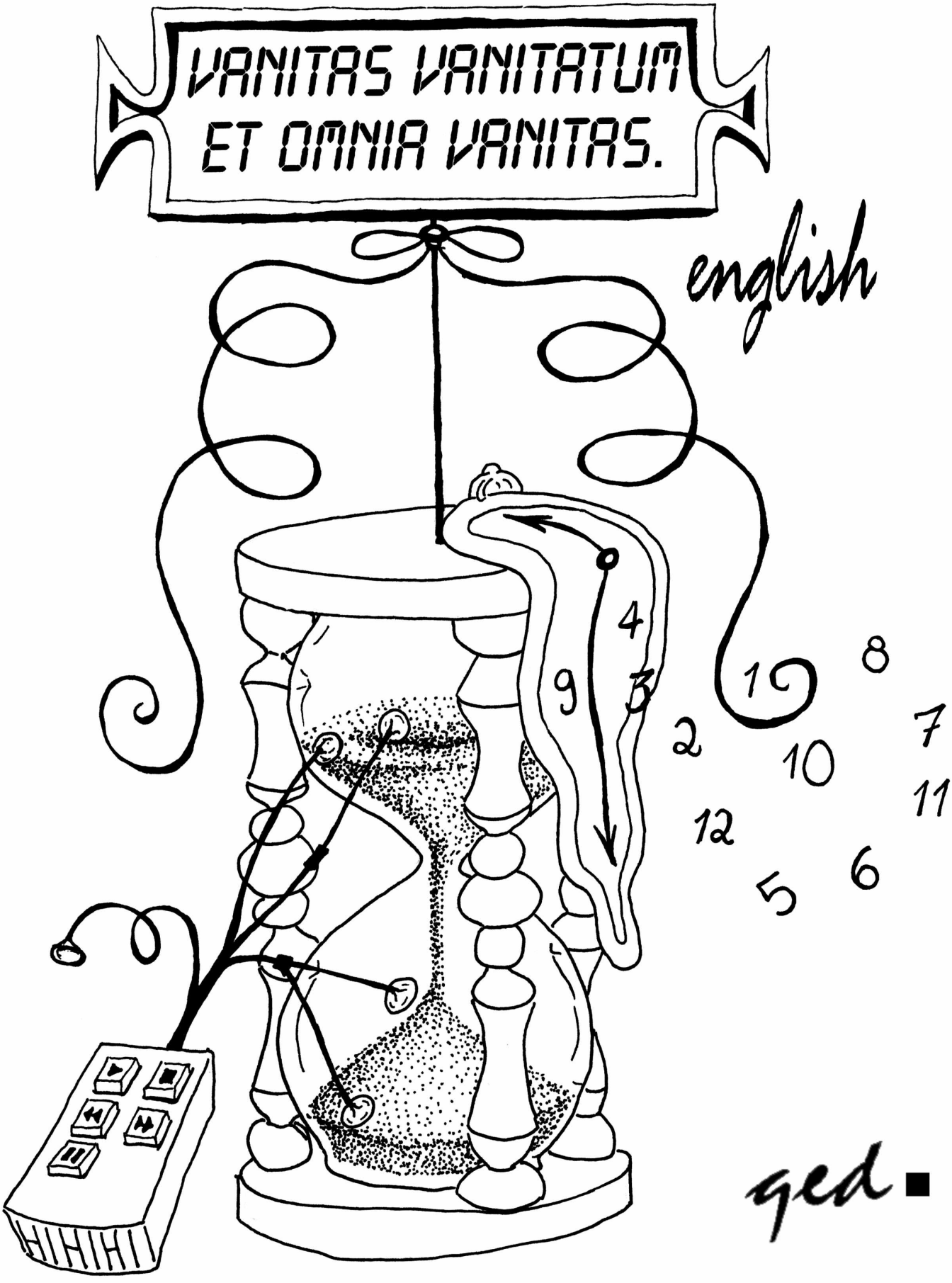
# MATHE-MMV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# Welcome

## Preface

### A Preface - now how do you do that?

. . . I asked myself desperately, but now I'll simply try.

Why a preface, anyway? what's this booklet all about?

You are now reading in the new **OWO-Info**. Many people worked unresting, so it would be completed on time (now that didn't work out always, but almost always).

**OWO** – that stands for **O**rientierungs**WO**che, which takes place from 17. – 21. october. In this week, you'll be prepared as good as possible on studying math (if that is possible). You'll see what exactly will happen on the next page.

You will be divided into different classes with other Ersties (:= first semester students), that way you can get to know each other. Along with you will be some tutors (the people wearing these fancy t-shirts). And these tutors are going to teach you something: what awaits you during studying, both in math and computer science (lecture on monday). Also you will get to know the professors and assistants (see interviews, there is also the "Professoren und Mitarbeiter kennenlernen" on wednesday). That is to say a math lecture is very different from a math lesson in school, and professors are no typical teachers.

You'll learn how to get something to eat here, how to obtain a housing and – important – how to finance it. The Fachschaft will also introduce itself – always a good contact point for unanswered questions, along with others you are about to see. Making a plan of your studies will also be on the plan, along with information about getting a side job in the mathebau (the most important building for mathematicians in university) and how to get to study in foreign countries (not that it wouldn't be nice here).

Last but not least there will be something to show you life isn't about mathematics only – in the OWO there will be a games evening, a party and a pub-crawl especially for you. So you see, along to many new things there's much fun awaiting you.

And why this OWO-Info, if everything will be told anyway? Well, like during your studies, you can't keep everything in your head and will be thankful for a script. Many things inside are not told in the OWO, but will be useful afterwards. And if someone doesn't agree, he can still read the comics :-).

So, all I still have to do is to wish you fun while reading this booklet and success during your studies.

***Stephan***

# OWO timetable MCS

| MONDAY (17.10.) | TUESDAY (18.10.) | WEDNESDAY (19.10.) | THURSDAY (20.10.) | FRIDAY (21.10.) |
|---|---|---|---|---|
| **8$^{00}$ reception** by the vice-dean *(S3\|11 008)* **trial lecture LA** *(S3\|11 0012)* | from **8$^{30}$ breakfast** | from **8$^{30}$ breakfast** | from **8$^{30}$ breakfast** | |
| **9$^{50}$ KG 1:** Getting known; OWO-overview *(_____)* | **10$^{00}$ reception** by the president *(S1\|01 053)* **trial lecture Ana** *(S1\|01 051)* | **9$^{50}$ trial exercise Lin. Algebra** *(_____)* | **9$^{50}$ CS-block** *(S2\|02 C120)* | **9$^{50}$ brunch** *(on 603 qm)* |
| **11$^{40}$ university tour** *(meeting point: S2\|15)* | **11$^{40}$ KG 2:** teaching forms & learning *(_____)* | **11$^{40}$ getting known the professors** *(S1\|01 052)* | **11$^{40}$ time travel through mathematics** *(S1\|01 051)* | **12$^{00}$ trial exercise Analysis** *(_____)* |
| ***lunch break*** | ***lunch break*** | ***lunch break*** | ***lunch break*** | |
| **14$^{00}$ lecture by Werner Nickel** *(S3\|11 0012)* | **14$^{00}$ KG2** money & misc. *(_____)* | **14$^{00}$ rallye in the Mathebau** | **14$^{25}$ KG3 :** timetable and curriculum *(_____)* | **14$^{25}$ KG 4:** feedback *(_____)* |
| **16$^{00}$ city tour** | **15$^{20}$ event of choice** | | **16$^{15}$ presentation of proseminars** *(S1\|01 051)* | **15$^{20}$ feets-balls-game with snack** *(Hochschulstadion)* |
| | **16$^{15}$ FS-presentation & politics** *(S2\|02 C205)* | **17$^{00}$ field game against physicians** | | |
| | **17$^{00}$ FS-meeting light** *(S2\|15 336)* | | **18$^{30}$ OWO-theater** | |
| | **19$^{00}$ pub crawl** *(meeting point: S2\|15)* | **19$^{00}$ games evening** *(S2\|15 219 + ε)* | **20$^{00}$ party** *(603 qm)* | |

# Commented OWO timetable

## Monday

Monday morning of your OWO begins with your reception by the vice-dean of the math department in Hexagon (S3|11 008). After that you will attend your first trial lecture (the room below for MCS–students). After your lecture your tutors will fetch and divide you into small classes. In your first Kleingruppe (KG) you'll get to know each other with tea and cookies. You will get an overview of the events in this OWO. The following university tour, which guides you to the most important buildings in university, fortunately ends at the mensa, so we can eat. In the afternoon, the MCS–students will attend a lecture about studying MCS. The end of this day is made by a city tour, after that you can relax, because the next days are going to be long :-).

## Tuesday

There will be breakfast at 8:30h in the five open collegiate working rooms (please bring along your own dishes). You will be recept again at 10 o'clock, this time by the TU's president. Afterwards there is the extra-huge KG2, interrupted by lunch. In this KG you will learn about teaching, learning and living in the Mathebau, and everything concerning money.

The following event will be an event of choice, meaning: there are several events offered, from which you can choose freely. Then we will show you a movie (yes, we really did a movie), where all university politics things will be explained (like AStA, StuPa, Fachschaft including its AGs ...). Subsequently is the Fachschaftssitzung, everyone interested is welcome.

In the evening you will get to know Darmstadt at night: On the pub-crawl, you will be touring through the pubs of the city in several groups – this could take some time, but its definetely worth it.

## Wednesday

Your first exercise will be after breakfast, it is about the lecture you had on Monday. You will have a chance to meet the professors and assistants at 11:40, it is a good opportunity to ask them every question you have on your mind. After lunch you can compete in the Mathebau-rallye, you will learn a lot about the Mathebau. You will then win against the physicians in the field game :-).

While we are at gaming: The games evening will be in $217 + \varepsilon$. And this, too, can take quite a time.

## Thursday

After the tasty breakfast, the MCS-students are going to have their CS–block. (Computer Science). On 11:40h, mathematics in the alteration is the theme in "Zeitreise durch die Mathematik".

You can finally create your timetable in KG3 as well as planning your curriculum. The diplomas can enlist on the mentoring-lists afterwards, while the proseminars will be presented to the MCS-students.

In the evening, there will be a theater–play (with your tutors as actors), and finally, the OWO-party takes place on 603qm. It's definetely worth it!

