Master in Mathematics

Freshmen Information

Winter 2020

published by

Fachschaft Mathematik

at the

University of Bonn

Greeting from the Fachschaft

Dear master's freshmen,

on behalf of the student council of mathematics, I would like to welcome you to the University of Bonn. In the coming weeks and months, we will help you in every possible way to find your place in the world of mathematics in Bonn.

Due to the coronavirus pandemic, most classes and lectures are currently held online. As of now, we do not know to what degree your studies will be affected. However, all members of the student council will try to answer all your questions the best we can. For the first time, we have created this Master's Freshmen Information for you based on the Erstizeitung (Freshmen Information for bachelor's students). The entire project follows the principle of "for students by students", so we hope for your understanding in case of language mistakes and typos. We have compiled some information about the current state of affairs, and our tips and tricks on how to deal with the situation impacted by the pandemic in the next chapters.

Moving to a new city is always challenging, and Covid-19 certainly did not help in that regard. That is why we try to give you as much useful information about the city as possible, ranging from the locations of the different institutes to the best places to grab food. The pandemic also affects our social life; to alleviate the consequences this might have on our mental health, we are committed to helping you get in touch with your new fellow students. We can link you up via several messenger services (all of which you can find here) and have planned some online events so it will be easier to get to know each other.

Should you encounter any problems, please do not hesitate to contact us for help. The members of the student council, myself included, will gladly answer any question and assist you to the best of their abilities.

I look forward to meeting lots of new people and wish you the best of luck and lots of fun in the coming semester.

Thomas Häßel
2nd Chairman of the student council (FSR)

Contents

A Crash Course on Master's Courses

In this article, we try to give an overview of what kinds of lectures exist in Bonn, and how these differ from one another. More detailed information can be found in the official "Module Handbook".[1]

The Kinds of Lectures

areas

The mathematics courses in Bonn are divided into six areas, labelled A–F. For technical reasons, there are also two additional groups of courses, labelled G and X, but we will ignore these labels for now.

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

Table 1: The areas of mathematics in Bonn.

The mathematics courses in Bonn are also distinguished into the following six kinds.

Graduate lecture course This kind of course consists of two lectures per week. There are weekly exercise sheets and weekly tutorial sessions in which solutions are discussed. At the end of the course, there is an exam. This exam can be either written or oral, depending on the number of participants. Completing such a course rewards you with 9 credit points.

Foundation lecture course These are bachelor's lecture courses that are also open to master's students. There are between two and four Foundations in each of the areas A–F. They are structured just like Graduate lecture courses: There are two lectures per week, weekly exercise sheets, weekly tutorial sessions and an exam at the end of the course. This exam is usually a written one, but it may also be oral, again depending on the number of participants. This kind of course is also worth 9 credit points, just like Graduate lecture courses.

The Foundation lecture courses are meant to give you the opportunity of widening your mathematical horizon and explore new areas of mathematics. However, the university does not want you to spend too much time on modules of the bachelor's programme. Because of this, you're only allowed to count one Foundation course per area (A–F) towards the final grade of your master's studies. (We'll come back to this later.)

Advanced Topics This kind of lecture course also consists of two lectures per week, but there are neither exercise sheets nor tutorial sessions. There is an exam at the end of the course, which is typically oral. Passing the exam grants you 7 credit points.

Selected Topics With this kind of lecture course we are down to one lecture per week with neither exercise sheets nor tutorial sessions. There is an exam at the end, which is typically oral. This kind of course is worth 5 credit points.

Graduate Seminar Such a seminar consists of a series of talks throughout the semester, usually at the pace of one presentation per week.

Figure 1: An oral exam at the end of an Advanced Topics course on game theory.

[1] www.mathematics.uni-bonn.de/files/master/ma_modulehandbook.pdf

The topics are distributed among the participating students, and each student typically gives one talk. But it may also happen that two students share one presentation, or that some students cover several topics, depending on the total number of talks and participants.

The final grade is not based on an exam but the given presentation instead. Successfully participating in a seminar will yield 6 credit points.

Practical Training Courses The study of mathematics can oftentimes be of a rather theoretical nature. But if you want to spice things up in your studies, then you should consider taking a Practical Training Course. There are three options from which you may choose, each of which provides 9 credit points:

Practical Teaching Course To take a Practical Teaching Course you'll have to work as a tutor for one of the mathematics lecture courses for one semester. (This includes both bachelor courses and master courses.) As a tutor, you'll be in charge of one of the weekly exercise sessions,[2] which includes correcting the exercise sheets for this exercise group.

You need to be employed as a tutor at one of the mathematical institutes to do a Practical Teaching Course.[3] This requires an application at the end of the previous semester.

Figure 2: A proposed Practical Training Course on algebraic geometry: students harvesting fresh stalks from local fields.

At the end of the Practical Teaching Course, you will have to hand in a portfolio. Your grade will be based on this portfolio and how well you did your job as a tutor.

External Internship Doing an internship during your studies can really boost your career. On top of a broadened horizon and some hands-on experience, you will be awarded credit points as well.

So how does it work? It is your responsibility to find an internship position in a field corresponding to your studies. The minimum duration is 6 weeks. After you have found a position, you need a university lecturer to approve of your internship and agree to act as your examiner.

Once you have completed your time at the company, hand in a written report about your experiences. You will also be asked to present the contents of the report orally.

Programming courses There are also different kinds of programming courses, the details of which vary. There is typically one lecture per week, accompanied by programming exercises.

All mathematics courses you'll take during your master's degree can be classified into one of the above-named categories—except the master's thesis and the master's thesis seminar.[4]

Modules

To each mathematics course, there is an assigned "module code" that depends on its area (A–F), its type (Graduate lecture course, etc.) and its specific content. However, there are only certain predefined module codes available. As an example, Table 2 contains all module codes associated with area D (Geometry and Topology).

module code

Each module can only be completed once: after passing a course you won't be able to take the exam for another course that shares the same module code. This may be an obstacle if two courses differ in content while sharing the same module code. Then it is not possible to take the exam for both courses.[5] This typically happens

each module only once!

[2] It should be pointed out that the three introductory bachelor's courses "Analysis I", "Lineare Algebra I" and "Algorithmische Mathematik I" include two tutorials sessions per week, instead of the usual single session.

[3] As a nice side effect, this will also provide you with some money.

[4] The modules Master's Thesis, Master's Thesis Seminar, Practical Training Course and External Internship form the group G that we mentioned at the beginning of this text.

[5] Unless you use up one of your "Additional Topics", as we'll explain later.

	Foundation lecture courses
F4D1	Topology I
F4D1	Topology II
F4D1	Foundations in Analysis and Geometry on Manifolds
F4D1	Geometry
	Graduate lecture courses
V4D1	Algebraic Topology I
V4D2	Algebraic Topology II
V4D3	Advanced Geometry I
V4D4	Advanced Geometry II
	Advanced Topics
V5D1	Advanced Topics in Topology
V5D3	Advanced Topics in Geometry
V5D5	Advanced Topics in Diff. Geometry
	Selected Topics
V5D2	Selected Topics in Topology
V5D4	Selected Topics in Geometry
V5D6	Selected Topics in Diff. Geometry
	Graduate Seminars
S4D1	G.S. on Diff. Geometry
S4D2	G.S. on Topology
S4D3	G.S. on Advanced Geometry
S4D3	G.S. on Advanced Topology

Table 2: All modules in area D.

when it comes to Advanced Topics and Selected Topics, whose contents are almost always different even if they are assigned the same module code.

exceptions

To every rule there are exceptions, and the beforementioned has two notable ones:

All Foundation lecture courses that belong to the same area (A–F) share the same module code. But you are nevertheless allowed to take the exam for all of them. However, towards the end of your master's studies, you can only choose one of these courses (per area) to count towards your final grade.

additional modules

There are also three special modules, so-called additional modules. Let's say, for example, that you want to take the exam for an Advanced Topics course even though you have already passed this exact kind of Advanced Topics in an earlier semester. Then you can request from the Bachelor–Master Office (BaMa) to treat the new lecture as an "Additional Advanced Topics". However, this can only be done once during your entire course of studies, and only if the differences in content are regarded as significant enough. It is, for example, not possible to take the exam for two "Advanced Topics in Geometry" and also for two "Advanced Topics in Topology". The same guidelines apply to "Selected Topics" and "Graduate Seminars".[6]

Frequency & Content

There are numerous Advanced Topics and Selected Topics lecture courses each semester, but their contents seldom recur. If you find an Advanced Topics or a Selected Topics course that seems interesting to you, then you should definitely check it out. This also applies to Graduate Seminars.

When it comes to Graduate lecture courses and Foundation lecture courses, things get more complicated. Some lecture courses discuss fixed topics and are offered annually. This is especially the case for some Foundation lecture courses. But other courses are offered only irregularly, and their topics often depend on the lecturer.

The following list contains all Foundation lecture courses and all Graduate lecture courses, grouped up by how often they are offered. [7]

Names Can Be Deceiving

Most modules have names stating what kind of course they represent. However, names can be deceiving.

Some modules have names like "Advanced Geometry I" or "Advanced Algebra I". These may seem like Advanced Topics, but they are not.

confusing names

Some modules have the same name except for a trailing "I" or "II". This often means that one lecture is a continuation of the other one, as is the case for "Algebraic Geometry I" and "Algebraic Geometry II".

Nevertheless, it may happen that one lecture is not a direct follow-up of the previous one. This occurs particularly if modules do not have a fixed content and are given by different lecturers. This is, for example, the case with the modules "Advanced Algebra I" (V4A5) and "Advanced Algebra II" (V4A6). Both these modules are meant for lectures on algebra and have no fixed

more confusing names

[6] These three modules form the mysterious area X which we alluded to at the beginning of this text.

[7] The Foundation lecture courses "Global Analysis", "Geometry" and "Foundations in Analysis and Geometry on Manifolds" are missing from this list. These lectures have just been established in their current form, so we do not know anything about their frequency yet.

Annually

Foundation lecture courses: Algebra I; PDE and Functional Analysis; PDE and Modelling; Linear and Integer Optimization; Combinatorics, Graphs, Matroids; Topology I; Topology II; Scientific Computing I; Scientific Computing II; Stochastic Processes; Foundations in Stochastic Analysis; **Graduate lecture courses:** Algebraic Geometry I; Algebraic Geometry II; Nonlinear PDE I; Nonlinear PDE II; Combinatorical Optimization; Approximation Algorithms; Chip Design; Algebraic Topology I; Algebraic Topology II; Numerical Algorithms; Numerical Simulation; Stochastic Analysis; Markov Processes

Not annually

Foundation lecture courses: Algebra II; Foundations in Representation Theory; **Graduate lecture courses:** Representation Theory I; Representation Theory II; Advanced Algebra I; Advanced Algebra II; Advanced Mathematical Logic; Advanced Global Analysis I; Advanced Global Analysis II; Real and Harmonic Analysis; Advanced Geometry I; Advanced Geometry II

Disclaimer: This list is based on experience from previous semesters and does not always reflect the officially required frequencies of these lectures. There is, for example, no official requirement for Topology I to be offered every year. So there could theoretically be a winter semester without Topology I in the future.

content: their topics depend entirely on the lecturer that decides to offer such a lecture course.

One may wonder why there are two such modules, and not just one module called "Advanced Algebra", which is then offered by different lectures with different topics. This can be explained by the aforementioned rule about completing every module only once: The current situation allows students to take two Graduate lecture courses about "advanced algebra" for credit.

It may, for example, happen that both Advanced Algebra I and Advanced Algebra II are offered at the same time.[8] One can then take the exam for both of them.

"Advanced" Topics

Advanced Topics can vary widely in their difficulty. Some of them are follow-ups to previous lectures, given by the same lecturer. These kinds of Advanced Topics can be quite challenging and usually require a fair amount of pre-existing knowledge. Other Advanced Topics are introductions to new topics, which might require fewer prerequisites.

[8] This happened in the winter semester 2016/17: there was a course about "Algebraic Number Theory" offered as Advanced Algebra I, and a course about Diophantine equations offered as Advanced Algebra II. It also happened in the winter semester 2017/18: there was a course about "Intersection theory and pure motives" offered as Advanced Algebra I, while "Analytic Number Theory II" was offered as Advanced Algebra II. (This second course was a follow-up to an Advanced Topic in Algebra from the previous semester.)

Selected Topics can similarly vary a lot in their difficulty. They have only half as much time as the other kinds of lecture courses to introduce new content since they only take place once a week. This lack of time can make things easier or harder for students, depending on the topic and the lecturer.

Secondary Subjects

If you are fed up with mathematics and you want to improve your knowledge in other subjects, then you can also take lectures in a secondary subject. Choosing a secondary subject is not mandatory, but it could be a valuable addition to your studies. Most students taking a secondary subject choose Physics, Computer Science or Economics; in these cases, it is clearly defined on BASIS which modules of the corresponding master's programmes can be chosen. Other cases usually need to be discussed with the BaMa on a case-by-case basis.

The Goal

credits rule everything around you

You will have to collect a total of 120 credit points throughout your master's studies. You must take lectures (excluding Graduate Seminars and Practical Training Courses) from at least three of the six areas A–F. In one of these areas you have to gather at least 23 credit points, in another one at least 16 credit points, and in yet another one at least 9 credit points. You also have to take at least two Graduate Seminars. These seminars and your master's thesis plus master's thesis seminar will earn you an additional 48 credit points; the remaining 24 credit points can be collected in arbitrary modules, including more lectures, seminars and a secondary subject. More details about these regulations can be found at www.mathematics.uni-bonn.de/study/master-mathematics/program-.

A Guide to Choosing Modules

Bonn offers a huge amount of mathematics courses. This can make it hard for freshmen to know where to start, and what to consider when choosing their courses. This article aims to provide a handy guide to choosing well. It is followed by a collection of study plans gathered from former master students. This text is written both for those who have already decided on which areas of mathematics they want to focus on and for those who are still undecided. We hope that the following advice will be especially helpful for students who are new to Bonn.

Figure 3: The introduction of sign conventions.

Choosing Courses

Lecture Courses

Let us first talk about lecture courses. By this, we mean Foundation lecture courses, Graduate lecture courses, Advanced Topics and Selected Topics.

cover enough areas

In your first master's semester, it is best to start off with lecture courses from at least two different areas, so that you stay flexible enough in the coming semesters. For this, you should know which areas of mathematics you're interested in. Unfortunately, we cannot help you to figure this part out.

Foundations

It is recommended to begin with Foundation lecture courses and progress to more advanced courses as time goes by. However, you have probably already deepened your knowledge in particular parts of mathematics during your bachelor's studies, e.g. the area in which you wrote your bachelor's thesis. In these areas, you may start off with more advanced lectures, e.g. Graduate lecture courses, from the beginning of your master's studies.

None of the lecture courses in Bonn formally require you to have passed certain other courses beforehand: you may check out any lecture course that you're interested in. There are, of course, informal prerequisites in terms of prior knowledge. It is, for example, generally considered a bad idea to take the lecture course "Algebraic Geometry I" without previous knowledge about commutative algebra.[1]

careful!

It's best to choose two "full" lecture courses—i.e. Foundation lecture course or Graduate lecture courses—in your first master's semester, but *at the very most* three such lecture courses. These lectures, their accompanied exercise sheets and tutorial sessions will already take up quite a lot of your time.

Advanced Topics and Selected Topics

During your studies, you will also start taking Advanced Topics and Selected Topics. Their difficulties vary a lot: some Advanced Topics and Selected Topics require vast amounts of previous knowledge, others very little. They are, nonetheless, a good source of credit points. Advanced Topics typically cost less time than Foundation lecture courses and Graduate lecture courses since they have no weekly exercise sheets, but they still grant you 7 credit points (instead of 9 credit points). Selected Topics include only half as many lectures as Advanced Topics, but they still reward you 5 credit points.

