDE & Math. Models**
    - Prof. M. Disertori

V5B4 **Sel. Top. in PDE & Math. Models**
    - Dr. I. Karabash

List on BASIS

V5B5 **Adv. Top. in Anal. & Calculus of Variations**
  - Prof. S. Conti

V5B6 **Sel. Top. in Anal. & Calculus of Variations**
  - Prof. S. Müller

V5B7 **Adv. Top. in Analysis**
  - Prof. C. Brennecke

V5B8 **Sel. Top. in Analysis**
  - Dr. F. Comtat   - Dr. K. van den Dungen

V5B10 **Sel. Top. in FA & Operator Theory**
  - Dr. O. Fürst

List on BASIS

Lectures Area C – Summer 2025

F4C1-1 **Linear & Integer Optimization**
    - Prof. L. Végh

V4C2 **Approximation Algorithms**
    - Prof. J. Vygen

V4C3 **Chip Design** - Prof. S. Held

V5C2 **Sel. Top. in Discrete Mathematics**
    - Prof. S. Hougardy

V5C4 **Sel. Top. in Algorithms & Optimization**
    - Dr. M. Kaul

List on BASIS

Lectures Area D – Summer 2025

F4D1-2 **Topology II** - Prof. S. Schwede

V4D2 **Algebraic Topology II** - Prof. W. Lück

V5D3 **Adv. Top. in Geometry**
    - Prof. U. Hamenstädt
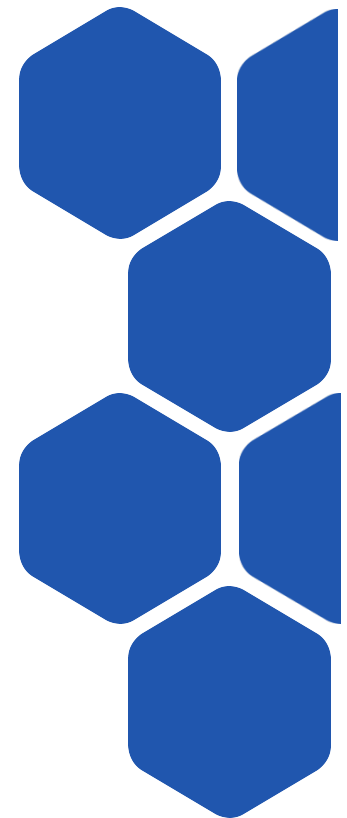
V5D4 **Sel. Top. in Geometry**
    - Prof. G. Gardam

V5D6 **Sel. Top. in Differential Geometry**
    - Prof. L. Côté

List on BASIS

Lectures Area E – Summer 2025

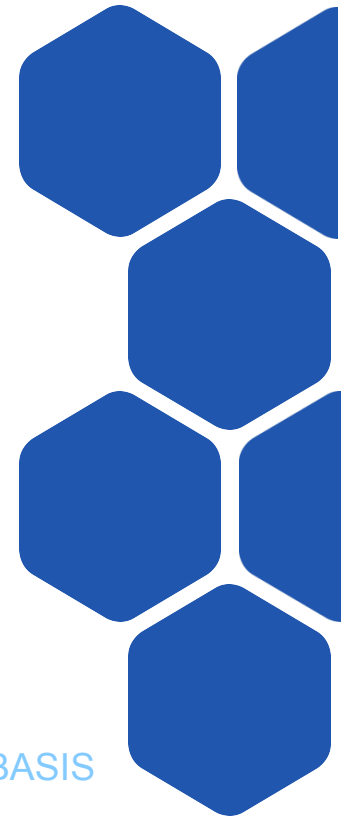F4E1-2 **Scientific Computing II** - Prof. I. Neitzel

V4E2 **Numerical Simulation** - Prof. J. Dölz

V5E1 **Adv. Top. in Num. Methods in Science & Technology** - Prof. J. Garcke

V5E3 **Adv. Top. in Scientific Computing** - Prof. G. Gantner

V5E4 **Sel. Top. in Scientific Computing** - Prof. C. Burstedde

V5E5 **Adv. Top. in Numerical Analysis** - Prof. J. Gedicke

List on BASIS

Lectures Area F – Summer 2025

F4F1-2 Foundation Stochastic Analysis
  - Prof. A. Eberle

V4F1 Stochastic Analysis - Priv.-Doz. Dr. E. Kopfer

V5F1 Adv. Top. in Probability Theory
  - Prof. P. Ferrari

V5F3 Adv. Top. in Stoch. Analysis - Dr. E. Hupp

V5F4 Sel. Top. in Stoch. Analysis - Dr. A. Prévost

V5F7 Adv. Top. in Math. Biology & Data Science
  - Dr. D. Pathirana

V5F8 Sel. Top. in Math. Biology & Data Science
  - Dr. A. Rastogi

List on BASIS