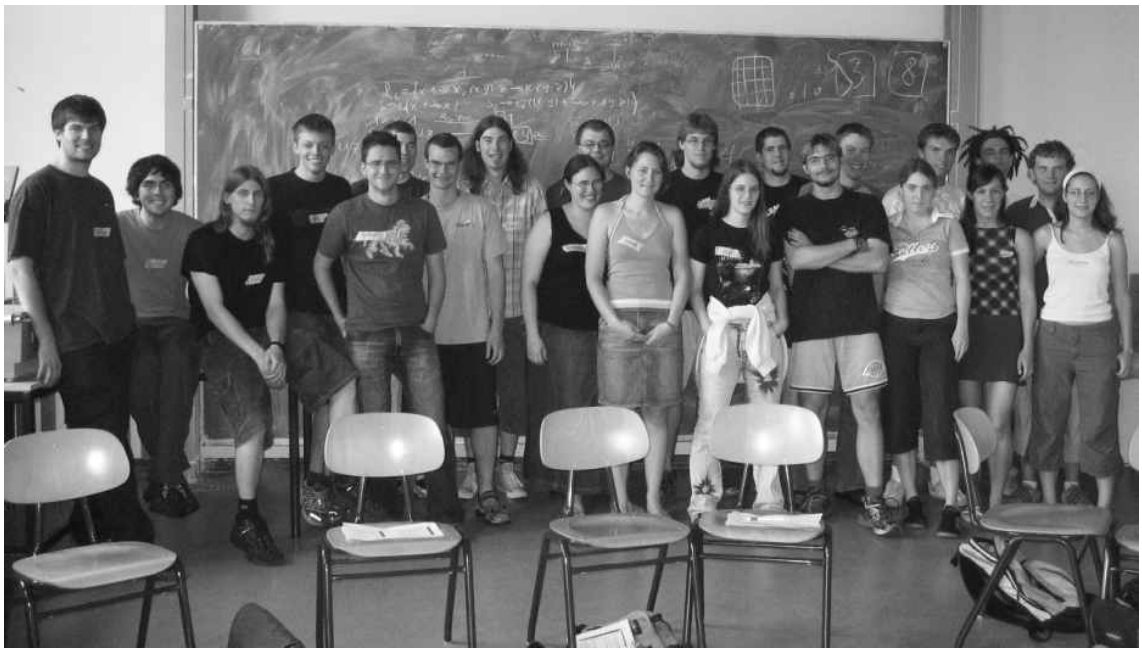
## Friday

As you all have been on the party so late, you can have a good night's rest. The brunch will also be on 603qm (useful, if somebody couldn't go home at all). Your second exercise is at 12 o'clock, and the last KG will be at 2 o'clock, it's about your feedback and your views of studying so far.

The closing is made by the traditional feet–balls–game with a snack, it's a soccer-like game, but with 4 teams, 3 balls, 2 goals and 1 field..

And now your pretty OWO is already over, we hope you liked it.

***Stephan***



Some of your OWO tutors

# Freshers' Weekend

## What, Where, When and most importantly Why is Freshers' Weekend???

**What**: A weekend with your fellow students and the *Fachschaft*. We're staying in a very cool seminar house where you'll have lots of time to chill, and where you'll have lots of fun, 'cause we've organised loads of activities.

**Where**: At the Gerhard–Löffler–Freizeitheim (Stierhöfstetten, near Würzburg). The house is a bit out of the way, and we've rented all of it, so it'll be just us. ;-) There's a main house and some cottages for sleeping. In the house you'll find, apart from the lounges, rooms for tabletop football, table tennis, billiard, and a room with a fireplace. Outside there's a place for a bonfire, a beach volleyball court, a basketball court, and a football place.

**When**: Friday, November 11th, till Sunday, November 13th 2005

**Why**: Because maths at TUD is much more than just lectures and exercise classes! There are all those other students, who show up to the same lectures (or don't, depending). There are parties, maths musical evenings, the maths choir, university politics, the maths dance, ...

In short, too much to learn about in one short week. During OWO, you'll probably be more concerned about your timetable, your lectures, etc. The first weeks at university turn out to be quite stressful, too. New city (perhaps even new country), strange people, weird mathematics.

At the Freshers' Weekend you'll have the opportunity to relax, and to get to know some of those people in a more un-mathematical atmosphere. We've organised lots of fun activities for you take part in, but there'll still be lots of time for you to chill, play sports, cards, or board games, collect some friends and go exploring, take your favourite book and find a place away from the entire bustle, whatever. If you feel that a weekend without maths is impossible, fine. Grab your lecture notes and come along! It's surely better to discuss your maths exercises with your fellow students, or have some exercise tutor at hand if you run into problems, than to stay at home by yourself and get frustrated.

You can *sign up* for the weekend at the Fachschaft's meeting on Tuesday or during the rally. The Fachschaft will pay for most of the weekend, but even the Fachschaft does not have an endless supply of money, so every one who wants to come will have to pay 10 € when signing up. At that time, you'll be put on the FreWe email list, and we'll send you more information :-).

If you have any questions, ask Susanne, Frauke, your tutor or anyone else or send an email to **freshers-weekend@mathebau.de** !

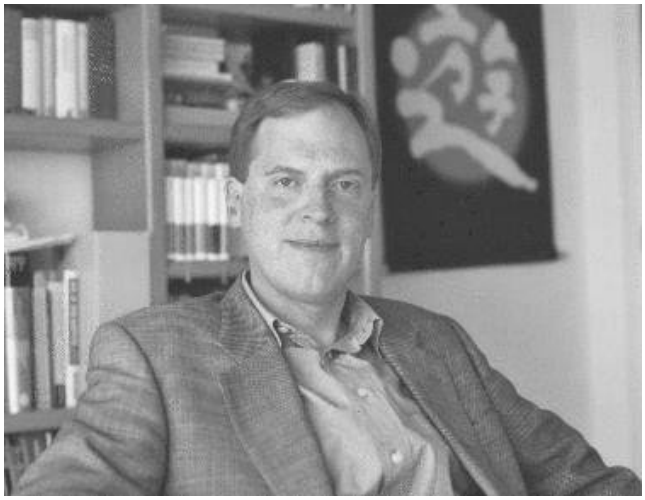
***Frauke***

# Studying

## Interview with professor Kohlenbach

Professor Ulrich Kohlenbach will be your "Analysis I for MCS" instructor. However this interview was made in summer 2004.

*What do you prefer? Coffee or tea?*



Coffee!

*When did you begin your studies and how did you come to Darmstadt?*

Well I began my studies in mathematics as I recall in '81 in Frankfurt at the Goethe University. I continued after the Diplom and did my PhD also in Frankfurt and later my habilitation. After having spent eight years abroad I was very glad to come back to Germany this year and actually close to Frankfurt where my family and my wife's family come from. Another reason for moving to Darmstadt was that I like to work in a mathematics department whereas I had been in a computer science department for the last seven years. I am a logician and many logicians work in computer science departments. But my work has strong connections to other areas of mathematics as well and at a mathematics department I have more opportunities to interact with colleagues in this respect than at a computer science department.

*Where did you go abroad?*

After my Habilitation I spent one year at the University of Michigan and from there I went to Aarhus in Denmark. At the University of Aarhus there is a big research center and international PhD school called BRICS which stands for "Basic Research In Computer Science". So in German terminology this is something like a "Graduiertenkolleg plus Sonderforschungsbereich". I started there in 1997 first on a research position and then got a regular position as an associate professor at the department of computer science in Aarhus. In total, I spent seven years in Denmark and liked living there a lot.

*Why did you study mathematics in the first place?*

During my last year in high school I happened to learn about Gödel's incompleteness theorems, foundational issues in connection with set theory, Hilbert's program and these things. I always had a strong philosophical ("foundational") interest and was determined to become a logician. I quickly realized that in doing so I had to become a mathematician first.

*How would you explain to a non-mathematician what mathematics is about?*

If I would have a brief and satisfactory answer I would be a great philosopher.

*Now that we already talked about it, can you explain shortly your main area of research?*

Yes, I am mainly interested in mathematical logic and its applications to mathematics and also computer science. Mathematical logic can roughly be divided into four different areas: set theory, model theory, recursion theory and proof theory. My main research area is proof theory which, however, has also close connections to recursion theory. Historically, proof theory goes back to D. Hilbert and was originally mainly concerned with certain foundational issues like (relative) consistency proofs. In more recent times, proof theoretic transformations (in particular so-called proof interpretations) have been proven to be useful to extract new information (e.g. effective data) from proofs. My research is concerned with this kind of "applied proof theory".

*Have you ever thought about interrupting your studies and take a position in business or industry?*

No, actually not.

*What does a professor do when he's not giving lectures?*

Well he should be eager to give advice to Diplom and PhD students and, of course, engage in research. Being engaged in research also means to go to conferences and present the results of research to colleagues, to publish and all that. There are also various administrative duties. Moreover, a professor should in his spare time also be interested in some other issues and not focus exclusively on the topics of his research. In particular, as a university professor one should have a general intellectual curiosity, be interested in neighboring areas and even totally different sciences and arts.

*One example of another area would be: What kind of music do you like?*

Ahh, this is a question I like! I like classical music, in particular music from the first half of the 20th century. My favorite composer is Igor Stravinski. But I also like very much – and this became more and more important for me in recent years – jazz music. Originally only modern jazz, but playing the piano myself I'm particularly interested in piano jazz and its history. Right now, I am studying its early history, the so-called harlem stride piano. This is a style of piano jazz which originated around 1910-1920. Some main representatives being James P. Johnson, Willie "The Lion" Smith and Fats Waller. A somewhat younger ("2nd generation") stride pianist which I am currently particularly excited about is Don Ewell (1916-1983)!

*What is your favorite book?*

Academic or non-academic?

*Non-academic.*

The Bible.

*And non-religious?*

Well, maybe Dostoevsky's "The Brothers Karamazov".

*How many digits of the number $\pi$ do you know by heart?*

About three I would say.

*Normally that's enough. Do you know a mathematical joke?*

Yeah, only the very bad ones. So like the one: What does a mathematician say when there were two people in a room and three have been leaving? If now somebody comes there is nobody left anymore.

*Okay. Which question would you like to ask the new students?*

Well maybe lots of them but mainly I'd be interested in why they chose to study mathematics.

*And what do you expect from your students?*

Well to have a general intellectual interest in the topic of studies. There is sometimes a tendency that people only study to get a certain degree because some current trend might seem to suggest that it is a good option to have this degree to get a job later. As important as that is it is important too not just to 'optimize' the curriculum accordingly but also to do things out of interest and not just because a certain certificate is required, so to show some personal interest in a subject. Otherwise it is very hard to be really successful.

*A situation that occurs very often is that a new student is asked, what he can use mathematics for. What should he answer?*

So what he or she can use mathematics for or what one can use mathematics for?

*What one can use mathematics for.*

Well one should, in particular, put an emphasis on all the hidden uses of mathematics e.g. in computer science. What I mean is that uninformed people often believe that mathematics is not needed because 'the computer is doing this'. But computers just carry out procedures which come from mathematics and first needed to be proven correct mathematically. That's why mathematics (including highly non trivial things) actually is ubiquitous e.g. in medicine (for example in 'Computer Tomography' etc.).