You may already want to check out some Advanced Topics or Selected Topics during your first semester. You might in particular want to consider those Advanced Topics that are of an introductory nature, requiring little to no previous familiarity with the discussed topics.

[1] One may even argue that one should have taken Algebraic Geometry I before taking Algebraic Geometry I.

go for it!

The contents of the offered Advanced Topics and Selected Topics vary every semester and are almost never repeated. So if one of these lectures makes your heart flutter, then listen to your heart and try getting to know it better. Maybe you are meant for each other.

you need to diversify your interests

We want to remind you again to take lectures from different areas early on. You may already know which area you're most interested in and plan to focus only on this area. But you must not forget that you will need to have covered at least three different areas to get your master's degree. It happens regularly that people have to prolong their studies by some additional semesters just because they have not covered enough areas yet.

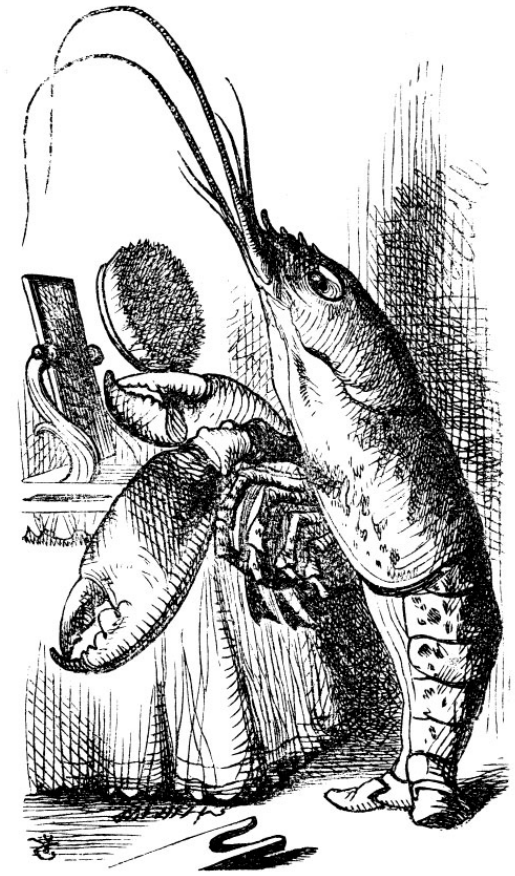


Figure 4: A student new to topology struggling to understand the hairy ball theorem.

Graduate Seminars

when to start

Let us talk about Graduate Seminars next. One usually starts attending them in the second semester. To take part in a Graduate Seminar, it is obligatory to attend its preliminary meeting, which will probably take place towards the end of the preceding semester. In this meeting, you will learn more details about the chosen topic of the seminar and the planned talks. You can then decide whether you would like to participate in the seminar or not. You need to complete at least two Graduate Seminars for your master's degree but many people participate in more than just two seminars. Graduate Seminars are also a good way of practising your presentation skills.

Practical Teaching Courses

Another good way for getting 9 credit points is through a Practical Teaching Course. As explained above, this means that you work as a tutor for one of the mathematics lectures for one semester. Since you're employed, this also provides you with some money.

€€€

Master's Thesis

Now is the time to address the elephant in the room: the master's thesis. You will need an advisor for your thesis and—most importantly—a topic. In order to find an advisor, reach out to a lecturer for one of the courses that you previously attended. If they are willing to supervise the thesis then they will typically suggest possible topics, taking into consideration your studies up to this point. Choose your topic wisely! You should have regular contact with your advisor during the writing of your thesis. To this end, it is recommended to attend the lectures and seminars offered by your advisor during this time.

Example Study Plans

From the next page onward we provide you with study plans of former master's students. These are meant to give you an idea of what someone's master's studies realistically look like. We'd like to point out some observations regarding these study plans beforehand:

There is no standard study plan. Each plan is different, and the result of the unique choices made by the respective former master's student. Your own study plan will similarly be distinctly yours and will reflect the choices that you will make during your studies.

You will notice that the study plans differ in their length, taking anywhere from 3 to 8 semesters, with only around half of them taking 4 semesters or less. Your individual studies may end up shorter or longer than the study plans from the area that you're interested in. This depends on your individual choices and situation.

Note also that many students counted credit points from their bachelor studies towards their master's degree. Some of these students completed their bachelor's degree in Bonn and decided to already take master's courses in advance. Others did their bachelor's studies elsewhere but transferred credits they received for additional lectures anyway. If this might be possible for you, make sure to get in touch with the Bachelor–Master Office (BaMa). This may alleviate the workload during your master's degree significantly. Note however that there is a deadline for this transfer of credit: You will have to apply for it by 1st December 2020.

Let us now quickly explain how to read the study plans. We use the following abbreviations:

AT	Advanced Topics in …
ST	Selected Topics in …
GS	Graduate Seminar on …
F	Foundation module

Each module starts with its module code and credit points in square brackets. Modules coloured in orange were counted for the final grade whereas modules coloured in cyan were not, e.g. due to not taking the exam, not passing the exam or a bad grade.

Modules in the row named "B" were brought in from the bachelor's programme. The total number of credit points earned in a semester is denoted at the end of the corresponding row. For the calculation of the credit points per semester the credit points of the master's thesis and master's seminar were split between all semesters during which the thesis was written.

B	F4F1 [9] F: Stochastic Analysis	V4F2 [9] Markov Processes	F4F1 [9] F: Stochastic Processes				18
1	S4B2 [6] GS: PDE	P4G1 [9] Practical Teaching Course	V5B3 [7] AT: PDE	V5B5 [7] AT: Calculus	F4B1 [9] F: PDE and Modelling	F4D1 [9] F: Geometry I	15
2	V4B1 [9] Nonlinear PDE I	V5B3 [7] AT: PDE					9
3	S4B2 [6] GS: PDE	V4B1 [9] Nonlinear PDE II	F4D1 [9] F: Geometry I				15
4	F4E1 [9] F: Scientific Computing I	P4G2 [9] External Internship	V5B8 [5] ST: Analysis	S4F2 [6] GS: Stochastic Analysis			18
5	V5B8 [5] ST: Analysis	V5B7 [7] AT: Analysis					12
6	T5G1 + S5G1 [36] Master's Thesis + Seminar	V5B7 [7] AT: Analysis					18
7		S4F2 [6] GS: Stochastic Analysis					18

Table 3: A study plan focusing on analysis, starting in a summer semester.

1	F4A1 [9] F: Rep. Theory	F4D1 [9] F: Topology I	V4A1 [9] Alg. Geometry I	V5D4 [5] ST: Geometry	V4A5 [9] Adv. Algebra I	32
2	V4A3 [9] Rep. Theory I	V4A2 [9] Alg. Geometry II	V5D3 [7] AT: Geometry	S4A2 [6] GS: Rep. Theory		31
3	T5G1 + S5G1 [36] Master's Thesis + Seminar	F4B1 [9] F: Global Ana. I	MA-INF 4111 [6] CS: Intelligent Learning I			33
4		S4D1 [6] GS: Differential Geometry	MA-INF 4112 [6] CS: Intelligent Learning II	Lang. course [6] French A2		30

Table 4: A study plan focusing on algebra, starting in a winter semester.

B	F4D1 [9] F: Topology I	V4A3 [9] Rep. Theory I	V4A4 [9] Rep. Theory II	V5A5 [7] AT: Rep. Theory	34
1	V4A1 [9] Algebraic Geometry I				9
2	V5A1 [7] AT: Algebra	V4B5 [9] Real and Harmonic Analysis	S4A2 [6] GS: Rep. Theory		22
3	V5B7 [7] AT: Analysis	S4B1 [6] GS: Analysis			13
4	T5G1 + S5G1 [36] Master's Thesis + Seminar	V5B7 [7] AT: Analysis			25
5					18

Table 5: A study plan focusing on representation theory, starting in a winter semester.

B	V4A1 [9] Algebraic Geometry I	V4A5 [9] Advanced Algebra I					18
1	F4A1 [9] F: Rep. Theory	V5A3 [7] AT: Alg. Geometry	V5D3 [7] AT: Geometry	V4A1 [9] Algebraic Geometry I	V4A5 [9] Advanced Algebra I		23
2	S4D2 [6] GS: Topology	S4A2 [6] GS: Rep. Theory	F4D1 [9] F: Topology II	V4A2 [9] Algebraic Geometry 2	V5A1 [7] AT: Algebra	V5A4 [5] ST: Alg. Geometry	V5A4 [5] ST: Alg. Geometry	30
3	T5G1 + S5G1 [36] Master's Thesis + Seminar	F4B1 [9] F: Global Analysis I	V5D1 [7] AT: Topology	V4A1 [9] Algebraic Geometry I	V5A4 [5] ST: Alg. Geometry	V5A2 [5] ST: Algebra		34
4		V4A2 [9] Algebraic Geometry II	V5D1 [7] AT: Topology					18

Table 6: A study plan focusing on algebraic geometry, starting in a winter semester.

1	V4A1 [9] Algebraic Geometry I	F4D1 [9] F: Topology I	F4B1 [9] F: Global Analysis II	S4B3 [6] GS: Global Analysis	V5B8 [5] ST: Analysis	38
2	V4D4 [9] Advanced Geometry II	V5D3 [7] AT: Geometry	V5B8 [5] ST: Analysis	S4D1 [6] GS: Geometry	P4E1 [9] Practical Lab Numerical Simulations	36
3	T5G1 + S5G1 [36] Master's Thesis + Seminar	V5D5 [7] AT: Differential Geometry	V5D6 [5] ST: Differential Geometry	MA-INF 4209 [4] CS: Data Mining & Learning Algorithms	MA-INF 4308 [9] CS: Lab Vision Systems	30
4		MA-INF 4306 [9] CS: Lab Data Mining & Learning Systems				18

Table 7: A study plan focusing on geometry, starting in a winter semester.

1	F4D1 [9] F: Topology I	F4A1 [9] F: Rep. Theory	V4D1 [9] Algebraic Topology I	V5D3 [7] AT: Geometry	V5D4 [5] ST: Geometry	39
2	V4D2 [9] Algebraic Topology II	V4A8 [9] Models of Set Theory I	V5B8 [5] ST: Analysis	S4D2 [6] GS: Topology		29
3	T5G1 + S5G1 [36] Master's Thesis + Seminar	F4B1 [9] F: Global Analysis I	V5D1 [7] AT: Topology	S4D2 [6] GS: Topology	V5D1 [7] AT: Topology	40
4						18

Table 8: A study plan focusing on topology, starting in a winter semester.

1	V4C1 [9] Combinatorial Optimization	V4A1 [9] Algebraic Geometry I	F1A1 [9] F: Set Theory	F1D1 [9] F: Topology I		36
2	V4C2 [9] Approximation Algorithms	V5C2 [5] ST: Discrete Mathematics	S4C1 [6] GS: Discrete Optimization	S4C1 [6] GS: Discrete Optimization	S4D2 [6] GS: Topology	32
3		V5C1 [7] AT: Discrete Mathematics	S4F2 [6] GS: Stochastic Analysis	V5F1 [7] AT: Probability Theory		38
4	T5G1 + S5G1 [36] Master's Thesis + Seminar					18

Table 9: A study plan focusing on discrete mathematics, starting in a winter semester.

B	F4C1 [9] F: Linear and Integer Optimization				9
1	P4G1 [9] Practical Teaching Course	V4C1 [9] Combinatorial Optimization	F4D1 [9] F: Topology I		9
2	V4C2 [9] Approximation Algorithms	MA-INF 1312 [9] CS: The Art of Cryptography	F4F1 [9] F: Stochastic Processes		18
3	F4E1 [9] F: Scientific Computing I	F4B1 [9] F: PDE and Functional Analysis	F4D1 [9] F: Topology I	F4B1 [9] F: PDE and Functional Analysis	9
4	V5C2 [5] ST: Discrete Mathematics	S4C1 [6] GS: Discrete Optimization	V4B5 [9] Real and Harmonic Analysis	V4C3 [9] Chip Design	5
5	F4B1 [9] F: PDE and Functional Analysis	S5E2 [6] GS: Efficient Simulation	V4E1 [9] Numerical Algorithms	BA-INF 141 [9] Media Informatics: Big Data Analytics	15
6		V4E2 [9] Numerical Simulation	P4E1 [9] Practical Lab Numerical Simulation		30
7	T5G1 + S5G1 [36] Master's Thesis + Seminar				12
8					12

Table 10: Another study plan focusing on discrete mathematics, starting in a winter semester.

1	F1B1 [9] F: PDE and Functional Analysis	F4E1 [9] F: Scientific Computing I	V4E1 [9] Numerical Algorithms	V5E1 [7] AT: Numerical Methods in Science and Technology	V5A1 [7] AT: Algebra	18
2	F4D1 [9] F: Geometry I	V4E2 [9] Numerical Simulation	V5E4 [5] ST: Scientific Computing	V5E2 [5] ST: Numerical Methods in Science and Technology	S4E2 [6] GS: Numerical Simulation	34
3	P4G2 [9] External Internship					9
4	T5G1 + S5G1 [36] Master's Thesis + Seminar	V5B3 [7] AT: PDE	V5B5 [5] ST: Calculus	V5E3 [7] AT: Scientific Computing	Lang. course [6] Spanish B1	37
5		S4F3 [6] GS: Applied Probability	V5E5 [7] AT: Numerical Analysis			24

Table 11: A study plan focusing on numerical mathematics, starting in a winter semester.

1	F4C1 [9] F: Linear and Integer Optimization	F4E1 [9] F: Scientific Computing I	P4G2 [9] External Internship	V4E1 [9] Numerical Algorithms	F4B1 [9] F: PDE and Functional Analysis	36
2	P4E1 [9] Practical Lab Numerical Simulation	V4E2 [9] Numerical Simulation	S5E1 [6] GS: Numerical Analysis	V4C2 [9] Approximation Algorithms		24
3	T5G1 + S5G1 [36] Master's Thesis + Seminar	V4C1 [9] Combinatorial Optimization	V5E5 [7] AT: Numerical Analysis	S4E2 [6] GS: Numerical Simulation	V5F4 [5] ST: Stochastic Analysis	40
4		F4F1 [9] F: Stochastic Processes				27

Table 12: Another study plan focusing on numerical mathematics, starting in a winter semester.

B	V4C1 [9] Combinatorial Optimization	F1C1 [9] F: Linear and Integer Optimization		18
1	V4C2 [9] Approximation Algorithms	F4B1 [9] F: PDE and Modelling		9
2	S4F1 [6] GS: Probability Theory	F4B1 [9] F: PDE and Functional Analysis	V4F1 [9] Stochastic Analysis	6
3	F4F1 [9] F: Stochastic Processes	S4F2 [6] GS: Stochastic Analysis	MA-INF 1301 [9] CS: Algorithmic Game Theory and the Internet	24
4	P4G2 [9] External Internship	F4E1 [9] F: Scientific Computing I	V4F1 [9] Stochastic Analysis	18
5	T5G1 + S5G1 [36] Master's Thesis + Seminar	V5F5 [7] AT: Applied Probability		19
6				12
7		MA-INF 1218 [9] CS: Algorithms and Uncertainty		21

Table 13: A study plan focusing on stochastics, starting in a summer semester.