*What else should we know about you?*

I don't know.

*Good answer.*

Well, maybe some personal data: I am married and have a five year old daughter.

*And what would you like to give freshers on their way?*

Not to be discouraged if they have to struggle in the beginning. Everybody, including me, had to struggle doing homework exercises. That is quite natural as it is a big step from school mathematics to scientific mathematics. When I was in Michigan there was a discussion about the fact that nowadays in the USA undergraduate lectures are mainly given by junior and visiting faculty members whereas the senior faculty members don't like to give them. In the old days it was only allowed to established and experienced people to give such lectures because they are so important: there is no other lecture that introduces so many fundamental concepts in so little time like Analysis I. Every single week you introduce notions like continuity, differentiability, integrability and so on. Mathematicians had to struggle for hundreds of years to get these concepts straight. So its quite clear that when one sees this (treated rigidly) for the first time that there have to be conceptual problems which even the great people in the past, who first developed this, had to go through.

*Thanks very much for the interview.*

The interviewers were Rafael, Sven and Richard.

# Analysis I MCS: Prof. Dr. Ulrich Kohlenbach and Assistants

We are the instructors and tutors of the course MCS Analysis I:

**Professor Ulrich Kohlenbach:**
I studied mathematics and philosophy at the J.W. Goethe Universität in Frankfurt where I got my Diplom 1986, PhD (Dr. Phil.nat.) 1990 and habilitation 1995. In 1996–97 I was visiting assistant professor at the Department of Mathematics of the University of Michigan, Ann Arbor. 1997–2004 I worked at the Department of Computer Science of the University of Aarhus (Denmark), where I became tenured associate professor in 2000. Since April 2004 I am Professor at TUD. My research area is Mathematical Logic (in particular: Proof Theory and Computability Theory) with application in mathematics and computer science.
Webpage: http://www.mathematik.tu-darmstadt.de/~kohlenbach/

**The Assistants:**
Dr. Laurentiu Leustean studied mathematics at the University of Bucharest and got his PhD in 2004. He is assistant at TUD since April 2004.
Webpage: http://www.mathematik.tu-darmstadt.de/~leustean/

Eyvind Briseid studied mathematics at the University of Oslo and will be assistant at TUD from 1.10.2005 on.

Laurentiu Leustean

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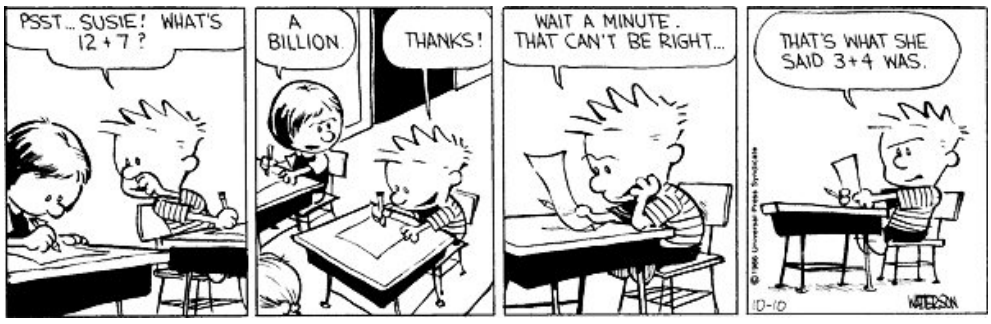

# Interview with Professor Herrmann

Prof. Herrmann reads the Linear Algebra I for MCS students.

*At first one very simple question – Coffee or Tea?*

Let's smell it . . . Some people would call it tea, but actually it is a very weak coffee. Why not tea? Because the coffee was already prepared in the office, while you have to make the tea by yourself. From the bottom of my heart I am actually a tea drinker. The rumor has it that intelligent people drink tea, play Go, visit Math Music evenings or play an instrument by themselves, but I only made it to be a tea drinker.

*Where have you studied?*

Mostly I studied in Bonn, with a break in Stuttgart. There (in Stuttgart) I got to know the real "Technische Hochschule", where Math (one to four) was available for everybody. I went there once, and then I returned as fast as possible to Bonn.

*Do you think this would be a good idea, a big math-lecture for everybody?*

For Math students that is counterproductive to attend the lectures together with all Engineers and Informaticians, like it is done here in Darmstadt.

*Why have you studied mathematics?*

It started at 8 o'clock.

*Isn't that a reason not to study it?*

Actually, I started with Physics and Psychology, but I had to attend Math as well and in the afternoon Psychology. But there I regularly used to fall asleep. Finally, I had the bad feeling that I would end with Mathematics and especially with Logic.

*Why a bad feeling?*

While I was in school, I read the "Principia Mathematica". In this book the author tries to introduce a strict representation of Math, which I liked anyway.

*Later when you have already been a professor, have you ever thought of doing something else?*

No, Math is just like an addiction, which you never get out of.

*Are there any consequences of this addiction?*

Yes, you can say that. Probably, it is different with Statistics or Financial Mathematics, but I would say yes.

*What does Math means for you?*

Hmm . . . ok, good. For me it has the same meaning as religion for the other people.

*Which is your religious denomination?*

The sect of lattice theorists, and even there member of a special persuasion.

*How would you describe your field of research to a fresher?*

Even first semester students know vector spaces. Finally, at the end of the first semester there are sub spaces that you can sum up and intersect. That is sufficiently complicated, you can even prove the theorem of inertia with lettice theory.

*Do you have any other interests except for Math? The rumor is that you even live in the Math building?*

No, except for Mathematics, nothing else. Here I have all the materials, the good view and it is not far away.

*Is there any other life apart from Math?*

Not much. You can see it on the walls (Note: pictures of mountains).

*It is said that you once climbed the wall in order to pull down the blackboard?*

Yes, that could be true, but it is not a big problem.

*Do you have a favourite book?*

Yes, this one . . . (Peter Gabriel, Geometry, Linear Algebra). Someone should translate it sometime. The book is full of strange things and quotations, one should know the author and esteem him. Another one would be Koecher, Linear Algebra, which is also somewhat confusing. May be it would be interesting to know what I like less. At first, everything of Beutelsbacher and then Gerd Fischer, Linear Algebra, this is idiotic as well.

*Have you thought of writing a book by yourself?*

I never succeeded, the competition was too big . . .

*How many digits of $\pi$ do you know?*

All right, it is not $\frac{22}{7}$, I know this, but not more.

*Do you know a mathematical joke?*

Hmm, no . . . , perhaps let $\epsilon < 0$, but that is not a true joke. Actually, I should have known this question would have been asked. Maybe I do know one. What is a *normal endomorphism*? That is absolutely absurd.

*What do you expect from MCS first semester students?*

My expectations are mixed. Mr. Kohlenbach is very excited about his MCS students from last year. I had one in the module exam, who was quite good. We have to wait and see. Especially foreign students should immediately decide what they want and act appropriately. Those, who do not want to study Math, should try to find different ways. As far as I know, for example, for Chinese it is a disaster to go home, without having passed an exam. Those, who really want to study Math, should do this and use all kinds of help, which are offered. In my opinion, the success of foreign students depends on how German and foreign students will co-operate.

*What would you change if you were the "chief" of the Mathebau?*

One could think about which major to change or cancel, without getting specific. The actual Diploma is surely a good thing, even if some things like the "Darmstädter Modell" are little exaggerated. I find the concept, which professor Streicher practiced last year, not bad. More attention should be paid to the homework.

*Thank you for this interview.*

The interview was made by Markus, Rebecca and Stephan. Translated in english by Maggy and Daniel.

# The assistant to Linear Algebra I

Ralf Gramlich studied mathematics at the University of Würzburg. Following his studies he did his PhD in Eindhoven. In october 2002 he joined the AG 5 here at the department of mathematics at the TU Darmstadt. He habilitated in may 2005.
His research interest are geometry and group theory.

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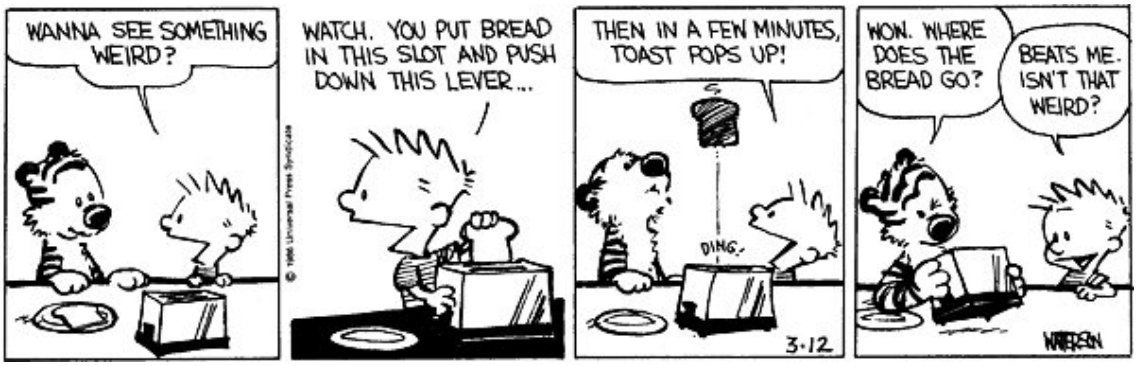



## Riddle #1: Light in the tunnel

There are four persons standing in front of a tunnel and only two of them can walk through this tunnel at the same time.

One of them is twenty years old and needs one minute to walk through the tunnel. Another is fourty years old and needs two minutes. The other two persons are pensioners and one of them needs four minutes and the other needs five minutes to walk through the tunnel. They only have one torch, so it has to be brought from one end of the tunnel to the other end each time.

The problem is: the torch has only light for 12 minutes!

**Who has to walk with whom through the tunnel in order that there's enough light for everyone?**

***Thilo S.***

# Interview with Professor Ostermann

Juniorprofessor Klaus Ostermann is your "Introduction to Computer Science I for MCS" instructor.

*What do you prefer ? Coffee or tea ?*

At work I drink coffee, whereas I drink tea at home.

*When did you begin your studies and how did you come to the TU Darmstadt ?*

I studied computer science in Bonn. At Siemens in Munich I was working on my PhD. After the PhD I became Juniorprofessor for computer science in Darmstadt.

*Why did you choose the university over the industry ?*

Because a university typically gives researchers more freedom to do what they are interested in.

*Any intententions to go to the industry . . . ?*

Maybe – currently I don't have any plans but who knows ?

*Which experiences did you make as a Juniorprofessor ?*

Mainly positive ones – it is probably more work to be Juniorprofessor than to be a research associate (C1) in the old system, but on the other hand one is also more independent.