B	F4D1 [9] F: Topology I	F4A1 [9] F: Algebra I	CS [9] CS: Automata, Logic and Games (other university)		27
1	V4B5 [9] Harmonic Analysis	V4F1 [9] Stochastic Analysis	V5F5 [7] AT: Applied Probability	S4F1 [6] GS: Probability Theory	31
2	V4F2 [9] Markov Processes	F4B1 [9] F: Global Analysis I	V5F3 [7] AT: Stochastic Analysis	V5F1 [7] AT: Probability Theory	25
3	T5G1 + S5G1 [36] Master's Thesis + Seminar	S4B2 [6] GS: PDE			42

Table 14: Another study plan focusing on stochastics, starting in a summer semester.

Digital Services of the University

As a student at the University of Bonn, you will have access to several online services, some of which we introduce here.

Uni-ID

You will need your Uni-ID to register with these services. This ID has the form `s6xxxxxx` where `xxxxxx` is typically a combination of your first name and last name. Your Uni-ID will be sent to you together with your student ID and study documentation a few weeks after enrolment. Information about the setup of your Uni-ID and all the following services can be found at `hrz.uni-bonn.de/en`. If you encounter any problems, the staff of the HRZ will be happy to help you.

GOsa

Once you have received your Uni-ID you will have to go to GOsa,[1] the digital identity management system of the university and set a password. With this, you will gain access to the digital services provided by the university.

email

The university provides you with an email address, namely `Uni-ID@uni-bonn.de`. This email address comes with 100 megabytes of space on the university's mail server. You can access your emails with the online client[2] or with an email client of your choice. The necessary information about the configuration of a personal client can be found at `hrz.uni-bonn.de/en/services/e-mail/setup-use/email-client`.

email aliases

On GOsa you can define up to two email aliases. These aliases are alternate addresses that lead to the same account, i.e. a message sent to an alias will end up in the same inbox as the mails to the standard email address `Uni-ID@uni-bonn.de`.

You should check this email account regularly! The Bachelor–Master Office (BaMa) and professors use it to send you important announcements.

Figure 5: Don't be that guy.

email forwarding

If you find it too troublesome to take care of yet another email account, then you can also set up email forwarding to your private mail account on GOsa. Your emails are then no longer stored on the university's server but are forwarded directly to your private email account instead.

BASIS

Another important web service is BASIS.[3] This platform takes care of many organisational aspects of your studies in Bonn.

- It contains a course catalogue where you can find out which courses are offered in the current semester, and which courses were offered in previous semesters. The course catalogue for an upcoming semester is usually published towards the end of the preceding semester.
- Registrations for exams, seminar and practical teaching courses are also done via BASIS.
- Your transcript of records can be found on BASIS, and you can download it as a PDF file.
- You can download official certificates of enrolment from BASIS.

address change

You can change your residential address both on GOsa and on BASIS.

eCampus

Another important web service is eCampus.[4] This is a learning management system that can be used by lecturers to organise, distribute and collect materials. It was rarely used by mathematics courses in the past, and lecturers typically created a custom website for their course instead. But this has changed significantly due to the shift to online teaching caused by the Covid-19 pandemic. Most courses use eCampus, but many courses also provide a custom website in addition to their presence on eCampus.

course website

sciebo

The university offers a cloud storage service called sciebo[5] based on the cloud software ownCloud. It comes with 30 gigabytes of online space. Sciebo is not only available at the University of Bonn but a total of 28 institutions based in North Rhine-Westphalia. This has some consequences for its usage: You cannot log in with your Uni-ID and your usual password. Instead,

[1] `gosa.gosa.uni-bonn.de`
[2] `mail.uni-bonn.de`
[3] `basis.uni-bonn.de`
[4] `ecampus.uni-bonn.de`
[5] `uni-bonn.sciebo.de`

you need to register for this service at sciebo.de/en. As part of the registration process, you will be redirected to a university page, where you will have to log in with your Uni-ID and password to prove that you are indeed a student at the University of Bonn. In the end, your username will not be just your Uni-ID but instead your full email address Uni-ID@uni-bonn.de.

Don't forget @uni-bonn.de!

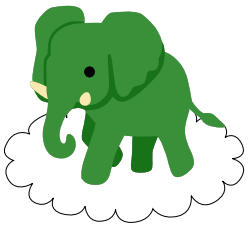


Figure 6: The sciebo logo consists of a cute green elephant. We won't display this logo here in fear of legal problems, but offer you an artistic rendition of another cute green elephant on a cloud instead.

In addition to sciebo, the HRZ offers expandable storage space via its File-Service-Infrastructure. The standard allocated disk size is 10 gigabytes, but this can be extended up to 100 gigabytes if required. More information about this can be found at hrz.uni-bonn.de/en/services/datenablage-fileservices/speicher.

FSI

Due to the current pandemic, the university had to switch to online teaching. Many courses take place via the video conferencing software Zoom, but some lecturers prefer to upload recorded lectures instead.

Zoom

It is recommended to use Zoom through the university's Zoom portal.[6] In this way you will not have to register with Zoom: you can log in to the Zoom portal with your Uni-ID and usual password instead. Additionally, you will have a "licensed" account, which has fewer restrictions than the typical free Zoom account. You can, for example, hold conferences lasting more than 40 minutes.

Zoom portal

You can use Zoom either via the online interface accessible through the university's Zoom portal, or via a standalone client installed on your computer. If you want to use the client then you can choose "Sign in with SSO" and then choose "uni-bonn.zoom.us" to log in to the client via the university's Zoom page.

SSO

There are also the services BigBlueButton and DFNConf, but these are rarely used for lectures because they cannot handle large numbers of participants. The Institute for Numerical Simulation (INS) offers a Jitsi server,[7] which allows you to hold video conferences.

BigBlueButton

DFNConf

Jitsi

The Fachschaft has a contract with the Microsoft Imagine programme (formerly MSDNAA and Dreamspark) which makes some of Microsoft's products available to mathematics students for free. Some of these products are Windows, Visual Studio, One Note, Access, but not Microsoft Office. More information on how to participate can be found at fsmath.uni-bonn.de/other/software/imagine.html.

Microsoft Imagine

This next service becomes of interest once we can return to the university campus: there is free and (mostly) fast WLAN under the name eduroam. The login credentials are your email address Uni-ID@uni-bonn.de and your password. Eduroam is actually an international service, which will allow you to get free WLAN at universities around the world.

eduroam

Besides eduroam, there is also a VPN-based solution especially for the University of Bonn, which allows you to log into the university network from outside.

VPN

More information about both eduroam and the VPN service can be found at hrz.uni-bonn.de/en/services/internet-and-network-access/instructions.

[6] uni-bonn.zoom.us

[7] webinar.ins.uni-bonn.de

Enrolment & Registration

In this chapter, we give a quick explanation on how to register for the various kinds of modules. We first explain how things were done before Corona, and then how things are currently done. We often refer to eCampus and BASIS, which are introduced in the chapter "Digital Services of the University", page 13.

Lectures

Before the coronavirus pandemic, no registration was needed to attend a lecture course, where by "lecture course" we mean Foundation, Graduate, Advanced Topics and Selected Topics lecture courses. You just went to lectures and tried your best to keep up with the course.

You currently still don't need to formally register for lecture courses in the current situation. However, virtually all lecture courses will require you to sign up to them on eCampus to gain access to at least part of the provided materials. Courses can be found on eCampus in the following way: After logging in to eCampus (with your Uni-ID and usual password) go click on "Repository" on the top, and then on "Repository - Home" on the upcoming drop-down menu.

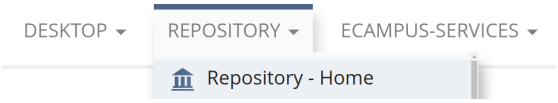


Figure 7: Going to the front page.

This will lead to eCampus' front page. (This page does not seem to have an English version.) On the bottom of this page, you will find the section "Categories".

Figure 8: The section "categories".

You now have to go to "Lehrveranstaltungen" (German for *teaching course*), then "WiSe 2020/21", followed by "Mathematik" and finally "Master Studies". There you will be presented with subdirectories, which contain the various mathematics courses. Now choose the directory for the course that you are interested in.

Figure 9: "Master Studies" on eCampus.

If the course is available on eCampus and open for enrolment, then you may click on the button at the end of the row to find the option "join". Clicking on it will make you join the course on eCampus.

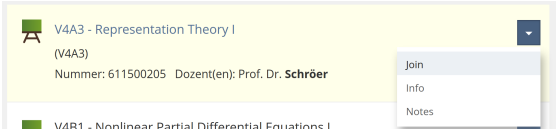


Figure 10: Joining a lecture course on eCampus.

Some courses may already be available on eCampus but not yet open for enrolment. In this case, you will have to wait until you are allowed to join them. But you may already look at them, yearning for the day that they finally become available to you.

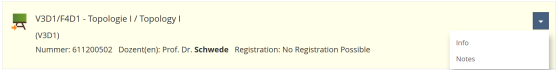


Figure 11: A course not open for enrolment. (This screenshot was taken on 2nd October 2:05 PM.)

In this case, you will need to have some patience and look for the course another day, or frantically refresh the eCampus page every few minutes for multiple days to not miss the moment the course goes online. This is a matter of personal preference.

Figure 12: A course not yet available on eCampus.

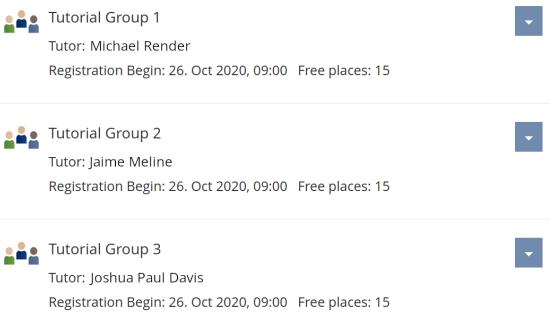


Figure 13: Virtual exercise groups on eCampus.

Some courses will prompt you for a password when you try to join them. For some of these courses, the password will be announced in an email from the Bachelor–Master Office (BaMa). For others, it will be made available on the lecturer's personal homepage. Some courses are open for enrolment only for a certain period.

Tutorial Sessions

Foundation lecture courses and Graduate lecture courses require you to do weekly exercise sheets. The handed-in solutions will then be corrected and discussed in tutorial sessions. For this, you will need to sign up for one of the provided exercise groups.

Before the coronavirus pandemic, this was mostly done in the first lecture of the semester. There the lecturer would provide an empty list of participants for each tutorial, and you would simply add yourself to the list of the group that you planned to attend. As an alternative, some of the more technologically advanced lecturers would require you to write an email to them instead of writing on a physical sheet of paper.

With the introduction of social distancing, lecturers had to switch to a digital way of assigning exercise groups. This is often done via eCampus through a feature of this platform: for each exercise group, there is a corresponding virtual group through which this exercise group is organised. Some lecturers will make it possible to join one of these virtual groups trough eCampus at the beginning of the lecture course, while some other lecturers will instead require you to write an email with your preferred exercise groups. In this second scenario, you will then be assigned to one of the exercise groups and also added to the virtual group by the lecturer.[1]

virtual exercise group

[1]We want to acknowledge at this point that there are also teaching assistants involved. They take care of a lot of the work in the background and often don't get enough appreciation.

There is only a restricted number of free places available for each of these virtual groups. So if you want to participate in a specific exercise group, then you should try to join said group while there are still spots left.

first come, first served

Exams

Figure 14: A desperate student summoning help for an upcoming exam.

As there is no final examination in our study programme, every exam you take could potentially count towards your degree. Before you can register for any exam, you have to register once for the so-called master's examination.[2] You should to this within the first month after starting your studies in Bonn.

[2]This is a formal registration; you can find the respective form and more information about the master's examination at www.mathematics.uni-bonn.de/study/master-mathematics/examinations/master-examination

registration period

After having done so, you will be able to sign up for exams from 1st December until 20th December—in the so called registration period. This is also when you will have to decide which exams you would like to take.

Registration is done via BASIS. After having signed in to BASIS, you will have to go to "My functions" on the grey taskbar, then "Apply for exams" from the list on the left. There you will be presented with a disclaimer, which you accept to proceed. This will lead you to a folded up, nested list of all mathematics modules.

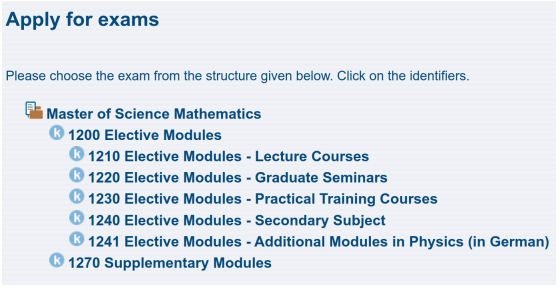


Figure 15: The list of modules after some unfolding.

You can navigate this list to find the lecture courses you want to take an exam on. During the examination period, you will then be able to sign up for the desired exam with a simple click.

Figure 16: Finding a specific lecture.

The coronavirus pandemic did not affect this sign up process via BASIS.

Second Exams

two tries per semester

For every lecture course there are two exams: a first exam at the beginning of the lecture-free period and a second exam at its end. This second exam is meant to give another chance to students who failed the first exam—if you pass the first exam then you will not be allowed to take the second exam. If you fail the first exam then you will automatically be enrolled for the second exam.[3]

Students often need additional time to prepare for an exam and thus want to take only the second exam. Here is the problem: in Bonn, it is not possible to register only for the second exam!

Note however that once you have failed the first exam and are thus automatically enrolled for the second exam, you will not be able to withdraw from this exam anymore.

Graduate Seminars

To take part in a Graduate Seminar, you will have to attend its preliminary meeting, which often takes place at the end of the previous semester. There, you will be assigned to one of the talks. In the time before the coronavirus pandemic, you would then also sign up on the list of participants, confirming that you will give the talk.

At the beginning of the semester, you will then have to register for the seminar on BASIS: otherwise, you will not be able to get credit points for your talk. The deadline for the registration of Graduate Seminars is the 15th November.[4] Do not wait until the registration period for the exams to sign up for a Graduate Seminar—this is too late! The registration of Graduate Seminars works in the same way as for exams.

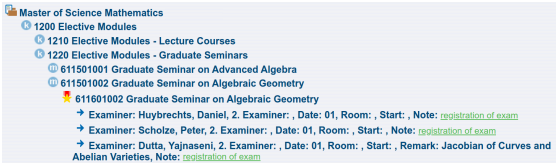


Figure 17: Where to register for one of the three Graduate Seminars on Algebraic Geometry.

[3] If you fail both exams then you will not get a third chance in the same semester. You will have to wait until the module is offered again in one of the future semesters to get your next try at the exam. If the lecture course comes with mandatory exercise sheets, then you will not have to do these again—BASIS will remember that you have already completed this part of the course before.

You have a total of four tries for each module: once you have failed four exams of the same module, you will not be able to take another exam for this module.

[4] www.mathematics.uni-bonn.de/study/master-mathematics/calendar/winter-term-2020-21/1-oct-15-nov-2020-registration-deadline-for-graduate-seminars-and-practical-training-courses

Practical Training Courses

If you plan to do a Practical Training Course (e.g. a Practical Teaching Course or a programming course in discrete mathematics or numerical mathematics), then you will have to sign up for it at the beginning of the semester. The deadline is the same as for Graduate Seminars, 15th November. Let us repeat our previous warning: Do not wait until the registration period for the exams to sign up for a Practical Training Course—this is too late!

This registration is done on BASIS, in the same way as for exams and Graduate Seminars.

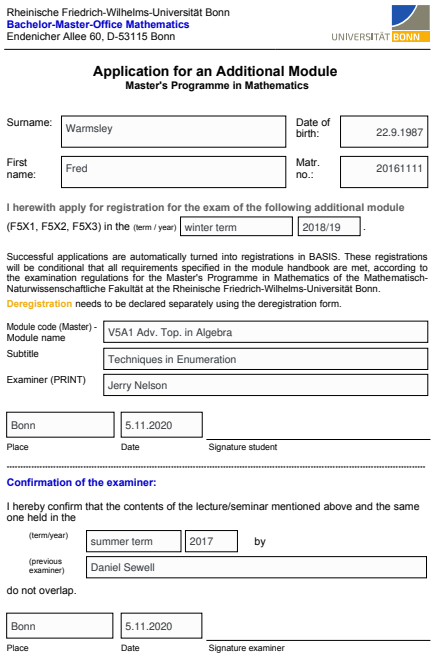
Figure 18: Where to register for the Practical Training Course “Algorithms for Chip Design”.

Additional Modules

There will probably come a point in time at which you want to use one of your additional modules, e.g. your “Additional Advanced Topics”. This only happens if you want to take the exam for a current course but have already completed a course with the same module code in an earlier semester, or if you have already signed up for an exam with the same code in the current semester. You can then apply for one of these courses to be counted as one of your additional topics.

For this, you will have to demonstrate to the university that both courses are sufficiently distinct in content because the university does not want to give you credit points for relearning something that you have already learned once before. To this end, you will have to fill out an “Application for an Additional Module”.[5] The lecturer of the current course will have to sign this document: with this, they confirm that their current course is sufficiently distinct from the previous course. (You will probably have to explain to the lecturer what the previous course was about.) This document will then have to be handed in to the BaMa. If this Application for an Additional Module is successful (which it usually is) then the BaMa will add your registration on BASIS.

You have to hand in this Application for an Addition Module during the same time as the registration for this module would have usually taken place: 1st October until 15th November for Graduate Seminars, and 1st December until 20th December for Advanced Topics and Selected Topics.


Rheinische Friedrich-Wilhelms-Universität Bonn
Bachelor-Master-Office Mathematics
Endenicher Allee 60, D-53115 Bonn
UNIVERSITÄT BONN

Application for an Additional Module
Master's Programme in Mathematics

Surname: Warmsley | Date of birth: 22.9.1987
First name: Fred | Matr. no.: 20161111

I herewith apply for registration for the exam of the following additional module
(F5X1, F5X2, F5X3) in the (term / year) winter term 2018/19 .

Successful applications are automatically turned into registrations in BASIS. These registrations will be conditional that all requirements specified in the module handbook are met, according to the examination regulations for the Master's Programme in Mathematics of the Mathematisch-Naturwissenschaftliche Fakultät at the Rheinische Friedrich-Wilhelms-Universität Bonn.
Deregistration needs to be declared separately using the deregistration form.

Module code (Master) - Module name: V5A1 Adv. Top. in Algebra
Subtitle: Techniques in Enumeration
Examiner (PRINT): Jerry Nelson

Bonn | 5.11.2020 | Signature student
Place | Date

Confirmation of the examiner:

I hereby confirm that the contents of the lecture/seminar mentioned above and the same one held in the
(term/year) summer term 2017 by
(previous examiner) Daniel Sewell
do not overlap.

Bonn | 5.11.2020 |
Place | Date | Signature examiner

Figure 19: A filled-out application for an “Additional Advanced Topics”, without signatures.

[5] www.mathematics.uni-bonn.de/files/master/ma_antrag_additional.pdf

What the Fachschaft?

Who We Are

The Fachschaft Mathematik is technically made up of all those students enrolled in mathematics, i.e. it is the union of all matriculated students in the bachelor's, master's and doctoral programmes of mathematics, including *you* in particular. The German word "Fachschaft" etymologically means something like "body of students studying one subject". However, if someone refers to "the Fachschaft", like in "the Fachschaft writes the Freshmen Information" or "you can get minutes of exams from the Fachschaft", they mean a group of fellow students committed to helping others. In everyday usage, only a student involved in organising or executing Fachschaft-related tasks is called a "member of the Fachschaft". Some of them are elected members of the Fachschaftsrat (FSR) or the Fachschaftsvertretung (FSV). Others, however, get involved without being elected.

The word "Fachschaftsrat" roughly translates to "student council". The FSR is responsible for almost all actions that take place on behalf of the Fachschaft. That is the reason why in the following we always say: "The FSR does *x*". Please do not think, however, "the FSR" is some strange unreachable entity that operates high in the clouds. Your help is welcome and needed from day one—"the FSR", that can also be you! You can read news from the FSR on the "loo paper", on the noticeboard in the annex on the walls facing the Fachschaft rooms (office of the Fachschaft and recreation room) on the ground floor of the annex, in the newsletter `fsmath-news@listen.uni-bonn.de` or on the website `fsmath.uni-bonn.de`.

FSR

Since we live in a bureaucratic state, the "student self-government" is regulated by law. There is a "parliament" elected by all mathematics students, called Fachschaftsvertretung, and a "government" (the said FSR) elected by this parliament for doing the daily work. The word "Fachschaftsvertretung" roughly translates to "student representation". The FSV is the highest decision-making body of the Fachschaft.[1] It is elected every year—usually in December or in January close to the election of the student parliament (SP). The FSV not only elects the FSR, but also oversees its activities. For example, the FSV passes the budget of the FSR, deciding what money should be spent on and how much. Besides, the FSV takes all decisions for the Fachschaft that are more fundamental or of higher importance than the usual day-to-day work of the FSR. Meetings of the FSV do not take place regularly, but are always announced in advance.

FSV

One of the most important tasks for the FSV and the FSR is to represent the interests of the students vis-à-vis the administration and the professors of the university. This is done through various committees of the university. We represent you in these committees, such as selection committees for new professors, in financial planning or in the discussion of examination regulations. If you want to know more about the committees, what they are about and what we do there, you can come by or read it on our website.[2]

Events

In addition to the Bachelor–Master Office (BaMa) and the Bonn International Graduate School of Mathematics (BIGS), the FSR and its Master Department organise several events to welcome the new Master freshmen. In the winter semester, the FSR and its Bachelor Freshmen department organise an extensive bachelor's freshmen welcome programme. If you speak German and are interested in getting to know the bachelor's freshmen you are welcome to join the bachelor's freshmen welcome, too.

Almost all the collective mathematics activities are also organised by the FSR: There is usually a Maths Party every semester and something that hardly any other Fachschaft organises: our own ball (or formal dance, as our American friends say).[3] The Maths Ball is—as the name promises—an opportunity to enjoy a really nice evening of ballroom dancing in a suit and evening gown. There is also a short introductory dancing class before the event.

Maths Party

Maths Ball

[1] It is really only the highest *elected* decision-making body; there is one body of the Fachschaft even higher, which is the FSVV (general assembly). Explaining the duties of the FSVV would go beyond the scope of this article.

[2] `https://fsmath.uni-bonn.de/about/panels.html`

[3] When we say "usually", we mean outside of pandemics; we don't expect this event to be permitted this semester.

Figure 20: The summer dance ball.

Furthermore, every year there are several game nights with various special features on the programme, such as karaoke. Our ever-popular long-running favourite events also include the Wine and Cheese Evenings (WaCE, in German WuKA for "Wein- und Käseabend"). These events are well suited for chatting and getting in touch with other maths students.

WaCE

Also, usually in the annual programme: a Mulled Wine and Cookie Evening (MulledWaCE), a Christmas party in winter, and a big end-of-semester barbecue and summer party at the end of the summer semester with all the mathematical institutes. Drinks are always available at cost price, and we provide snacks, biscuits and other small items for free.

Online, our standard events also include game nights. Stadt-Land-Fluss (finding words) and Skribbl.io (drawing and guessing) are usually the favourite games. Last semester, we also established online pub quizzes, where you can prove your knowledge in small teams. These online events will be continued, even when we are allowed to meet in person again.

Online games evenings

(online) pub quizzes

Of course, you are always welcome to all of these events—they are organised for you!

Other Tasks

The AWD ("Anwesenheitsdienst", German for attendance service) is your first point of contact for all problems with lecturers, tutors and other people that you cannot or do not want to solve on your own, or where mediation by other students can be helpful. An email to info@fsmath.uni-bonn.de can help to solve a problem very easily.

contact person

We have office hours (AWD): During the lecture period, under normal circumstances, there is always someone in the office of the Fachschaft from Monday to Thursday at 12 PM–2 PM. However, during the Covid-19 pandemic, the AWD is not present on site. Instead, you can call us at the above-mentioned times on phone number +49 1590 1489564. But even if you have questions outside of office hours, the office would normally be opened most of the day; during the pandemic, you can still reach us by email.

office hours

Meetings of the Fachschaft

To keep track of this pile of activity, we usually meet every Wednesday at 6 PM (*cum tempore*) in the recreation room—always with biscuits and a good mood. Unfortunately, due to the ongoing pandemic, our meetings have to take place online (via Discord or BigBlueButton). You are just as welcome to attend the online meetings as you are invited to come to the meetings in person (once the pandemic is over). Just send us an email to info@fsmath.uni-bonn.de and we will send you the link to our Discord server. You are always welcome to drop by and listen to one of our FSR meetings or to contribute something. The meetings are usually in German, however, we can also switch languages if you are more comfortable with English.

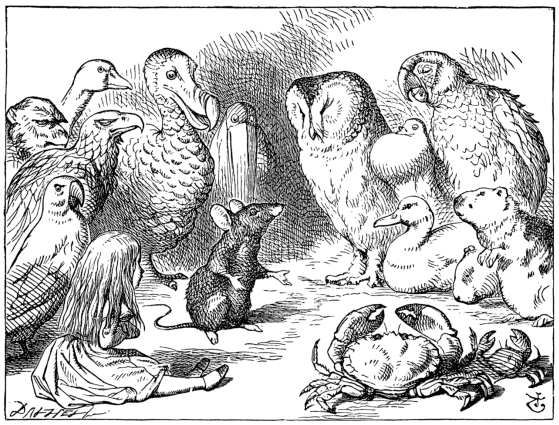


Figure 21: One of the weekly meetings of the FSR.

Participate!

Nobody has to be elected to get involved. As soon as you think this or that should be improved or you do not think your interests are well represented: Come and help to make it better! There are many good reasons to get involved in the Fachschaft:

» It is fun to champion the interests of your fellow students. You will see how you make a difference through your own work and help others.
» This is your chance to actively participate in shaping Bonn's mathematics and to put your ideas and visions into practice. You will get practice solving non-mathematical problems beyond your curriculum.
» The Fachschaft is a colourful bunch of great people from different semesters who are committed to helping others and always have an open ear for you and are happy to advise you in any life situation.
» The work needs to be done. Without organisers there will be no party, no Freshmen Information, and no other events. Along the way you learn how to organise events, plan a budget, etc. and you gain valuable experiences.
» This is the opportunity to learn how to convince others of one's ideas. At no point in your life can you gain these skills as safely as in student self-administration.

The Master Department

There is also a so-called "Master Department" of the Fachschaft. This department represents master's students and organises a few events for them, in particular at the start of the semester. It was also heavily involved in the writing of this booklet.

As you might have noticed, the Master Department is missing from the chart of current elected officials above. This is because there can only be officials from six departments in the FSR at a time. A list of all departments can be found on the website of the Fachschaft.[4]

[4]Departments: fsmath.uni-bonn.de/about/departments.html.

Structure of the University

Welcome to the jungle! Universities are structures that have grown over the past 800 years. The one in Bonn was founded over 200 years ago and consists of more than 540 professors, 4,100 research assistants, 1,700 technical and administrative staff and 38,000 students. No wonder the organisational structure is not always immediately understandable.

Organisational Structure

faculties

First of all, the university consists of faculties. In Bonn, we have seven faculties. There are also a few institutes that do not belong to any faculty: for example the Bonn-Aachen International Center for Information Technology, but also the Research Institute for Discrete Mathematics (DM).

institutes

A faculty, in turn, consists of institutes. Often several institutes are involved in a single degree programme, which is why they are combined into teaching units. How can you tell that there are several institutes in mathematics? In almost every aspect of administration! For example, each institute has its own homepage—this does not make it any easier for you.

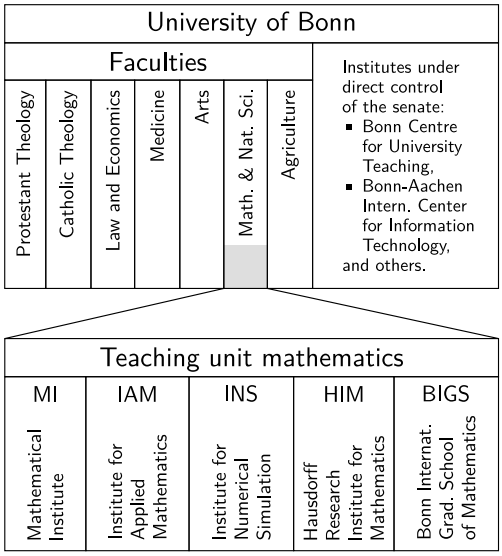


Figure 22: Faculties of the university and the teaching unit of mathematics (excluding the DM).

Bodies of Administration

On every organisational level, there is administration. And where there is administration, there is also a boss:

Who runs what?

The university is headed by

Rectorate (one rector, one provost [a.k.a. chancellor], five vice rectors): takes all decisions not otherwise specified in the HG, e.g. the draft of the university development plan. This includes study programmes, research priorities and university organisation;

Senate (representatives of university teachers, students, academic staff): responsible for the constitution of the university and other decrees and regulations, it approves the university development plan and influences the election of the members of the rectorate;

University Council (persons from important societal positions): advises and supervises the rectorate.

Faculties are administered by

Dean's Office (one dean and two or three vice deans): Among other things, ensures that the academic courses offered are complete, and is responsible for study and examination regulations;

Faculty Council: besides dean and vice deans, professors as well as representatives of academic staff and students are part of this committee. It decrees the regulations of the faculty.

Institutes are managed by

quite a number of directors, including one "managing director".

student committees

During reforms in the seventies, we students gained a certain amount of power in many decisions. The AStA ("general students' committee", "Allgemeiner Studierendenausschuss") and the student parliament are responsible for the entire university, while the student councils (Fachschaften) are responsible for the individual subjects (teaching units).

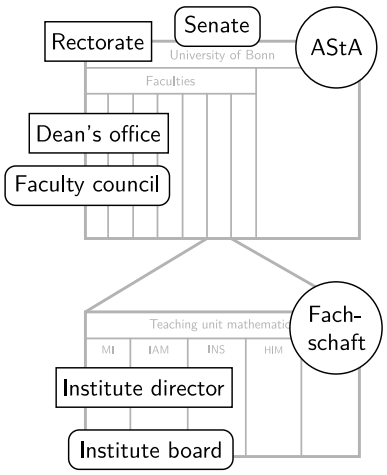


Figure 23: Administration.

Mathematics in Bonn: Partitioned into Many Institutes

If you go a little deeper and ask not only about teaching but also about mathematical research in Bonn, the organisation gets even more confusing. Today's structure is best explained by its history.

discrete mathematics

The Mathematical Institute (MI) and the Institute for Applied Mathematics (IAM) have existed for more than fifty years. In the Faculty of Law and Economics, Professor Bernhard Korte ran a department called "Operational Research", which was outsourced in 1988 to form its own institute, the "Research Institute for Discrete Mathematics" . Then, it was largely separated from the Faculty of Law and Economics and now reports directly to the university senate. Professor Korte has donated his private collection of art and calculating machines to the "Arithmeum", a museum attached to the Research Institute for Discrete Mathematics.