*Can you shortly explain your domain of research ?*

I work on concepts and techniques to make software engineering and programming easier. In particular, I work on modularization techniques, that is, techniques that let you reason about (specify, implement, maintain) each aspect of your system in isolation.

*The classic: How many digits of the Number $\pi$ do know by heart?*

Let's see...
3.14159265358979323846264338327950288419716939937510582 0...

OK, I cheated and looked it up at google :-).

*What comes to your mind, when you hear the word "mathematics"?*

Mathematics is the foundation of computer science, hence every computer scientist should have a strong basis in mathematics. Even though much of the concrete topics a student learns in mathematics may not be relevant for what he will later do professionally, the mathematical kind of thinking and reasoning is indispensable.
On the other hand, looking back at the mathematics lectures I visited as a student, I would have wished that the lecturers would have told us more about the "why" behind all the definitions and theorems, rather than focussing on the formal stuff only. This is a topic where mathematicians can learn a bit from computer science, I think.

*Do you know a new joke about computer scientists?*

The joke from last year's interview was bad enough, so I won't try again.

*What would you change, if you were the "chief" of the computer science building ?*

I appreciate that you want me to commit politicial suicide ;-).

*Nevermind :-). What does a Junior Professor do in his leisure time?*

I like to play piano, read books, go on vacation to Scandinavia - all in all not much different from what other people do in their leisure time, I guess.

*What's your favorite book and which kinds of books do you usually read ?*

Some books I like are "1984" by George Orwell or "Das Boot" by Lothar-Günter Buchheim. I also like Dilbert comics.

*What's so fascinating about Scandinavia ?*

The beautiful nature and the fact that it is not so crowded – you can walk or paddle a whole day without seeing anybody else if you want.

*How often do you play games on your Computer?*

Less than 2 hours per year.

*Which expectations did you have before you taught ICS1 last year and were these expectations fulfilled?*

All in all, it was a very nice course. I would have wished that the ICS1 students would have been a bit more active in the lecture (attend, ask questions, etc.), though. So, if you read this, dear ICS1 student, please participate actively in the lecture and don't consume it like a TV show :-).

*Do you still have the same expectations for the new MCS–Students?*

Last year, some students were upset because they expected ICS1 to be a technology-driven "Java programming" course.
We believe that a university should teach long-lasting concepts rather than brainless application of fashionable technology that will be obsolete in two years. This does not mean that we don't use state-of-the-art technology, but we use it mainly as an illustration of underlying concepts. One expectation (or rather: wish) of mine is that the students trust us in the sense that we know what kind of knowledge is required for their further study and later professional work.

*Will you teach ICS1 the same way you did last year?*

We will incorporate the comments from last year's students into this rendition of ICS1, hence I hope that we can improve the lectures and exercises accordingly and make it more interesting to our students.

*If a new student is aked by other people on the street what he can use MCS for, what should he answer?*

He can use MCS to systematically derive precise and sound solutions for problems arising in mathematics and computer science (and elsewhere).

*What would you give the new students on their way?*

The first two semesters are typically the hardest ones for many students. They separate those who will succeed from those who will eventually abandon their study. Show us which side of the fence you are on!

*Thank you very much!*

The interviewer was Patrick.

# You are not alone! - The mentoring system at the department

The department wants to support the entry of studies with the help of its mentoring system, encourage the students according to their individual, personal prerequisites and skills in studying and behaviour; and empower them to reflect their behaviour in studying and learning as well as enabling their self-assessment. The learning-process should be supported by the mentors so that the students develop by planning practical steps and compiling possibilities to expand their personal goals. The mentor offers the students a help in self-help. The department hopes to increase the rate of successful students if many students pursue purpose-oriented studies. In addition, the department gains feedback about general strengths and weaknesses in the course offers and the different programs of study through conversation between mentors and students.

## Procedures of assigning the students

1. **Beginners in the program of studying 'Mathematics with Computer Science' – diploma** The students are divided into groups of about 10 people by enlisting on displayed lists during their orientation week. This way groups of students who just got to know each other are able to enlist as a whole. The date for the next meeting is already noted on the lists, but not the name of the mentor, the allocation of mentors will be after the end of enlisting. A change of mentoring-groups will be possible at a later date in justified individual cases. It will have to be taken care that there are enough english mentoring-groups for diploma students in Mathematics with Computer Science.
2. **Mentoring system for beginners in the program of studying 'Mathematics with Computer Science' – Bachelor of Science** The allocation of to their mentors happens during their allocation to the proseminars to orientation week.

It is important for all groups of students that no teaching staff of the first year of studies is also used as mentors to prevent conflict situations.

## Structure of the mentoring-system

Approximately, there will be the following meetings with mentors for students in the first year of studies:

- meeting at the beginning of studies (study-entrance meeting)
- meeting in the middle (december) of the firt semester (christmas meeting)
- meeting at the end of the first year (closure meeting)

In the study-entrance meeting during orientation week or the first study week, the students should get to know their mentor and clarify the aims of the mentoring system. The group should also arrange how they stay in contact and when/how the next meetings will be.

The christmas meeting offers a first opportunity to exchange experience and analyse and, if necessary, change the behaviour towards learning and studying.

The closure meeting offers feedback to the students and should help the students by planning and backing their future studies.

The department expects participation in the meetings with their mentors from all students.

# Plan of the Grundstudium for MCS (Diplom)

Unlike the *Hauptstudium*, the courses in the *Grundstudium* – i.e. the first four semesters – are relatively fixed. The only courses where you have a choice which one to pick are the two proseminars and your *Wahlpflichtfach* (compulsory optional course) in the fourth semester.

## 1st semester

Maths courses: During your 1st semester you will attend Analysis I (Ana I) und Linear Algebra I (LA I). Both are 4+2+2 courses, which means you'll have 4 hours of lectures a week (SWS = *Semester Wochen Stunden*, i.e. *hours per week during semester*), 2 SWS of exercise classes and 2 SWS of tutorials. Computer Science courses: Computer Science I (CS I), which is a 4+2+2 course, (4 hours of lectures, 2 hours of exercise classes, 2 hours of programming labs).

**exams:** In Ana I you have to pass the *Semestralkalausur* (end of semester exam).

**project:** During the semester break you will (have to) attend a programming project to get the CS I-*Schein*(programming language is Java).

## 2nd semester

During the 2nd semester you will continue the courses from the first semester (LA II, Ana II, CS II), whereas LA has now changed into a 2+2 course. Additionally you will choose a proseminar I (PS) with 2 SWS.

**exams:** Again you have to pass the *Semestralklausur* for Ana II, and to get the *Leistungsschein* in the PS.

## Vordiplom:

After your 2nd semester you will write an examination about CS I and CS II.

## 3rd semester

Starting in your 3rd semester, your courses are in German.

The Analysis course in the 3rd semester splits into two subjects, Ordinary Differential Equations (ODEs) (i.e. *Theorie der gewöhnlichen Differentialgleichungen (DGLn))* and Theory of Complex Functions (i.e. *komplexe Funktionentheorie*). (each 2+2)

Additionally you will attend the course Introduction to Algebra (i.e. *Einführung in die Algebra*) (also 2+2) and Introduction to Numerics (i.e. *Einfürung in die Numerische Mathematik (NuMa I)*) (3+2+1 programming labs).

**exams:** In NuMa you need a *Schein*, which may be acquired in different ways.

## Vordiplom:

After your 3rd semester you take part in the Geometry and Algebra *Vordiplom*-exam, consisting of a written and an oral examination about LA I, LA II and Algebra.

## 4th semester

Ana IV (2+2) consists of Measure Theory and Extended Multiple Integration (i.e. *Maßtheorie und erweiterten Mehrfachintegration (MIT / MFI)*).

The Introduction to Statistics (*Einführung in die mathematische Statistik*), a 3+3 course, completes your dose of applied mathematics during *Grundstudium*.

In addition you need to choose a mathematical *Wahlpflichtfach* (Topology, NuMa II, Algebra...). If you're lucky, some of the options you can choose from are in English.

**exams: none**

## Vordiplom:

- written/oral in Analysis consisting of Ana III + Ana IV
- Applied Mathematics (Statistics written, NuMa oral)

***Frauke & Andi***


# Plan of the Grundstudium for MCS (BSc.)

| Semester | Subject (Basic Modules) | | | |
|---|---|---|---|---|
| 1st | Analysis I (4+2+2) | Linear Algebra I (4+2+2) | Computer Science I (4+2+2*) | Proseminar I (2+0) |
| After 1st | Written trial exam | Written trial exam | Written trial exam; Programming project | |
| 2nd | Analysis II (4+2+2) | Linear Algebra II(4+2+2) | Computer Science II (4+2+2) | Proseminar II (2+0) |
| After 2nd | Written basic module exam | Written basic module exam | Written basic module exam | |

**Programing Project**

Takes places during the first two weeks after the winter semester. You will be given a bigger programing problem which you are asked to solve in groups. On the last day you will have to present and defend your program in front of the lecturer and his teaching assistant. In order to take your CS Basic Module Exam after the 2nd semester you need to pass this project.

**Proseminar I + II**

The aim of these courses is to develop your ability to speak about mathematics. The topics of the courses offered in the semester may vary. That depends on the lecturer and his field of research. You are free to chose one Proseminar you like.

**Written Basic Module Exam**

At the end of the second semester you have to take three Basic Module Exams. They each last four hours. All Basic Module Exams cover the material of **both** semesters.

| Semester | Subject (Advanced Modules) | | | |
|---|---|---|---|---|
| 3rd | Differential Equations (2+2) Free Choice in pure maths | Introduction to Algebra (2+2) | Introduction to Numeric + preparatory course (3+3) | |
| After 3rd | Oral exam(s) (20 or 40 min.) | Oral exam (ca. 20 min.) | Oral exam (ca. 30 min.) | |
| 4th | Multidim. Integration (2+2) | Free Choice in applied maths (at least 2+2) | Statistics (3+3) | Free Choice in Computer Science (at I. 2+2) |
| After 4th | Oral exam (at least 20 min.) | Oral exam (at least 20 min.) | Written Aufbaumodul-exam | Written or oral exam |

**Analysis III**

Differential Equations and Multidim. Integration used to be a combined subject. Until WS 04/05 they were studied under the name Analysis III. Now Multidim. Integration is being studied during the summer semester, that is why you have to make your choice in pure mahts earlier, i.e. in the 3rd semester. You can go to the Functional Theory lecture, for example but you are not obliged to. It is nevertheless advisable that you take a lecture in pure maths in the 3rd semester, otherwise you will be quite overloaded during the 4th and 5th semester.

**Introduction to Numeric and Software**

Each 2 weeks you have to solve a programing problem and present them in a group. In order to take the oral exam you need to pass the programing exercises during the semester.

**Oral Exams**

The duration depends on the lecture's size.