Arithmeum

Max Planck Institute

The Max Planck Institute for Mathematics (MPI) was established around Professor Friedrich Hirzebruch in 1980, then a professor at the MI. It was first located in Beuel, but is now located in the city centre (in the former main post office on Münsterplatz).

Fraunhofer SCAI

The Institute for Algorithms and Scientific Computing (SCAI) emerged in 1992 from the "Institute for Basic Methodologies in Information Technology" of the former Society for Mathematics and Data Processing (GMD). In 2001 the GMD was merged with the Fraunhofer Society for Applied Research and the SCAI became a Fraunhofer institute.

Around the year 2003, the former IAM was divided into the present IAM and the Institute for Institute for Numerical Simulation (INS), so that numerical simulation did not dominate all other departments in the IAM. Since 2010, Professor Michael Griebel from the INS is also managing director of the SCAI, and the SCAI operates a branch lab at the INS.

With this said, we have reached the status before establishing the Cluster of Excellence: Three institutes within the Faculty of Mathematics and Natural Sciences (MI, IAM, INS), another one outside the faculty (DM) and yet another two completely independent of the university (MPI, SCAI).

Then in 2006 the Excellence Initiative was founded,[1] and the institutes mentioned above (except the SCAI) brought in the Department of Economics (and thus the Nobel Memorial Prize winner Professor Reinhard Selten). Together they received around 35 million euros in federal funding. In September 2019, the university received the Cluster of Excellence for a third time and the University of Bonn is now a "University of Excellence". The Hausdorff Center for Mathematics (HCM) was founded to coordinate the cluster. It is responsible for the administration of additional funds, public relations work, etc. Additional research is carried out by additional professors (Bonn Junior Fellows and Hausdorff Chairs) and by the Hausdorff Research Institute for Mathematics (HIM), which was also newly founded at the time. It is structured similarly to the MPI: There are very few permanent staff members, and most researchers come for a guest stay (three weeks to six months) to be able to research and discuss with other mathematicians far away from the hustle and bustle of their home university.

Bonn is home to the only German winners of the Fields Medal: Professor Gerd Faltings and Professor Peter Scholze. Both are directors of the MPI, and Professor Scholze is one of our lecturers as well. Professor Scholze received his Fields Medal in August 2018.

All of this has resulted in a multitude of overlapping structures to this day: Some mathematics institutes belong to the faculty, others do not. The HCM is above all institutes in the teaching unit and also above the MPI, which is not part of the university. We hope you enjoy the cheerful confusion!

[1] In 2017, the Excellence Initiative has been reissued under the innovative new name *Excellence Strategy*.

Libraries

Since the foundation of the MZ, there are mainly two university libraries in Bonn relevant to you: The Library of Mathematics and the MNL Branch Library.

The Library of Mathematics contains all the important books and journals that you need for your mathematical studies.[1] In this library, the libraries of the mathematical institutes and the textbook collection formerly stored in the MNL Branch Library have been merged. German students usually refer to it as the "Mathe-Bib" which is short for "Mathematik-Bibliothek".

Figure 24: Workplaces in the Library of Mathematics.

The textbook collection is mostly relevant for the first few semesters. Here you can find quite numerous copies of standard books for the most common lecture courses.

For your master's studies, the part that originated from the former institute libraries will be more important. There is the borrowing section on the ground floor and the reference section on the first floor. Here you will find virtually all the books you might need throughout your studies. As the name suggests, you can borrow books from the borrowing section and take them home (see below for more details). In contrast, the books from the reference section can be borrowed for at most one day.

For Graduate Seminars and especially for your master's thesis, the third part of the library will be of use for you as well: In the rear part of the ground floor, you can find the journal archive with more than 300 mathematical journals. Most of these are in English, but there are also few in German, Russian or French. This is the place to go if you want to immerse yourself in cutting-edge mathematical research.

journal archive

Figure 25: The MNL Branch Library ("Bauernbib") at the Campus Poppelsdorf.

So you have found your book. Now, where can you read it? One option (during pandemics the only option) is of course at home: to borrow a book, you need a library card for the ULB Bonn. You can obtain it at the MNL Branch Library at Nußallee 15a. Apart from your student ID, you will need your identity card or your passport and a registration certificate.[2] From then on you can borrow all books with a yellow label (those are located on the ground floor) for four weeks. This period can be renewed on the website of the ULB Bonn.[3] The books with white labels and the anthologies with red labels are part of the reference section and can only be borrowed for one day at most. For this, it is best to ask the library supervisor at the front desk. Journals usually cannot be borrowed at all, but you can copy them. During the pandemic, it is also possible to borrow them. You can inform yourself about the current regulations on the website of both the Library of Mathematics and the ULB Bonn. The Library of Mathematics will probably reopen in the winter semester 2020, but

borrowing

[1] Website of the Library of Mathematics: bib.math.uni-bonn.de.

[2] Details on getting a library card are available at www.ulb.uni-bonn.de/en/using-the-library/registration.

[3] Website of the ULB Bonn: www.ulb.uni-bonn.de. Details on borrowing conditions can be found at www.ulb.uni-bonn.de/en/using-the-library/ausleihe-nutzung%20vor%20Ort.

no definite plans were known at the time of writing.

quiet workspaces

small meeting rooms

In the next sections, we will explain the daily life in the library under normal circumstances, without pandemics. All over the library, there are quiet workspaces where you can go to research your master's thesis, for example. Furthermore, there are two meeting rooms for small groups near the entrance. Here you are allowed to talk and have discussions, while in the rest of the library you are required to keep quiet. If you want to collaborate on an exercise sheet or discuss your lectures together, which is really advisable, you can also use the group working space in the MNL Branch Library. Here you will usually find a couple of free seats and often also fellow students that you can approach if you are completely stuck on a particular exercise.

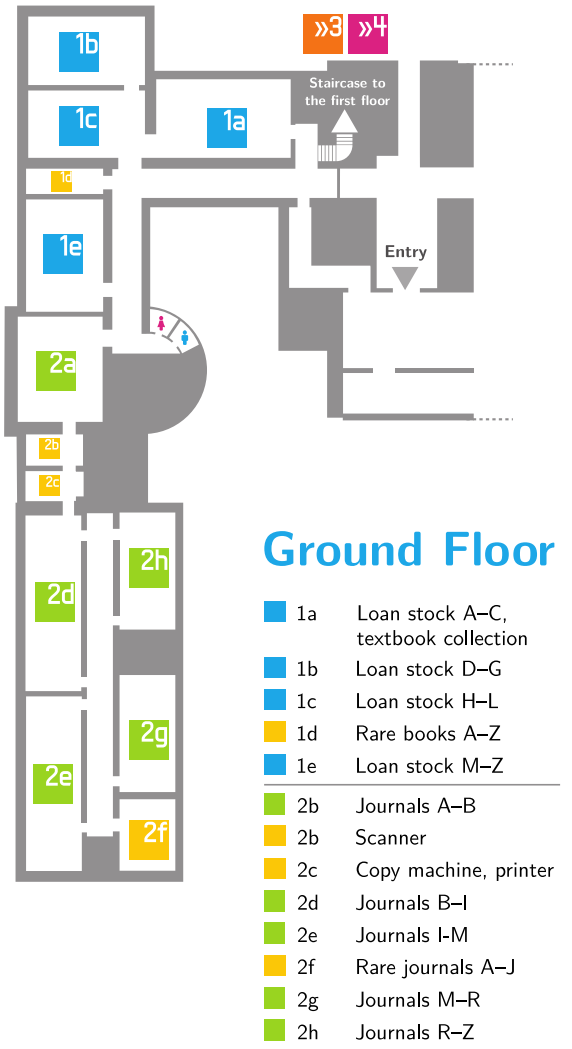


Figure 26: The ground floor of the Library of Mathematics.

Finally, we would like to point out two essential services of the library that were first introduced through student fees and are now supported by quality improvement funds:

First, the opening hours of the Library of Mathematics have been extended and are now 8:30 AM to 11 PM on weekdays and from 10 AM to 7 PM on Saturdays.

print, copy, bind

Second, maths students can print, copy and bind lecture scripts here free of charge. For copying, you need a copy card. These are kept at the front desk and can be borrowed. Printing is possible from the four desktops at the entrance or the CIP-Pool in the annex if you want to print a lot of pages (e.g. a script). However, you cannot connect external drives to these computers, so you can only print files that you download from the internet. The Fachschaft regularly supplies new paper, toner and copy cards. Since this service is heavily used and the refilling is done by volunteers from the Fachschaft within their own means, it might occasionally happen that it is not possible to print or copy for a few days. Last but not least, we would like to ask you to leave the printer rooms as you would prefer to find them.

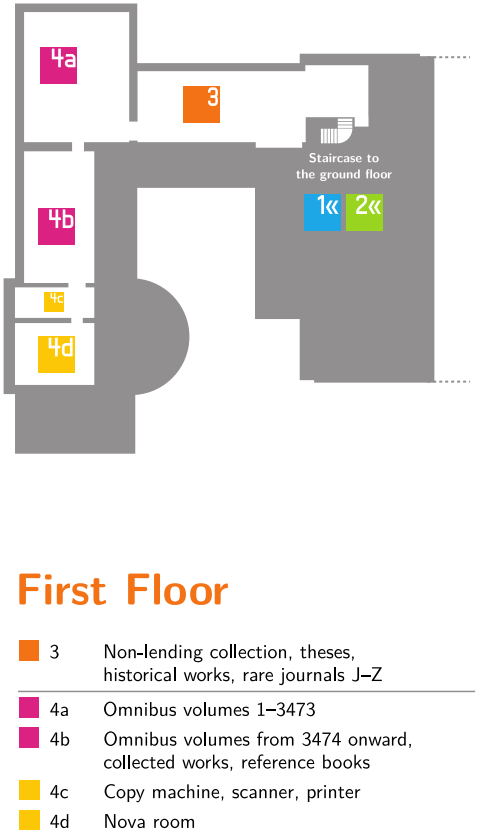


Figure 27: The first floor of the Library of Mathematics.

Mathematical Buildings in Bonn

This chapter aims to inform you about important buildings that are used by mathematical facilities.

History

The Mathematical Institute (MI) and the Institute for Applied Mathematics (IAM) used to be on Wegelerstraße for more than 50 years. In 2003, the Institute for Numerical Simulation (INS) was separated from the IAM; both stayed in the building at Wegelerstraße 6.

The Max Planck Institute for Mathematics (MPI) was founded in 1980 by Friedrich Hirzebruch, and it was first located in Beuel. It moved to Münsterplatz in the city centre of Bonn in 1999, into the upper floors of the building complex that was previously used by the post office ("Postamt"). The entrance to the institute is in a side street (Vivatsgasse).

The Research Institute for Discrete Mathematics (DM) was founded by Professor Korte in 1988. Its original location was on Nassestraße, around the corner from the present location. The new building was finished in 1997 on Lennéstraße. It includes a museum of historical calculating machines ("Arithmeum"); the construction of the building was financially supported by the Federal Government after Professor Korte's private collection of calculating machines had been donated to the state.

The Fraunhofer Institute for Algorithms and Scientific Computing (SCAI) is located in Schloss Birlinghoven in Sankt Augustin, which is next to Bonn. This location is shared with other Fraunhofer institutes. The SCAI also operates a branch lab at the INS since 2010.

In the year 2009, the MI and the IAM moved into their current home at Endenicher Allee 60, while the INS stayed on Wegelerstraße. This imposing baroque-style building was used by the Landwirtschaftskammer Rheinland until 2004. The building was completed in 1916, when it was one of the largest building complexes in the city of Bonn. There is also a smaller new building (annex) from the 1970s in the backyard; it is used by the mathematical institutes and also by the Fachschaft.

The new campus area in Poppelsdorf between the MNL Branch Library and the Mensa was largely completed in 2018, when the INS (as well as the Department of Computer Science) moved into its new home.

Current Situation

In the following, we will list all buildings you definitely have to know about, either because your modules will take place there, or because they are home to some institution. Occasionally some lectures—and often exams—take place in other buildings.

The short labels in brackets are the ones you will find on BASIS.

Mathematikzentrum (MZ) This is the largest and most important building of mathematics in Bonn; its address is Endenicher Allee 60 (`EA60/MATH`). The bus stop *Kaufmannstraße* is directly in front of it; but depending on when the bus is coming, walking from the central station may be faster (15 minutes). There are also bicycle racks on the backyard (accessible through the small gate to the left). Home to the Bachelor–Master Office (BaMa), the MI, IAM and the Library of Mathematics. This is also where most seminar rooms are; their label is `SR` x where x is the room number. Finally, there is the *Lipschitzsaal* (named after the German mathematician Rudolf Lipschitz), which is occasionally used for special events.

Figure 28: The Mathematikzentrum (MZ).

Annex to the MZ Small building behind the MZ, accessible through the backyard. It is home to the Fachschaft and the recreation room. There are also a CIP-Pool and a few more seminar rooms with the label `N` *y* where *y* is the room number.

Figure 29: The annex to the MZ.

Wegelerstraße 10 (`We10`) This building is a walk of six minutes away from the MZ. The closest bus stop is *Haydnstraße* (coming from the central station). There are also a few bicycle racks in front of the building. This is the building where most large lectures (like foundation modules) take place. There are three lecture halls in this building, listed in descending capacity:

» *Großer Hörsaal* (`Gr.HS`): "large lecture hall";
» *Kleiner Hörsaal* (`Kl.HS`): "small lecture hall";
» *Zeichensaal* (`ZS`): "drafting room".

Figure 30: Wegelerstraße 10 (`We10`).

Arithmeum This building is home to the Research Institute for Discrete Mathematics (DM). Its address is Lennéstraße 2 (`Le2`). This is where all modules (lectures and seminars) of Area C (discrete mathematics) take place. This place is a bit annoying to commute to from the MZ because it lies on the other side of the railway. The quickest way would be to ride a bicycle, using the pedestrian subway at Poppelsdorfer Allee; alternatively, you can go by bus to Central Station and then continue walking for nine minutes. The rooms in this building are:

» *Gerhard-Konow-Hörsaal* (`G-K HS`): "Gerhard Konow lecture hall" (named after a German politician who promoted research in discrete mathematics);
» *Seminarraum* (`SR DM`): "seminar room".

Figure 31: The Arithmeum.

Villa Maria This building is direct to the left of the MZ (Endenicher Allee 62). It is home to the Hausdorff Center for Mathematics (HCM) and the Bonn International Graduate School (BIGS).

Figure 32: The Villa Maria.

Endenicher Allee 19b This building is on the newly named Friedrich-Hirzebruch-Allee, opposite of the building of Computer Science (*Informatikzentrum*). It is located on the newly built campus area south of the MZ. It is home to the Institute for Numerical Simulation (INS) and a branch lab of the SCAI.

Figure 33: Endenicher Allee 19b.

Vivatsgasse 7 Hidden but large building complex in the city centre next to the Münsterplatz—you wouldn't notice it if you didn't know about it because only the entrance is at ground level. Home to the Max Planck Institute for Mathematics (MPI). This building is not open to the public, but it is very cool to visit if you have an appointment there.

Figure 34: Vivatsgasse 7.

Nine circles of algebraic geometry This structure north of the MZ is where the algebraic geometers gather. During an otherwise quiet night, one can hear students' screams howling through the air.

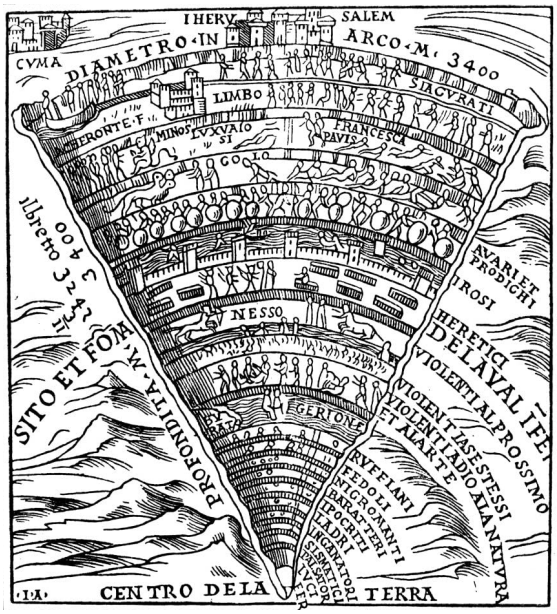


Figure 35: The nine circles of algebraic geometry.

All about Money

Financing your studies and the funding of the university, while not the most exciting topics, are nevertheless very important topics in the everyday life of students. At this point, we would like to give you some tips on financing your studies and on scholarships and then give a brief insight into the funding of the university and especially of Mathematics in Bonn.

Figure 36: A student filling out their BAföG application.

Financing Your Studies

There are five major funding options for your studies: parents, financial aid, loans, scholarships and personal income. In this text, we want to give a brief introduction into each option and link to further resources.

Parents In Germany, parents are legally obligated to finance their (adult) children's education up to a first vocational qualification. As such, parents are generally obliged to pay maintenance until the end of their children's studies.

BAföG If your parents—as well as your spouses/partners—are unable to support you due to low income, the German state provides a need-based financial aid: BAföG (German abbreviation for Federal Training Assistance Act). Half of the BAföG financial support is usually a grant, the remaining half an interest-free loan.

Who can claim BAföG?

As a rule, every student who

» has
  › German citizenship
  › or prospects of remaining in Germany and is already integrated into society
  › or a partner/parent that fulfils one of the said criteria
» starts their studies before the age of 35 (in case of the master's degree programme)
» and can prove "suitability"

is entitled to BAföG. As the legal regulations are very complex, it is advisable to contact the BAföG office at an early stage to find out whether you are entitled. Visit www.studierendenwerk-bonn.de/en/financing/ for further information.

Student Loans If you are not entitled to BAföG, student loans might be an option for you. These are loans with a zero or low interest rate directed at students. Be aware that loans are generally unsuitable as a long-term main source of funding due to the high danger of overborrowing. However, in individual cases with short-term financial needs (e.g. additional requirements during the examination period), a student loan can be useful, as opposed to extensive jobbing, as well as for top-up requirements to cover a comparatively small financing gap.

loans: only short-term funding

There are various student loans offered. Many are directed at a specific group, e.g. at students who need a loan to finish their degree. The non-profit organisation CHE offers a yearly report testing different student loans.[1] By far the most popular student loan is the KfW student loan[2], whose conditions were changed due to the coronavirus pandemic: the interest rate has been decreased to 0 %, and it has been made available to all international students. At the time of writing these changes remain in force until 31st March 2021.

In case of a short-term financial emergency the AStA

emergency loans

[1] CHE student loan test (in German): www.che.de/2020/kfw-studienkredit-corona-krisenhelfer-mit-schwaechen-im-che-studienkredit-test/.

[2] KfW student loan: www.kfw.de/inlandsfoerderung/Privatpersonen/Studieren-Qualifizieren/index-2.html.

and the student aid fund each offer an interest-free loan.[3,4]

Scholarships Besides BAföG and loans, you can also finance your studies with scholarships that you do not have to pay back at all. A common misconception is that only the best students have a chance to do so. But this has not been the case for a long time now.

The selection criteria are very diverse. For example, commitment to an honorary position can be the deciding factor. Or you might be looking for a scholarship for a special target group, such as mothers studying or working towards a doctorate. Don't be afraid to apply for a scholarship! On average, more than a third of scholarship applicants receive the funding for which they have applied.

Some various organisations and foundations offer scholarships, many directed specifically at international students. Depending on the scholarship, these include monthly financial support and/or non-material support. The largest group of providers for scholarships are the 13 "Begabtenförderungswerke" supported by the Federal Ministry of Education and Research. They represent important societal groups and have, for example, a political, religious or economic background. There are also many other scholarship providers in Germany: Smaller foundations often focus on particular subjects or cities. The University of Bonn itself (besides other institutions) offers the so-called "Deutschlandstipendium".[5] The German Academic Exchange Service (DAAD) runs a comprehensive database of numerous scholarships and offers further information.[6]

Personal Income Almost two-thirds of all students have part-time jobs. For half of them, their job is necessary to finance their living.

academic assistants

The university and research institutes offer jobs as academic assistants. For master's students these positions are called "wissenschaftliche Hilfskraft" (WHF) although in everyday language the abbreviation "SHK"—which technically only describes academic assistants without a bachelor's degree—is used more frequently. Typical assignments of a research assistant are assisting in software development (e.g. at Research Institute for Discrete Mathematics (DM), Fraunhofer Society for Applied Research), leading a tutorial at a mathematical institute or supervising the Library of Mathematics. Job offers are usually posted on the website of the institution you apply to or on the central database of the university.[7]

Outside the university, typical student jobs are working in gastronomy or pubs, as a cashier in a supermarket or helping out at fairs or Christmas markets. More mathematics-related student jobs can be found for example in consulting, or software development firms. The StwB runs a job exchange for student jobs.[8]

regulations

Be aware that there are many regulations regarding work that you have to pay close attention to, especially as an international student. In the following paragraphs, we give a short overview of this complex topic, but we are, of course, not lawyers, so you have to do further research on your own. We have linked to further information in the footnotes.[9,10]

Insurances Having health insurance as a student is mandatory in Germany. Most of you will have already dealt with this as you have to show proof of your health insurance coverage no later than at registration in the Studierendensekretariat of the university. The brochure from the international office of the university covers this topic (and many other topics) quite well.[11]

Further compulsory insurances that you generally have to pay are unemployment insurance and pension insurance. Usually, paying for these compulsory insurances is mandatory and your contribution is based on your salary. However, there are employment relations in which you are exempt from paying some or all of these social insurances.

In addition to these mandatory social insurances, you can choose to take out further insurances. Liability insurance is strongly recommended. If you are not already covered through your parent's household insurance, taking out your own is advisable. Further insurances such as a bicycle

[3] AStA emergency loans: www.asta-bonn.de/AStA#Social_Services_Department.
[4] Student aid fund: www.asta-bonn.de/Stud._Hilfsfonds.
[5] University of Bonn Deutschlandstipendium: www.deutschlandstipendium.uni-bonn.de/de/bewerben/guide-for-international-students.
[6] DAAD scholarship database: www2.daad.de/deutschland/stipendium/datenbank/en/21148-scholarship-database.
[7] Student job offers of the university: www.hrz.uni-bonn.de/de/x-tra/stellenangebote.
[8] StwB job exchange: jobben.studierendenwerk-bonn.de.
[9] Information from the Federal Ministry of Education and Research: www.study-in-germany.de/en/plan-your-stay/working-while-studying/part-time-job_71027.php.
[10] Information from the DAAD: www.daad.de/en/study-and-research-in-germany/first-steps-germany/side-jobs/
[11] International Office master brochure: www.uni-bonn.de/studying/international-students/degree-programs/masterbroschure-2018-webseite.pdf.

theft insurance might make sense in individual cases, but be aware of overinsuring!

Mini job[12] Most students work in an employment relationship called marginal employment or mini job which is characterised by either short duration (e.g. you work only outside of the lecture period) or low absolute level of earnings, i.e. you earn at most €450 a month with all of your mini jobs combined. You can also be employed in a mini job by private households, e.g. for cleaning or gardening.[13]

short-duration jobs

low income jobs

Generally, while working on a mini job, you do not contribute to social insurances besides the obligatory membership in health insurance and a reduced contribution to pension insurance and you do not pay any income tax.

Note that Germany introduced a minimum wage in 2015. As of now it stands at €9.35 per hour and will be increased to €9.50 per hour on 1st January 2021.

minimum wage

Working student If a job does not classify as a mini job, you might be classified as a working student ("Werkstudent"). This is the case if the job is only a minor matter and you spend your time mainly studying which is decided by the "20 hours rule": During the lecture period you may only work 20 hours or less a week besides your university studies; there is no restriction outside of the lecture period.

If you count as a working student, you do not have to pay any additional contributions to health or unemployment insurance. But you have to pay the full contribution to pension insurance and—in theory—income taxes, although most working students do not earn enough and are therefore tax-exempt.

Regulations for International Students There are legal regulations[14] covering the number of hours international students are allowed to work. These regulations are very strict. It is important to be aware of them: you may even be deported if you infringe them!

If you are from a member country of the European Single Market,[15] you are entitled to work as many hours as you want, without needing a special permit.

If you are from another country, then you are allowed to work 120 full days or 240 half days per year and you are not allowed to undertake self-employment. Anyone who wants to work more than this must seek permission from the Agentur für Arbeit[16] (local employment agency) and the Ausländeramt[17] (immigration office). It will depend on the level of unemployment in a federal state. However, this rule does not apply to academic assistants. There are no restrictions on these jobs at the university. Nevertheless, you must inform the immigration office if you want to work more hours.

Semester Fees

Every student[18] has to pay fees each semester. These fees are paid to the StwB—which runs the Mensa and dormitories—and the student body. The amount of fees the student body receives is decided by the student parliament (SP) on a semesterly basis. In Table 15 we compiled a list of which causes are benefiting from your fees. As you can see, none of the fees are paid to the university; this really means that your fees are no "tuition fees", which is a common misconception, because tuition is covered by the state (see next section).

Most of your fees to the student body are used for the semester ticket, which is included in your student ID and allows you to use public transport in the whole state of North-Rhine Westphalia.[19] University sports and social services such as daycare for students with children are also supported by semester fees. Last but not least, semester fees are the main source of income

semester ticket

[12] There was a discussion among the editors of this article whether to write "mini job" with or without a hyphen. We have decided to write it with a space, so that you can add hyphens afterwards as you like.

[13] Job exchange for mini jobs from private households (in German): www.haushaltsjob-boerse.de.

[14] Regulations for international students (from DAAD): static.daad.de/media/daad_de/pdfs_nicht_barrierefrei/in-deutschland-studieren-forschen-lehren/employment_january_2017.pdf.

[15] The European Single Market comprises the 27 member states of the European Union and (with exceptions in other aspects than work) Iceland, Liechtenstein, Norway, Switzerland and—at the time of writing—the United Kingdom.

[16] Agentur für Arbeit Bonn (in German): www.arbeitsagentur.de/vor-ort/bonn/startseite.

[17] Immigration Office Bonn: www.bonn.de/microsite/en/services/formalities/immigration-office-bonn.php.

[18] Actually, one can be exempted from some parts of the semester fee in case of social hardship, severe illness or having a holiday semester.

[19] Semester ticket: www.asta-bonn.de/Services#Semester_Ticket.

	Semester fee in €
StwB	100.00
student body	
to the AStA	11.50
to the Fachschaft	2.00
to social services	0.75
to the student aid fund	0.01
to the semester ticket (VRS)	134.80
to the semester ticket (NRW)	56.40
to the transit ticket refund	0.60
to university sports	0.85
to the culture ticket	3.00
total	309.91

Table 15: Semester fees winter semester 2020/21.

for the Fachschaft. Thank you very much for your support!

University Funding

Most of the university's funds are distributed by the rectorate and the dean's offices without student influence. However, quality improvement funds ("QVM") are a special exception. These were introduced by the state as compensatory payments for the abolition of tuition fees in the winter semester 2011/12. The amount of funding is based on the former income from tuition fees. The purpose of the quality improvement funds is the improvement of teaching and study conditions. To do this justice, a committee discusses the use of the funds. It consists of four students and four non-student members.

quality improvement funds

The committee discusses proposals on how to spend the funds. These proposals are passed on to an allocation committee, responsible for all proposals within the faculty, which then decides on their implementation. This allocation committee examines whether the individual expenditures are actually used to improve teaching or the learning situation.

In mathematics, the following projects, among others, are currently being financed from quality improvement funds:

The number of tutors employed by the institutes to lead exercise groups has been increased by approximately one third. Also, tutors for the Help Desk for the basic lectures of the bachelor's degree programme and additional student assistants helping with the preparation of lecture notes are financed from the quality improvement funds. The opening hours of the CIP-Pool and the Library of Mathematics could also be extended by additional student assistants.

additional tutors and SHKs

A very special luxury that you will appreciate very much: In the Library of Mathematics you have the option to print and copy specialised texts free of charge. Copying cards from the Fachschaft can be borrowed at the library counter. Besides, lecture notes with spiral bindings can also be bound for free.

free copying and printing

During the lecture-free period, various events take place which are financed with quality improvement funds: Revision courses for the beginners' lectures ("Repetitorien") to prepare students for writing retaken exams, programming courses to prepare students for programming exercises in the first two semesters, LaTeX courses, which could be interesting for everyone who is attending a seminar, or who wants to write a thesis, as well as tutors' training to improve the quality of the exercise groups.

courses and tutors' training

Students who are writing a bachelor's or master's thesis can apply for a (partial) reimbursement of their printing and binding costs.

thesis: printing cost reimbursement

Due to the coronavirus pandemic, three new positions for Ersti-Scouts (Freshmen Scouts) have been created, who are there for all your (especially non-technical) questions concerning your studies and your everyday life. More on that in the chapter **??**.

Ersti-Scouts

If you have further ideas to improve your studies, please write to `info@fsmath.uni-bonn.de`.

Living in Bonn

Most of you have probably thought about where to reside in Bonn before. It can be very difficult to find a decent flat in Bonn; it might seem like either you have to pay a lot of money or move to the outskirts. In this text, we want to show you some possibilities and strategies on how to find accommodation in Bonn.

Living at Home

First off: If you already live in the vicinity of Bonn, staying at home is probably the easiest way to go. Due to the coronavirus pandemic, there is a reduced amount of courses that require attendance, so you can just work from your computer at home and commute to the university whenever necessary.

Pro: If you can use your semester ticket for your commutes, this will probably be the cheapest option.

Con: This is, of course, only possible if you already live somewhere close to Bonn.

Do not forget that this option means that you still have to get up quite early if you have a lecture in the morning. You also lose a bit of flexibility because you cannot go on adventures with your fellow students spontaneously, and you might have to leave early due to the transport schedule. So making new friends will be a lot easier if you actually move to Bonn.

Figure 37: Before renting a flat, try to have a look at it to prevent unwanted surprises.

Dormitories

The golden rule: Apply *very* early! It is also better if you introduce yourself in person to the respective offices. The employees can get a much better impression of you in a personal conversation.

Pro: The dorms are cheap, and some of them are quite big—a rarity in Bonn! A few of them are located very close to the university, there is one right next to the Mensa CAMPO for example.

Con: The quality of the dorms can be rather modest, which is however usually sufficient for students.

Conclusion: considering the price-performance ratio, this is probably the best solution.

Private Housing

The same thing as before applies here: Start searching early—there are a lot of other people looking for flats, too! If you are not in a rush, it is better to search for a flat during the semester.

Pro: There are very good and different flats which may offer just what you are looking for.

Con: Sometimes way too expensive, make sure you are not ripped off! Some landlords will not accept students because most of them do not have a stable income.

Figure 38: Private housing can be quite expensive.

Important: If you have good contacts, it will be a lot easier to find something. You can profit from asking in your circle of acquaintances if somebody knows about flats becoming vacant.