**Free Choice**

At the beginning of the semester you have to chose at least one course in pure and applied maths as well as one from the computer science courses. Offered courses are listed in the "semester catalogue".

| **Semester** | **Subject (Qualification Mudules)** | | | |
|---|---|---|---|---|
| 5th & 6th | Free choice in pure maths* ($\leq 12$) | Free choice in applied maths* ($\leq 12$) | Free choice in computer science ($\geq 8$) | Intermediate Seminar (2+0) |
| After 5th or 6th | Oral exam (at least 45 minutes) | Oral exam (at least 45 min.) | Written exam | Project (2+0) |
| In or after 6th | Bachelor Thesis | | | |

***Free Choice in Pure and Applied Maths** The total sum in both fields of study has to be at least 20 hours.

**Intermediate Seminar** This seminar can lead you to a topic for your bachelor thesis.

**Project** A project is almost the same as a seminar but its actual task includes some more applied work (e.g. programming, solving a given problem in given time).
You can make (do) your project either at the university or somewhere "outside". If you decide to do it at the university, you can take a look at the topics, which are offered in the "Vorlesungsverzeichnis" or go straight to Prof. Kiehl, who will find you one.
The project can be substituted by an internship, where you are dealing with a task is related to mathematics or informatics. It should last **at least 3** weeks. It is a good opportunity to get to know a company from "inside". If you decide to make an internship, you have to talk to Prof. Kiehl **first**. He is responsible for the authorization of the internships outside the university.

**Bachelor Thesis** Near the end of your studies you will have to write a bachelor thesis. The task of a bachelor thesis is not supposed to be that voluminous as of a master or diploma thesis. The usual task includes the summary of mathematical texts or you will have to express a text in a better way (for example, to reconstruct proofs that the author omitted). You can write your thesis either on an informatics or a mathematical topic. Formally there is no firm page number that you have to fulfill but around 20 to 30 pages are usually quite enough.
As it is more or less your first big mathematical text you have to write, it is usually not expected to do much of a research work or find new things out, but rather that you can express scientific results structured and comprehendible, using the knowledge you've gathered during the three years. So there is really nothing to be scared of.
The bachelor thesis is usually something like a continuation of your seminar (or project) topic. That means you will have to write down the results of your earlier work in details. That makes it quite easier for you, as you will be already familiar with the topic.
It usually takes about two months to write it. Don't forget that after you register you have to hand it in within two months' time (otherwise you will feel the strong hand of bureaucracy). If your supervisor doesn't mind, you can commence with the thesis before you register.

***Katia & Sebastian***

# Your courses during 1st term

## Analysis (Ana)

Analysis is the art of evading infinity.

Analysis is the stuff you did in your maths courses in high school most of the time. You will look at functions, sequences, limits, etc.

You will learn to deal with very small numbers, and to master infinity.

There will be four hours of lectures and two hours of exercise classes a week. In the exercise classes you will learn to apply the knowledge you gained in the lectures to mathematical problems. This is achieved by working in small groups, with an exercise tutor to help you with any mayor difficulties. Two additional hours of tutorials will give you a deeper insight into what you have learned. They are structured similar to the exercise classes, and you will be glad that you don't need to solve these (often harder) problems all by yourself at home.

## Linear Algebra (LA)

Some people believe linear algebra happens when there are small arrows above the letters. In a way, this is true, that is you are on the right track if you are thinking of vectors, matrices and directions. But arrows in the plane are just a way of depicting two-dimensional vectors. Linear algebra might just as well be concerned with washing machines or sausages. You will learn to deal with (and solve) linear systems of equations, to define and invert maps. You will learn how to rotate and reflect a plane, and how to bend teaspoons[i]. You will get to know invisible spaces and fields without grass.

At the beginning LA seems easier than Analysis to most students. It is certainly a bit more applied, and there is more "calculating".

As in Ana, you will have four hours of lectures per week, two hours of exercise classes and two hours of tutorials.

## Computer Science (CS)

In Computer Science you will learn a lot about the (rather abstract) basics of the subject, and then find out how useful they turn out to be for programming.

Concepts of programming languages and elementary algorithms will show up, as well as types of abstract data, simple data structures (stacks, lists, trees), recursion, verification and algorithm efficiency analysis. You will also learn a bit about compiler construction.

You will find out about object-oriented programming in general, and the programming language "Java" in particular.

The course consists of four hours of lectures a week and two hours of exercise classes. The exercise classes are held in a normal seminar room, just like in Ana and LA. Same concept of small groups + exercise tutor. No computers. In addition you will receive programming exercises, which also amount to about two hours per week, to solve in the computer rooms.

***Matthias & Frauke***

[i] There is no spoon. The editors

# Proseminar I

In this article we'd like to give you a brief overview over the proseminars. All of these proseminars will also be presented during the OWO by the corresponding professor.

## Proseminar I of Prof. Alber

In this proseminar we will discuss and solve some of the mathematical problems posed in the past in the "Bundeswettbewerb Mathematik" (a mathematical competition for pupils from all of Germany).

## Proseminar I of Prof. Bokowski

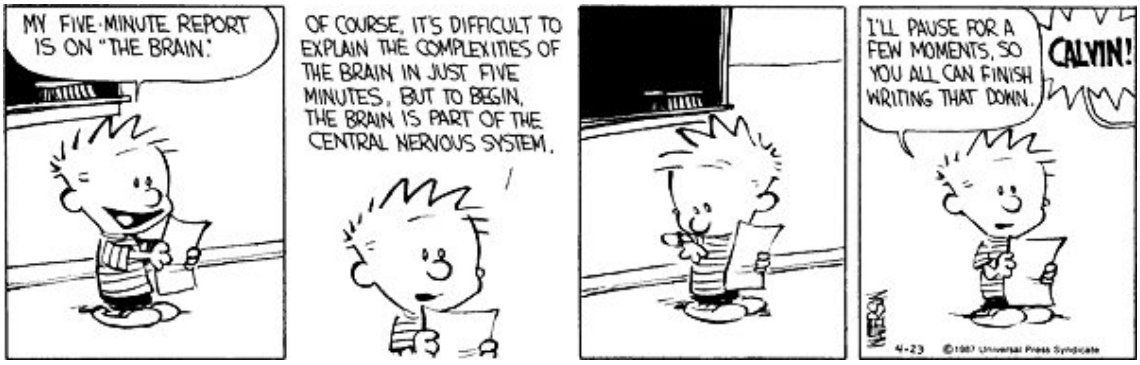
Simple problems from geometry will be chosen as topics for this proseminar. Depending on the contribution of the students these problems could be extended to examples, which are relevant for research. My last proseminar was about the configuration of straight lines and this topic could be a good start for the proseminar.

## Proseminar I of Prof. Große-Brauckmann

The topic of the proseminar will be geometry. The department of mathematics has many interesting geometric models, some of them quite old. The simplest ones are the Platonic polyhedra, which you will know, but there are also stared polyhedra surfaces, and many more interesting models. Each mathematical model has a little story to tell, which we want to figure out in the course of the seminar. The ultimate goal is to put the prettiest models on display on the third floor of the math building, along with short descriptions.

## Proseminar I of Prof. Neeb

One of the goals of this Proseminar is to introduce you to "Mathematical Thinking". To make this more concrete, we shall work with the extremely nice textbook "Groups and Symmetry, A Guide to Discovering Mathematics" by D. W. Farmer. The idea of this proseminar is to provide a counterpart to the standard lectures on Analysis and Lineare Algebra, where you encounter polished optimally structured mathematics which leaves not much room for your own discoveries. We shall encounter several kinds of planar symmetries from various perspectives, and following Farmer's book will leave a lot of room for your individual discoveries.



# The colloquiums

There are three different kinds of Colloquium here at our department, which can be distinguished by their respective range and domain, i.e. their audience and speakers.

The audience targeted by the **Orientational Colloquium** consists mainly of students in their first to fourth semester. That's because it is meant to be orientational. While in the beginning and during your first two years, from your first to fourth semester that is, mathematics mainly consists of mandatory lectures and courses, it's really important to have at least a rough idea what's going on afterwards. And afterwards you have many more courses to choose from than just Analysis, Numerics or Statistics, and far less mandatory courses to take. Therefore your ideas are needed. Ideas about the different research groups at our department and the research they actually do, as well as ideas about your personal likes and dislikes.

So the Orientational Colloquium's domain consists of professors from the various research groups, which provides you with an opportunity to have a look at the various fields of research – and the professors are provided with an opportunity too, namely the presentation of their own research groups and, well, research. And you're going to write a thesis someday – perhaps in just one of those groups.

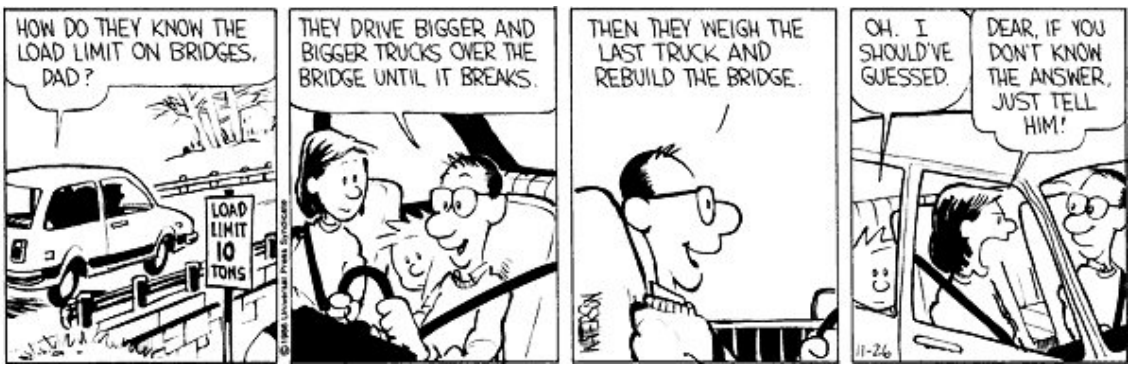
Three or four times per semester and on Mondays there will be an colloquium and it will be announced, of course, on the mailing lists and bulletin boards. It currently takes place at 4:45 pm in S2|07 109, and half an hour earlier in the maths department's third floor for tea and cookies.

Another Colloquium is the *Haupstudiumskolloquium* whose range consists primarily of students from higher semesters, i.e. fifth and further ones, and professors. Here the topics are no longer meant to be orientational, but *real* maths. The domain again consists of professors, whereby a lot of them are from universities other than the TUD.

And then there is the *Studentische Vortragsreihe*, whose range and domain is identical, namely students. It's focus is to present topics from students for students. Topics in the previous semester included cryptography and classical music as well as number theory and Newtonian mechanics. When you are interested in giving a talk about your favorite topic roughly related to maths, feel free to contact the organizers of the *Vortragsreihe*: **stuvo@mathebau.de**. We'd like to hear from you!