Shared Flats

Again you can find a lot of offers on the internet (e.g. www.wg-gesucht.de). If you don't speak German, you should know that the German word for shared flats is "Wohngemeinschaft", often abbreviated to "WG". Of course, it is even more difficult to find a flat if you want to move in with friends or a partner. The first step is to think about what you are looking for: Do you just want a crash pad or do you want to be friends with your new room-mates?

Pro: The more the merrier—bigger flats are often cheaper.

Con: You should agree on financial matters early on before moving in. Also, make sure to clarify the ownership of shared items with your room-mates. The legal relationships specified in the rental contract are worth a detailed look. Subtleties can have an enormous impact! It is very helpful to work with a guidebook on the internet.

Setting up a shared flat

Fraternities

You might see suspiciously cheap housing offers while searching for a place to live, often emphasising a sense of community or looking only for male applicants. These offers are often from so-called "Studentenverbindungen", a type of student association that might be best compared to fraternities in the US.

If you don't know what a "Verbindung" is exactly, you should inform yourself thoroughly, as many of them share a conservative or even right-wing ideology. Unfortunately, there is not much information in English available, but the Wikipedia article[1] is a good starting point. Looking up the address to find out whether it is the location of a "Verbindungshaus", the equivalent of a frat house, can also help identify fraudulent advertisements.

Finding the right place to live is exhausting and filled with setbacks. Don't lose heart! The more persistence you show, the earlier you will find a place.

Stay persistent!

[1] Wikipedia article "Studentenverbindung": en.wikipedia.org/wiki/Studentenverbindung.

Figure 39: A student of analysis hearing the shape of their neighbour's drums.

Tips, Tricks and Further Advice

This chapter is a compilation of various practical tips for living in Bonn that do not really fit into any of the previous chapters.

Student Mentoring

In addition to the support programme by the Ersti-Scouts, there is another support programme by students for students. It is a strictly voluntary mentoring programme where you will get a personal mentor, a student in the 2nd or higher master semester, who has a maximum of two mentees. Then you can meet up at the beginning of the semester and ask questions about living and studying in Bonn and also ask for personal advice.

If you are interested, you can learn more about this programme, including information on how to register, on the official website:[1] Registrations are made via email by sending your name to mentorinnen.hcm@ins.uni-bonn.de.

Bicycles

Many students agree that a bicycle is *the* best way of transportation for students in Bonn. In fact, the AStA has set up a bicycle repair shop, where you can get cheap parts and repair your bike under expert supervision.

We have compiled some links to sift through below, in case you are looking to buy a second-hand bike.

1. The German Bike Club (ADFC)[2] and the AStA[3] regularly organise second-hand markets for bicycles—however, none are scheduled at the moment due to the pandemic.
2. There is a store run by a charity selling used bikes, refurbished with a one-year warranty, at reasonable prices.[4]
3. There are websites for private ads of all varieties—including bikes. The most commonly used one is eBay Kleinanzeigen.[5]

In case you don't own a bicycle or don't want to take yours with you, bike-sharing is a useful alternative. You simply rent a bike for the duration of your trip and leave it at your destination for the next person to use. The main bike-sharing provider in Bonn is Nextbike, which offers students 30 minutes a day free of charge.[6]

foodsharing

"foodsharing" is an organisation that works against food waste by saving food that would otherwise end up in the trash. To find out how you can become a "Foodsaver" yourself or how to contribute without being actively involved, visit the website www.foodsharing.de (in German). Information in English can be found in the English Wikipedia article[7].

[1] Website of the student mentoring programme: www.mathematics.uni-bonn.de/study/master-mathematics/offers-for-beginners#mnt.
[2] ADFC (in German): www.adfc-nrw.de/kreisverbaende/kv-bonn/aktionen/gebrauchtfahrradmaerkte.html
[3] AStA bicycle market (in German): www.asta-bonn.de/Fahrradmarkt
[4] Bike House Bonn: www.bike-house-bonn.de
[5] eBay Kleinanzeigen: www.ebay-kleinanzeigen.de
[6] Nextbike Bonn: www.nextbike.de/en/bonn/campusbike/
[7] Wikipedia article "Foodsharing.de": en.wikipedia.org/wiki/Foodsharing.de

Imprint

Publisher:
Fachschaftsrat Mathematik
Endenicher Allee 60
53115 Bonn

Responsible: Zbigniew Wojciechowski.

Editors: Felix Blanke, Martin Böhm, Andrea Lachmann, Tim Racs, Nicolas Schmitt, Jendrik Stelzner, Daniel Wieners, Zbigniew Wojciechowski and all editors of previous editions.

Version: This publication is a slightly shortened version of the master freshmen information that was published in print in October 2020. The changes were made on 30th March 2021 by Felix Blanke, Tim Racs and Marena Richter on behalf of the Fachschaftsrat Mathematik.

Editorial deadline: 12th October 2020.

Publication: Published on 31st March 2021 on the website of the Fachschaftsrat Mathematik.

Images: All images are in public domain, personal work or the necessary licences have been acquired. The following icons in the "Map of Bonn", page 45 are licensed under CC BY 3.0[1]:

- "Beer" by Zach Harris, US.[2]
- "Knife and fork icon" by Lorc.[3]
- "book vector png".[4]

Acknowledgements: Special thanks go to the following people for their hard work beyond pure editorial responsibilities:

- Tim Racs, who ported the original *Bachelor's Freshmen Information* to LaTeX,
- Nicolas Schmitt and Jendrik Stelzner, who made further modifications to layout and design,
- Nicolas Schmitt, who took care of the glossary and its technical implementation,
- Jendrik Stelzner, who designed the title page and redrew most charts,
- Felix Blanke, who wrote a script to generate a lot of tables,
- Johanna Hindert, who submitted very extensive and helpful corrections one day before going to press.

Furthermore, we thank all who proofread or helped to translate texts into English.

Please address comments, remarks, praise or criticism regarding this booklet to master@fsmath.uni-bonn.de.

[1] creativecommons.org/licenses/by/3.0/
[2] thenounproject.com/term/beer/11385/
[3] game-icons.net/1x1/lorc/knife-fork.html
[4] webstockreview.net

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Glossary

annex (German *Nebengebäude*) is a small building behind the MZ. It is home to the Fachschaft and the recreation room and also includes a few seminar rooms.

AStA (***A**llgemeiner **St**udierenden**a**usschuss*, meaning "General Students' Committee") is the body that legally represents all students at the university. More information is available at www.asta-bonn.de/AStA.

AStA Store is a store run by the AStA where you can get inexpensive stationery. Location and business hours are available at www.asta-bonn.de/Services.

Aufenthaltsraum is German for ☞ *recreation room*.

AWD (***An**wesenheits**d**ienst*, meaning "attendance service") is the regular advisory service of the Fachschaft Mathematik. It usually takes place in the Fachschaft office in the annex. During times of the coronavirus lockdown, it is only available via telephone.

Phone number: +49 1590 1489564

Bachelor–Master Office (BaMa) handles all matters of the Examination Office of the bachelor's and master's programmes of mathematics. They will also advise you on questions of study organisation. Contact information is available at www.mathematics.uni-bonn.de/study/contact.

BAföG (***B**undes**a**usbildungs**f**örderungs**g**esetz*, meaning "Federal Training Assistance Act") is a need-based financial aid provided by the German state. Half of the BAföG financial support is usually a grant, the remaining half an interest-free loan. More information on BAfäG can be found in chapter "All about Money", page 29.

BaMa is short for ☞ *Bachelor–Master Office*.

BASIS is the web service hosting the digital course catalogue of the university. Here you also have to register for examinations.

Address: basis.uni-bonn.de

bicycle repair shop (German *Fahrradwerkstatt*) is a DIY workshop run by the AStA. It is located right under the annex. You yourself repair your bicycle, but you will get help from an expert free of charge and you can buy cheap spare parts.

Info: www.asta-bonn.de/Nachricht:Fahrradwerkstatt_wieder_ge%C3%B6ffnet!_Terminvereinbarung_n%C3%B6tig!

BigBlueButton is a video conferencing software.

BIGS is short for ☞ *Bonn International Graduate School of Mathematics*.

Bologna Process is a series of agreements between European countries to seek coherence in the field of higher education. It is named after the Italian city of Bologna. As part of the Bologna Process, all participating countries agreed to introduce a three-cycle higher education system consisting of bachelor's, master's and doctoral studies. The Bologna Process is also the reason why you will receive a *Diploma Supplement* with your degree.

Bonn International Graduate School of Mathematics (BIGS) recruits and supports doctoral students of mathematics in Bonn. It is part of the Hausdorff Center for Mathematics (HCM).

c.t. is short for the Latin term *cum tempore*, meaning "with time". If these letters appear next to a time specification, it means that you have to add 15 minutes. For example, "10 c.t." means "10:15". This is when most courses start, and it is usually understood without explicitly mentioning it.

This is when most courses start, and it is usually understood without explicitly mentioning it.

The contrary is *sine tempore (s.t.)*

CIP-Pool (a.k.a. PC-Pool) is the name of the computer workspaces at the university. There are two CIP-Pools used by students of mathematics; one in the annex and one in the HRZ. The name is a remnant of the so-called Computer Investment Programme, a support programme for universities from 1984.

Cluster of Excellence is an association of research institutions from different disciplines working together on research projects. They receive project-related funding for internationally competitive fields of research as part of the German federal funding programme *Excellence Initiative* (called *Excellence Strategy* since 2017).

There are currently six Clusters of Excellence in Bonn, one of which is the Hausdorff Center for Mathematics (HCM) with the alternative long title "Hausdorff Center for Mathematics: Foundations, Models, Applications".

Corona is the name of a Mexican beer brand. It is available in most supermarkets.

Ah, yes, there is also a virus with the same name…

CP is short for ☞ *credit point*.

credit point (CP) is a unit of measurement defined by the European Credit Transfer and Accumulation System (ECTS); one credit point corresponds to a workload of 30 hours. To obtain your master's degree, you need to acquire at least 120 credit points. Further requirements are regulated by the PO.

culture ticket is a project by the AStA which gives free admission to certain museums and reduced tickets for various theatres.

Dies academicus is an event happening once every semester. There will be no regular courses on that day but many multidisciplinary and cultural events. The programme will be published at `www.uni-bonn.de/studium/studium-universale/dies-academicus`.

Discord is a proprietary online service. It offers chats, (video) calls and server management architecture. Discord has proved to be a valuable (unofficial) communication tool during times of the coronavirus lockdown.

Discord is available to download for free at `discord.com`.

DM is short for ☞ *Research Institute for Discrete Mathematics*.

eCampus is an official web service that can be used by lecturers to host course materials and communication interfaces. Its use has increased massively since the beginning of the coronavirus lockdown. You have to register for your courses at the beginning of the semester (in addition to your registration on BASIS). If a course is password protected, the login data will (hopefully) be communicated by the Bachelor–Master Office (BaMa).

Address: `ecampus.uni-bonn.de`

ECTS is short for ☞ *European Credit Transfer and Accumulation System*.

eduroam is a service that allows you to use free Wi-Fi in the vicinity of university buildings. The eduroam network in Bonn is operated by the HRZ.

Ersti-Scouts A group of three fellow students of mathematics hired by the Bachelor–Master Office (BaMa) to help out freshmen (German "Ersti"). There is a dedicated chapter in this booklet where you can learn more about them!

Contact email: `erstiscouts@math.uni-bonn.de`

European Credit Transfer and Accumulation System (ECTS) is a system designed to make academic achievements in European countries better comparable. It specifies that grades are weighted by credit points. Problem: credits points are a purely quantitative measure. The introduction of the ECTS in Germany is part of the Bologna Process.

Fachschaft **[faxʃaft]**, short FS, is a vague term that can mean different things in different contexts. By law, the Fachschaft Mathematik is the collection of all enrolled students in the bachelor's, master's and doctoral programmes of mathematics. In everyday usage, a "member of the Fachschaft" usually refers to a student who is involved in organising or executing Fachschaft-related tasks.

The Fachschaft is run by the FSR and the FSV. Some people translate Fachschaft as "student council", but we like to preserve this term for the FSR.

Website of the Fachschaft Mathematik: `fsmath.uni-bonn.de`

Fahrradwerkstatt is German for ☞ *bicycle repair shop*.

File-Service-Infrastructure is an online storage service provided by the HRZ.

Fraunhofer Society for Applied Research is a German research organisation with 72 institutes spread throughout Germany, each focusing on different fields of applied science. There are multiple Fraunhofer institutes in Bonn and its surroundings, but mainly three of them are of interest for mathematicians:

» Fraunhofer Institute for Algorithms and Scientific Computing (SCAI)
» Fraunhofer Institute for Intelligent Analysis and Information Systems (IAIS), website: www.iais.fraunhofer.de/en.html
» Fraunhofer Institute for Communication, Information Processing and Ergonomics (FKIE), website: www.fkie.fraunhofer.de/en.html

Fraunhofer Institute for Algorithms and Scientific Computing (SCAI) Research institute, independent from the university and part of the Fraunhofer Society for Applied Research, associated with the Institute for Numerical Simulation (INS), website: www.scai.fraunhofer.de/en.html.

FS is short for → *Fachschaft*.

FSR (*Fachschaftsrat*, meaning "student council") is one of the two committees of the Fachschaft—alongside the FSV. Tasks of the FSR include day-to-day business, the organisation of events and the AWD. The FSR holds regular meetings—normally in the annex, at the moment only online via Discord—where everybody (not only elected members) is invited to speak.

FSV (*Fachschaftsvertretung*, meaning "student representation") is one of the two committees of the Fachschaft—alongside the FSR. It is elected yearly by all matriculated students. Tasks of the FSV include deciding on the budget of the Fachschaft.

GOsa is the digital identity management system of the university. Here you can change your residential address and manage email aliases.

Address: gosa.gosa.uni-bonn.de

Hausdorff School for Advanced Studies in Mathematics (HSM) supports postdoctoral researchers beginning a career in academia or beyond the university, including training in academic teaching. It is part of the Hausdorff Center for Mathematics (HCM).

Hausdorff Research Institute for Mathematics (HIM) organises international long-term research programmes devoted to topics in mathematics and mathematical economics. It is part of the Hausdorff Center for Mathematics (HCM).

Hausdorff Center for Mathematics (HCM) is the Cluster of Excellence in the subject of mathematics. It includes all five institutes of mathematics (MI, IAM, INS, DM, MPI) as well as the Department of Economics.

HCM is short for ☞ *Hausdorff Center for Mathematics*.

HG (*Hochschulgesetz*, meaning "Higher Education Act") is a law that all universities in North Rhine-Westphalia must comply with.

HIM is short for ☞ *Hausdorff Research Institute for Mathematics*.

HRZ (*Hochschulrechenzentrum*, meaning "University Computing Centre") is a central institution operating the university's IT services. They also provide support and instructions for setting up Wi-Fi and email. Website: www.hrz.uni-bonn.de.

HSM is short for ☞ *Hausdorff School for Advanced Studies in Mathematics*.

IAM is short for ☞ *Institute for Applied Mathematics*.

INS is short for ☞ *Institute for Numerical Simulation*.

Institute for Applied Mathematics (IAM) is one of three mathematical institutes of the Faculty of Mathematics and Natural Sciences. Website: www.iam.uni-bonn.de.

Institute for Numerical Simulation (INS) is one of three mathematical institutes of the Faculty of Mathematics and Natural Sciences. Website: ins.uni-bonn.de.

Jitsi is a video conferencing software.