And perhaps you also want to hear a talk or two in one of the three colloquiums. So, see you there.

***Andreas***



# My first semester

There are of course those certain, well-known clichés people normally have in mind when thinking about mathematicians. Some of them being that mathematicians are boring, single-minded, and somehow strange people who are not capable of any proper conversation except about strange subjects involving some strange formulae for instance. (You might have noticed a slight accumulation of "strange" in this sentence.) Having met mathematicians who – when running across each other again after several months – began their conversation not by as subtle, commonly usual phrases as "Hello!" or "How are you?" but by naturally much more important issues such as "Do you think one can construct the sine of 19?", I honestly was a little bit scared of studying this subject. But anyway for many people (including me) studying mathematics seemed the most obvious (and the only conceivable?) thing for me to do after school. So I enrolled for MCS despite the sometimes annoying comments like "Math at university is very different from math at school, you know . . . ".

As October approached and my excitement grew with every day, I had actually just been looking forward to another last week of loafing around. But then there arrived a postcard inviting us for a welcome of the president of TU Darmstadt the following Monday at 8 o'clock in the morning. This welcome was at the same time the beginning of the so called OWO, which I had not heard that much about beforehand. I can only encourage all beginning students to attend the activities the OWO offers because it turned out to be a great week with lots of fun and a good opportunity to get to know other students and the university.

The first semester finally started in the week following the OWO. (And mathematics at university is indeed very different from mathematics at school. But who would not have guessed . . . ;-) ) The first lectures in analysis and linear algebra were quite an unknown experience because of a whole bunch of new words and methods and the enormous number of proofs. (The usual pattern of a mathematics lecture is something like definition, lemma, proof, theorem, proof, proposition, proof, . . . and then – once in a while – an example.) All this seemed a little bit confusing at the beginning, but once we had the first exercises and tutorials it became clear that everyone else felt the same about that and had similar problems. During the lecture our professors encouraged us not to give up and pointed out that we had to work and try to understand things very hard ("Work hardly in your exercises!"). Not to become frustrated, however, was not always that easy considering tutorial problems for example which seemed impossible to be solved without hints. There even were tutorial sessions – especially in analysis – where we could only solve one out of three problems within the given time. But this probably is quite normal and one should not be particularly discouraged by things like that.

As time went by, we all became more and more used to all this – to the concept of lectures and exercises at TU Darmstadt and to the very abstract and formal way one has to think and argue in mathematics. (Well, we were told that there also exist some formalisms whose origin is as follows: "People had that in mind and would never mix it up. . . But than came computer scientists. . . ") Moreover, we learned that in order to solve the exercise problems we really had to work together, that studying mathematics is indeed fun, and that "This is obvious!" usually will not be accepted as an explanation (After all we are neither physicists nor computer scientists but mathematicians!).

So now, after one year of studying mathematics, I can say that studying mathematics for sure is not easy and cannot be managed without effort, but nevertheless mathematics is really great and a lot of fun! Moreover, most prejudices about mathematicians are not at all true. Actually students of mathematics (at least at TU Darmstadt) are in general very nice, open-minded, and helpful people. And, honestly, sometimes it is actually fun to talk to other mathematicians using strange expressions "normal" people do not understand ;-).

***Silke***

# Studying abroad – don't I do that already?

It is true that you as a foreign students are in a foreign country already, so we don't have to convince you that studying abroad is a good idea. But even if you want to study in Germany for quite a while, you might want to go to a third country to another university later on during your studies.

In general one can say that it is more difficult for foreign students to spend a year abroad, e.g. most of the financial support like the Erasmus program is available for inhabitants of the EU only. But still it is possible, so if you are interested don't hesitate and ask a lecturer or go to some of the information sessions on studying abroad that will be held in the Maths building during the year.

More information can be found on this page, but since its mainly for German students it is written in German: http://www.mathematik.tu-darmstadt.de/Math-Net/Aussen/ausland.html

For the german MCS–students, who like to spend one year abroad: Please have a look at the german part of this OWO–Info on page 32, where you can find some useful advices.

***Ute***


# Study-advisor mathematics

Where to go with questions like

- "I did not pass the exam – what should I do?"
- "I would like to change from MCS Bachelor to Diplom or to Lehramt – is that possible?"

Of course, you can ask older students or students from the Fachschaft. And the professors and assistants will always try to help you when you ask them. Often they are available also outside the office hours.

But you can also come with your questions to the Studienberatung (study-advisor): to Reiner Liese or to me. Normally one can find at least one of us in our fixed office-hours tuesday and thursday 10:30 to 12:00. Reiner Liese in room 413 and me in room 424 (in the maths building S2|15). If you want to come at another time, you can contact us via eMail (studienberatung@mathematik.tu-darmstadt.de) and we can make an appointment. If your questions are connected with MCS, you can also ask Werner Nickel (room 212, **mcs@mathematik.tu-darmstadt.de**).

And what are the other activities of the Studienberatung? Together with other members of the department Mathematics we organize information-days for secondary and high school students, we hold a special training for tutors, we create information material and we work active in the committees of the department. We want to support the department with the teaching and the learning by planning and organizing activities and propose new ideas. You want to know more? Then come and visit us.

***Markus Helmerich (translated by Rafael)***

Dr. Reiner Liese und Markus Helmerich
Fachstudienberatung im Fachbereich Mathematik
Schlossgartenstr. 7
64289 Darmstadt
Tel. 06151-163787 oder -162087
**studienberatung@mathematik.tu-darmstadt.de**

# Important addresses

Maybe by now you know everything about maths at TUD, what you always wanted to know. Hopefully not . . .

. . . because there are even more information booklets. Short ones and longer ones, with many, many details about the different possibilities of studying, some with less details – but colored. Furthermore there is a booklet about MCS in German and English, which you can take from the *Studienberatung* or the *Fachschaft*.

And there are of course lots of different websites:

- *Fachschaft Mathematik*: http://www.mathebau.de
- *Fachbereich Mathematik* (department): http://www.mathematik.tu-darmstadt.de
- *Technische Universität Darmstadt*: http://www.tu-darmstadt.de/index.en.html
- *Akademisches Auslandsamt (foreign students' office)*: http://www.tu-darmstadt.de/aaa/index_en.tud

And here are the most important **adresses**:

**Studienberatung Mathematik:**
Schlossgartenstraße 7 (Mathebau, building S2-15)
Dr. Reiner Liese – room S2|15 413, Tel. 06151-162087
Markus Helmerich – room S2|15 424, Tel. 06151-163787
Dr. Werner Nickel – room S2|15 212, Tel. 06151-163487, *for MCS*
office hours: Tue & Thu, 10:30-12:00 and by arrangement
**studienberatung@mathematik.tu-darmstadt.de**

**Fachschaft Mathe:**
Schlossgartenstraße 7 (Mathebau, building S2-15)
Fachschaftsroom – S2|15 219, Tel. 06151-163701
**fachschaft@mathematik.tu-darmstadt.de**
http://www.mathebau.de

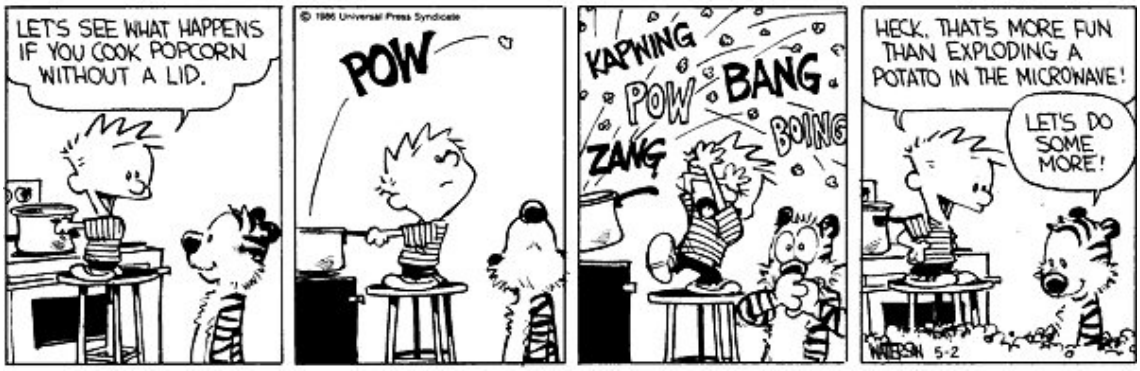
**Zentrale Studienberatung (ZSB), study advice:**
Hochschulstr. 1 (old main building, S1|03)
rooms 153, 154, 156, 158, 159 – Fax. 06151-162055
office hours: Tue, Wed, Thu 10:00-12:00, Wed 14:00-16:00, Thu 17:00-18:00 and by arrangement
**zsb@zsb.tu-darmstadt.de**
http://www.zsb.tu-darmstadt.de

**Studentenwerk Darmstadt, housing:**
Alexanderstraße 4 (Mensa)
Room 131, 1. floor – Tel. 06151-162710 (13:00-16:00), Fax. 06151-162110
office hours: Mon, Tue, Thu, Fri 9:00-12:00, Thu additionally 13:00-15:00
http://www.studentenwerkdarmstadt.de/wohnen/

**Allgemeiner Studierendenausschuß (AStA, student union):**
Hochschulstr. 1 (old main building, S1-03)
city office, around room 56 – Tel. 06151-162117
office hours: Mon-Fri 9:30-14:00
**asta@asta.tu-darmstadt.de**
http://www.asta.tu-darmstadt.de

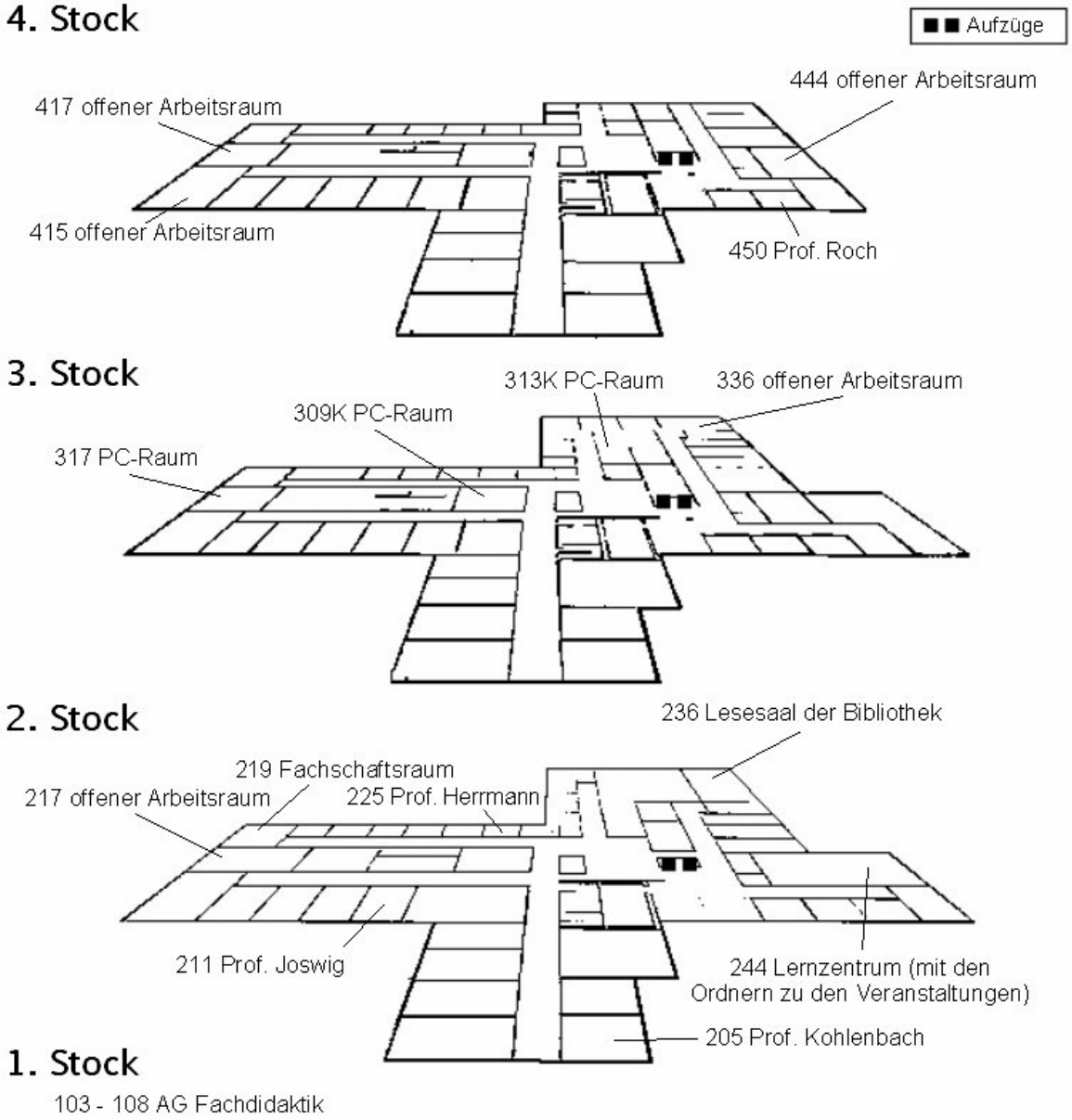
**Fachbereichsfrauenbeauftragte (women's represantative of the department):**
Schlossgartenstraße 7 (Mathebau, building S2|15)
Laura Cosulich – room S2|15 325, Tel. 06151-163740
**cosulich@mathematik.tu-darmstadt.de**
http://www.mathematik.tu-darmstadt.de/Math-Net/Frauen/Welcome.html





# Survival

## Floor plan of the maths building



# Public traffic plan

## ...or: How to find the way from Station to University?

I'm sure this year (as every year) some of you are not living in Darmstadt (yet). Here are some hints for all those who arrive at Darmstadt main station (Hbf) and want to go to the campus of TU Darmstadt.

You can reach the **city-campus ("Innenstadt")** with the following lines: Tram #3 (direction Lichtenbergschule) and #5 (dir. Kranichstein), bus line "K" (dir. TU-Lichtwiese) and "H" (dir. Kesselhutweg). It's also possible to go there by a regional bus-lines, you can notice them by their four-digit numbers, but they don't drive so regulary and have their own bus-stops. At the West-Side of the mainstation there is also the busline "F", but it's the only one from this side of the station to the city. If you have catched a seat inside a bus or a tram or you get a standing room (specially at morning they are very crowded), you have to go to the stops **Willy-Brand-Platz** (lines 3, 5, K) or **Schloss** (lines 3, H, K). Now you have to go on by foot.

From Willy-Brand-Platz you have to go direction "Herrengarten" (the large green park), thereto you have to follow the only street with no rail. Crossing this park you can directly reach the campus. From the stop "Schloss" (castle) the way is just as simple: After walking through the castle (you have reached your goal if you want to visit courses there or the library inside the castle) you have to pass the pedestrian lights. Now you can see the administration-building of TU, thats the building with the Athene-sign on top, probably you have matriculated there. From this point the map of TUD has to help you, finally I don't now where you want to go.

Most of the busses and trams in Darmstadt are free of fare for you, all you need is your semester–ticket (your study–card, it includes the public-traffic-ticket) and a passport with a photo. As far as I know the bus "AIR" to the Frankfurt airport is the only exception, it costs an extra fee.

Indeed you have to know that the described situation is the "normal" one. In Darmstadt there are many road works at the moment, among other things with the tram-rail. Therefore it's possible that in october (nearly) everything is different (the article was written in july). In case of doubt you can still ask the driver or anyone else who is also waiting for a tram or a bus.

You can find Actual modifications on timetables and linemaps on http://www.rmv.de.

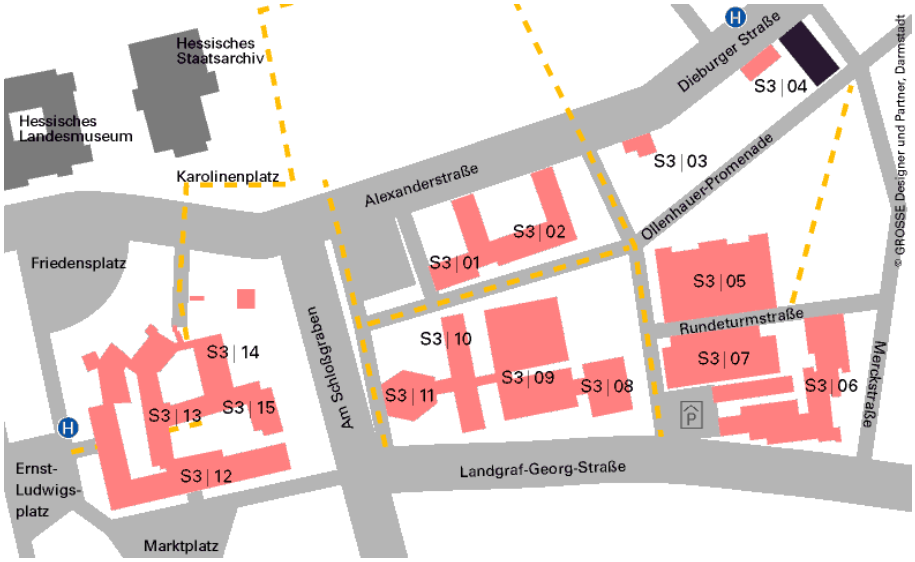
***Rebecca***

# TUD maps

## City (“Stadtmitte”) - section S2

# City (“Stadtmitte”) - section S1


# City (“Stadtmitte”) - section S3




***Alech***

# Virtual Realities

Well, looks quite real, the maths building, doesn't it? That much concrete just has to have a firm foundation in reality, right? But there's more to it; namely a homepage and a bunch of mailinglists one should know about.

So let's start our descent into the virtual realities hidden beneath the grey surface of the math building. First, there is the *Fachschaft*'s **homepage** at http://www.mathebau.de. There you can find a list with important dates, an archive with old Mathe-Infos, a forum to discuss with other students and much more. Just come and take a look.

Of course, the department of Mathematics does have a homepage, too, which you can find at http://www.mathematik.tu-darmstadt.de. It contains course materials for your lectures as well as pages with the email addresses of your professors and assistants.

## Mailinglists

Next **majordomo@mathematik.tu-darmstadt.de** serves various **mailinglists** which are worth looking at. If you don't know how to use its services: Just send a mail to this very address with a single line in the message's body: "help". It will reply with a detail english instruction set. But note that it won't work when you put it in the Subject line. Additional help can be found at http://www.mathematik.tu-darmstadt.de/~fachschaft/files/majordomo.pdf, if it still doesn't work.

Among the lists you can find there are the lists **mcs2005@mathematik.tu-darmstadt.de** and **m2005@mathematik.tu-darmstadt.de** – which, as the number 2005 suggests, are meant for you!

There are mailinglists for all semesters at the department, at least for the last couple of years. While **mcs200?@mathematik**... lists are for the MCS–students, the **m200?@mathematik**... and **ms200?@mathematik**... lists serve for the regular math students. One should write only in English on the **mcs200?@mathematik**... lists, so that everybody is able to understand them, because not all of us have sufficient knowledge in German, Bulgarian, Chinese, etc. (you get the idea, we hope).

If you would like to be notified in a quick and simple fashion about upcoming events like games evenings, music evenings, parties, and other important announcements by students for students, then you should subscribe to the **wasgeht@mathematik.tu-darmstadt.de** list[i].

By the way: Please make sure that you only write to the lists if you actually want to reach everybody on the list. Private mails better remain private. So please check – for your own sake – the recipient list (in particular, the "To:" header) when replying to a mail sent via one of the lists.

## E-Mail-addresses

Of course you can reach the *Fachschaft* by mail: **fachschaft@mathebau.de**.

But there are still 2 more mailing-lists; namely the **owo@mathematik.tu-darmstadt.de** and the **eih@mathematik.tu-darmstadt.de** ones, which, although mainly concerned with the organisation of the OWO and the EiH[ii], are also the right place to ask questions about these specific events. Finally there are the addresses of the various AGs of the Fachschaft (see **page 56**):

[i] In case you are wondering: "Was geht?" is German and roughly means: "What's going on?"

[ii] Einführung ins Haupstudium; OWO for grown-ups

- **ball-ag@mathebau.de** – for the maths ball
- **fun-ag@mathebau.de** – for the games evening
- **musikabend@mathebau.de** – for the music night
- **zapf-ag@mathebau.de** – for the Zapf-AG, which does bartending for the various parties

## Computer access in the math building

In the math building there are three public computer–pools – namely 309K, 313K and 317. But to be able to use them, you need to have a special user account. Unfortunately you get this account only after your Vordiplom. An exception is the account for the *Introduction to Numeric* lecture, which you can use for one semester only and which you have to share with other students.

So, if you want to read your mails or visit websites in the math building, you'll have to wait until your Hauptstudium, ask an elder student . . . or you bring your own laptop and use the WLAN (more about this in the next section).

And if all this fails, then just walk a few steps and make use of the services of the ...

## HRZ

The HRZ (*Hochschulrechenzentrum*, http://www.tu-darmstadt.de/hrz/ provides public computer–pools, which every student can use. In the city you can find them here: S1|02/030, S1|02/030a, S1|03/016. And there are two more at the Lichtwiese: L1|01/055 und L1|01/074.