Landwirtschaftskammer Rheinland means "Chamber of Agriculture Rhineland". This self-regulatory organisation was housed in the building of the MZ until 2004, when it merged with the former chamber of Westphalia-Lippe to form the new Landwirtschaftskammer Nordrhein-Westfalen.

lecture period is the period within the semester in which courses take place. It is usually around 14 weeks long (not including holiday breaks). Exams are usually scheduled in the lecture-free period. Start and end dates are different each semester. They can be found at www.mathematics.uni-bonn.de/study/master-mathematics/calendar.

Library of Mathematics is located in the MZ. It is run co-operatively by the ULB Bonn and the mathematical institutes. To borrow books you need an account at the ULB Bonn which you can get for example from the MNL Branch Library. Website: bib.math.uni-bonn.de.

main building ("Hauptgebäude") is the palace next to the Hofgarten. It is mainly used by the Faculty of Arts and the theological faculties. Not to be confused with the MZ.

Mathematical Institute (MI) is one of three mathematical institutes of the Faculty of Mathematics and Natural Sciences. Website: www.math.uni-bonn.de.

Max Planck Institute for Mathematics (MPI) is a mathematical institute independent from the university but part of the Hausdorff Center for Mathematics (HCM). Website: www.mpim-bonn.mpg.de.

Mensa is the name of the canteen run by the StwB. There are two relevant sites: CAMPO (next to the MZ) and Hofgarten (interim tent directly next to the main building). Depending on the site, you might need a Mensa Card to buy a meal.

At the time of writing, the Mensa (like most facilities of the StwB) is closed due to the coronavirus lockdown. They should hopefully reopen soon.

Info: www.studierendenwerk-bonn.de/en/food-drink

Mensa Card can be used for cashless payment in every café and Mensa run by the StwB. It is available for a deposit of €5 at every Mensa and has to be renewed at the start of each semester. If you are a resident of a dormitory, you will also need the Mensa Card to operate the washing machines and dryers.

MI is short for ☞ *Mathematical Institute*.

MNL Branch Library is a branch of the ULB Bonn. "MNL" stands for medicine, natural sciences and agriculture (German "Landbau").

module is the building block of your studies. These are courses (e.g. lectures or seminars), which usually span one semester and are concluded by an exam.

Module Handbook is a document containing information on all modules offered in the mathematics master's degree programme. It can be found at www.mathematics.uni-bonn.de/files/master/ma_modulehandbook.pdf

MPI is short for ☞ *Max Planck Institute for Mathematics*.

MZ (***Mathematikzentrum***, meaning "Mathematics Centre") is home to the Bachelor–Master Office (BaMa), the Mathematical Institute (MI), the Institute for Applied Mathematics (IAM) and the Library of Mathematics. This building has previously been used by the Landwirtschaftskammer Rheinland (and because of monument protection you can still see its lettering above the entrance).

Some people will call this the "main building" to distinguish it from the annex, but make sure not to confuse it with the actual main building.

Nebengebäude is German for ☞ *annex*.

PO (***Prüfungsordnung***, meaning "examination regulations") dictates how your *entire* study program is structured. This is a very important document that you should read carefully at least once.

Download link: www.mathematics.uni-bonn.de/study/master-mathematics/documents

recreation room (German *Aufenthaltsraum*) is located in the annex. Here you can relax, make a coffee or tea or work on your homework. There is also a microwave and a fridge. Unfortunately, this room is closed during the coronavirus lockdown.

Regelstudienzeit is German for ☞ *standard period of study*.

registration period is the time in which you'll be able to register for exams. It usually takes place from 1st December to 20th December for the winter semesters and 1st June to 20th June for the summer semesters.

Research Institute for Discrete Mathematics (DM) is a mathematical institute outside of the Faculty of Mathematics and Natural Sciences. Website: www.or.uni-bonn.de.

s.t. is short for the Latin term *sine tempore*, meaning "without time". If these letters appear next to a time specification, it means that time is exact, i.e. "10 s.t." means "10:00".

The contrary is *cum tempore* (c.t.)

SCAI is short for ☞ *Fraunhofer Institute for Algorithms and Scientific Computing*.

sciebo is a cloud storage service offered by the university. More information can be found in the chapter "Digital Services of the University", page 13.

SP is short for ☞ *student parliament*.

Stadthaus is the city hall of Bonn. It is the largest building in the city centre. Among other things, it houses the residents' registration office. Don't forget to register! You have to reserve an appointment; expect eternally long waiting times.

standard period of study (German *Regelstudienzeit*) is the number of semesters finishing your studies is planned to take, i.e. four in case of the master studies. You won't have to fear any consequences by the university if you cannot finish your studies in the standard period of study, but some financial aids are only payed during this period, e.g. BAföG.

student parliament (SP) is the highest institution of the student body. It is elected by all students, usually in January.

StwB (***St**udierenden**w**erk **B**onn*, meaning "Student Services Organisation Bonn") is a public non-profit organisation for student affairs in Bonn and its surroundings. In particular it runs every Mensa, the dormitories and the day care for students with children and it handles all BAföG applications.

summer semester is the period of the year from 1st April to 30th September. Within the summer semester lies a lecture period with varying start and end dates and the Pentecost break.

ULB Bonn (***U**niversitäts- und **L**andes**b**ibliothek Bonn*, meaning "Bonn University and State Library") is the central library of the university. It consists of a main site and the MNL Branch Library. Students can get a free account to borrow books. Website: `www.ulb.uni-bonn.de`.

Uni-ID is your username to access all digital central services such as GOsa, BASIS, eCampus and sciebo. It is also part of your email address.

Info: `www.hrz.uni-bonn.de/en/services/identity-management/uni-id/the-uni-id-and-the-central-services/your-uni-id-and-the-central-services`

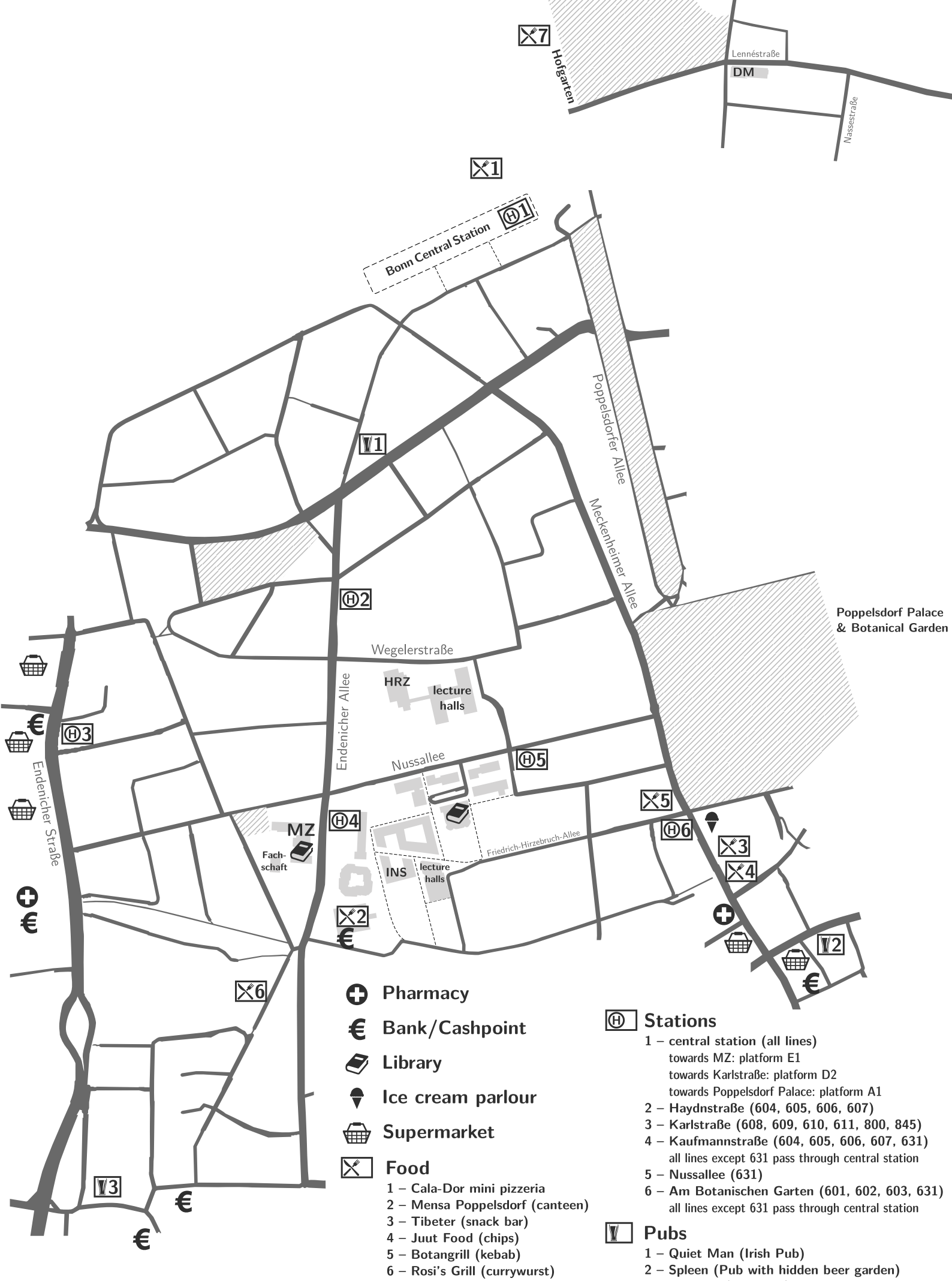
WaCE (German *WuKA*) is short for **W**ine and **C**heese **E**vening, an event organised by the Fachschaft.

winter semester is the period of the year from 1st October to 30th March. Within the winter semester lies a lecture period with varying start and end dates and the Christmas break.

WuKA is German for ☞ *WaCE*.

Zoom is a proprietary online service. It offers video calls with screen sharing capabilities. Zoom has been used by most lecturers for online lectures during times of the coronavirus lockdown.

Zoom can be accessed via the university's zoom page at `uni-bonn.zoom.us`. A standalone client is available to download for free at `zoom.us`.



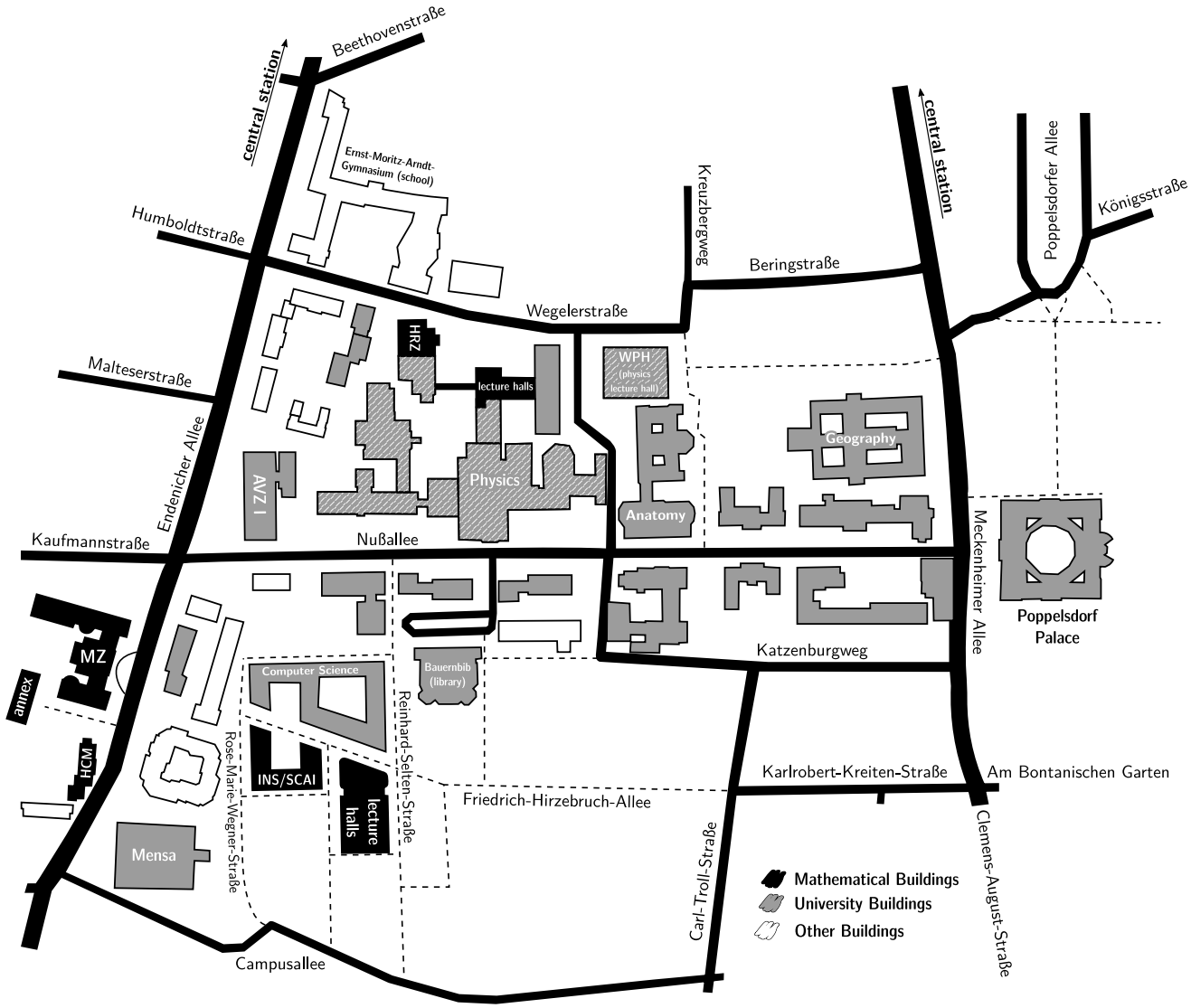
Pharmacy
Bank/Cashpoint
Library
Ice cream parlour
Supermarket

Food
1 – Cala-Dor mini pizzeria
2 – Mensa Poppelsdorf (canteen)
3 – Tibeter (snack bar)
4 – Juut Food (chips)
5 – Botangrill (kebab)
6 – Rosi's Grill (currywurst)
7 – Mensa Hofgarten (canteen)

Stations
1 – central station (all lines)
towards MZ: platform E1
towards Karlstraße: platform D2
towards Poppelsdorf Palace: platform A1
2 – Haydnstraße (604, 605, 606, 607)
3 – Karlstraße (608, 609, 610, 611, 800, 845)
4 – Kaufmannstraße (604, 605, 606, 607, 631)
all lines except 631 pass through central station
5 – Nussallee (631)
6 – Am Botanischen Garten (601, 602, 603, 631)
all lines except 631 pass through central station

Pubs
1 – Quiet Man (Irish Pub)
2 – Spleen (Pub with hidden beer garden)
3 – Fiddler's (Irish Pub)

Shaded areas are green space



Winter Semester 20/21		Summer Semester 21	
03.10.	German Unity Day	02.04.	Good Friday
26.10.	Start of the lecture period	05.04.	Easter Monday
01.11.	All Saints' Day	12.04.	Start of the lecture period
01.10.–15.11.	Registration period for seminars and practical courses	01.05.	Labour Day
01.12.	Deadline for transfer of credits	13.05.	Ascension Day
02.12.	Dies Academicus	24.05.	Pentecost Monday
01.12.–20.12.	Registration period for exams	03.06.	Corpus Christi
24.12.–06.01.	University Christmas break	23.07.	End of the lecture period
24.12.	Christmas Eve (half-day)		
25.12.–26.12.	Christmas		
31.12.	New Year's Eve (half-day)		
01.01.	New Year		
11.02.–16.02.	Carnival		
12.02.	End of the lecture period		

Some university dates for the summer semester are not yet fixed.