To use these computers, every student gets a "user account", which has to be activated once. For this you receive a password (on the semester–sheet that you got sent along with your student ID etc.) allowing you to activate your HRZ–account. More information about this is available here: http://www.tu-darmstadt.de/hrz/stud/.

Besides being able to use the public HRZ–pools, you'll also get a special e-mail-address (SOMETHING@stud.tu-darmstadt.de) as well as the ability to use the HRZ-WLAN. And this is luckily available in the maths building. If you have a laptop with WLAN, then you can download the required VPN-client at http://www.vpn.hrz.tu-darmstadt.de/ (for Windows, Linux and Mac OS X) and start surfing in the maths building.

***Max***

# Study-fees

## Study-fees & semester-contribution: Where is the difference?

Well, the semester-contribution has nothing to do with the study-fees. The semester-contribution is something you pay every semester as a student in order to be inscribed at a university. This winter-semester, the semester-contribution amounts to 186,04€. This amount consists of 57€ for the Studentenwerk (these are the people how run most of the student dorms and the Mensa for example), 78,81€ for the AStA (this contains the semester ticket for the trains and busses), 0,23 € fonds and 50€ administrative costs. This amount of money has to be payed this semester, and one cannot be sure that it won't chance for the next one (it might be raised).

## And now what about these study-fees?

About one and a half year ago, a student, who would have been asked about study-fees, would have answered something like: "Study-fees? There are no Study-fees in Germany – you are talking about the semester-contribution, aren't you?" But no, today we are not talking about that. Today the answer to that same question would be very detailed.

Why?

Since January 1st 2004 there exists a new law in Hessen with the beautiful name Studienguthabengesetz (might be translated with something like: law of study-balance). Now let's take a look at the content of this rather new law:

- From now on the semester contribution contains the 50€ for administrative costs. But these 50€ do not enter the university budget, no, they enter the budget of the state Hessen.
- Students, who need a long time to finish their studies, will now have to pay between 500 and 900€ per semester.
- Second studies cost from now on between 500 and 1500€. Second studies are all studies that one starts after getting a degree in the first studies.

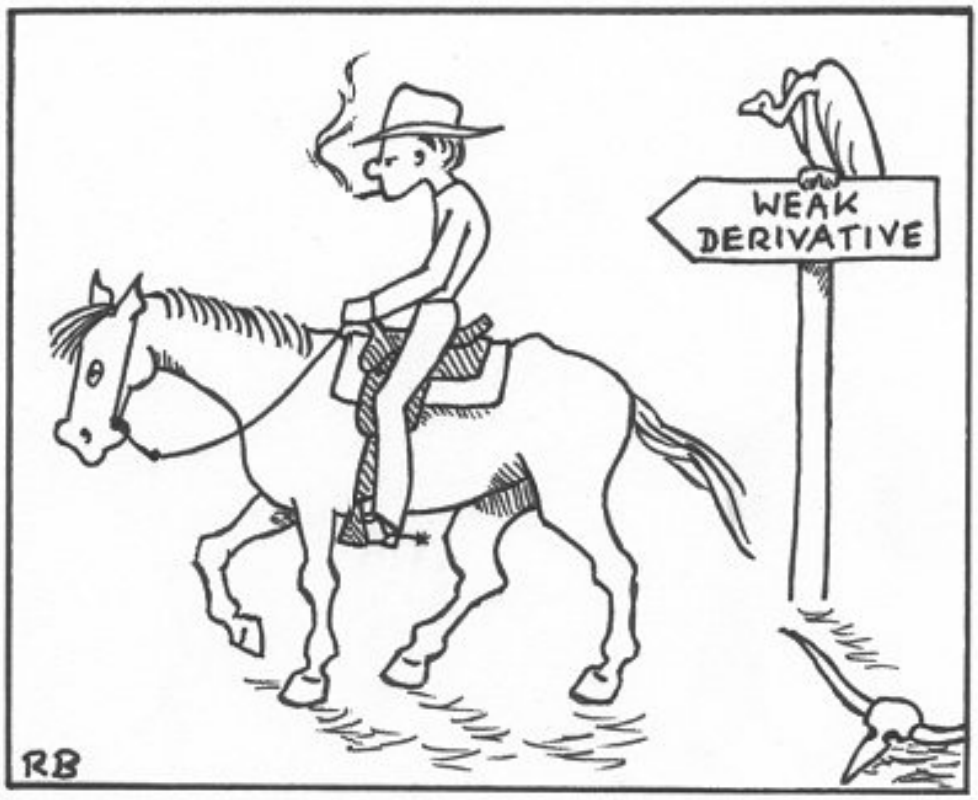
This law of the Koch & Co. administration in Hessen serves to fill holes in the state budget, which were caused by the state minister Koch and his predecessors. The universities do not gain a thing through this law, actually it is quite the contrary. The budgets for universities was cut down by 30 million euros.

## What are the effects of the law, the Studienguthabengesetz?

For every student there exists from now on a study-balance, kind of a budget of semesters you are allowed to study before being considered a student, who takes too long studying. This balance is calculated like this: In case the number of semesters planned to finish you studies (*Regelstudienzeit*) is smaller than 8, you are given 3 more semesters to finish for free. For example if you are doing a bachelor studies, then the *Regelstudienzeit* is 6 semesters, therefore you are allowed to study 6+3=9 semesters to study for free. If the Regelstudienzeit

is or equals 8 semesters, then to these will be added 4 semesters for your balance. A student in MCS Diplom therefore has a balance 9+4=13 semesters. One is considered a student, who takes too long, when one has used up the semesters on one's balance. A maths student in the 16th semester, therefore would pay: The first 13 semesters just the semester-contribution., in the 14th semester 500€ of study-fees would be added, in the 15th already 700€ and in the 16th semester 900€. But not only students, who are considered taking too long to finish, will have to pay these very high fees, students who want to start a second study will pay as well. If for example you start after finishing with a bachelor in physics and want to study a different subject, then you have to pay for these second studies. This amounts to between 500€ and 1500€ per semester. As many students are convinced that this law only serves the state of Hessen to fill the holes in the state budget, there were protests all over the state. If you want to know more about this law and about the strike at the universities, which went along, you might want to take a look at the following two websites: http://www.uebergebuehr.de and http://www.streik.mathebau.de. There you can also find recent information about the sentence of the Federal Constitutional Court in january, which allows study fees from the first semester on. Some states like Bayern and Baden-Württemberg are already planning the introduction of such fees, whereas in Hessen the constitution has to be reviewed.

***Patrick F. (translated by Nicole)***




Come to where the flavour is.
Come to Sobolev Country.

# Money, money, money – how to finance your studies

If you decide to go to university, you will necessarily have to spend some thoughts on how to finance everything. In general there are certain **fixed expenses** which should be taken into consideration. First of all there is the semester contribution you have to pay, which amounts to 186.04 € for the winter semester 2005/2006. It is composed of 57 € going to the *Studentenwerk* – so they can i.e. maintain the mensa – 79.04 € for the AStA – student-body representatives elected by the students' parliament – including the *Semesterticket* and 50 € so called "administrative costs" for the Land Hessen. For more information on that topic read the article about study-fees and semester-constribution on **page 36**.

The Semesterticket mentioned above is a nice thing, as it allows you to use any public transportation in the RMV[i] area. For more information on the ticket check out the web site of the AStA's *Verkehrsreferat* – http://www.asta.tu-darmstadt.de/Referate/Verkehr/.

Finding affordable **housing** in Darmstadt is close to impossible. Therefore it is imperative that you begin searching as soon as possible. Beside the student boarding houses you will barely find comparably cheap accommodation. There the prices range from 140 through 270 € including extra-costs – heating, water, etc. There is, however, a tiny little annoyance. In theory for most student homes there is a waiting list. Depending on demand expected waiting times range from a half a year up to two years. But in practice most rooms are given away by the will of the remaining flat-mates who have a right to select a person to share the apartment with them. For rooms in the Karlshof and the students' home in the Nieder-Ramstädter-Straße this is actually the official procedure. More information about the housing complexes can be found on the *Studentenwerk*'s web site – http://www.tu-darmstadt.de/studentenwerk/ and in the booklet *Wegweiser für Studierende, i-Punkt*, which is distributed on the enrolment days.

If you would prefer renting a room from a private source, you will have to be prepared for prices ranging from 150 € for a sublet room up to 350 € for a single room apartment. If you get lucky you can find a room in a private apartment-sharing community. Everywhere in the Uni and also in the mensas there are wide billboards where people post room-offerings and -petitions. You are more likely to find something here than in the real estate columns of the local newspapers.

If you are free around noon you may want to go to the mensa for **lunch**. It is open on weekdays from 11 am to 2:30 pm (bistro from 8 am to 4 pm). The selection of meals you can choose from is manifold – let's not argue about quality. After all, it saves time when one does not need to cook oneself. A complete meal is about 2 €. So here one spends 40 to 50 € per month.

The **maths classes themselves** do not cost much. All you need is a pen, some paper, a ruler and occasionally a calculator. Sure enough, you will also need some books. But there are not many you really have to buy and there is also the university's library if you are looking for resources.

Besides all that you will also want some money to feed your refrigerator, maybe go to the movies every now and then, have fun, the usual. Summing it up, you are probably looking at total expenses of 500 to 600 €. If you want to get your degree within a reasonable period of time, you will not be able to earn such an amount of money beside your studies. That is why you have to clarify in advance, where the money is going to come from.

[i] RMV is a business venture of public transport providers

Unfortunately, the situation is pretty bad for foreigners, as they do not have many of the options German students have. So if you already know that you will not be able to come up with enough money, you should first of all check if there are any **scholarships** you can apply for in your own country. There may be more than you actually think. It is not always necessary to be a super-mind, in order to obtain one. In the era of globalisation, more and more governments, companies and other institutions support students who wish to go abroad.

For German students, whose parents have a low income, there is the possibility to get an interest free loan, called **BAföG**. Sadly, if you are not German, you will most likely not be eligible for BAföG. There are, however, exceptions to the rule. For example, if you are from a state within the European Union or if one of your parents has been working in Germany, there may be a possibility. If you think, that this might apply to you, then you should consult the Office for Educational Furtherance at the *Studentenwerk*. I dearly hope they speak English there. Their websites are unfortunately in German – http://www.tu-darmstadt.de/studentenwerk/geld/.

By the way, if you have difficulties getting things done because of language barriers, i.e. people refuse to speak English with you, then you should come to the AStA's office in the old main building. There is a group of foreign students – the *AusländerInnen-Ausschuss* who are there to help you out – http://www.asta.tu-darmstadt.de/referate/auslaender/.

The last resort is of course to find a **job** that does not consume to much of your time. If you are from a foreign country which is not a member in the European Union, you will only be allowed to work a certain number of days a year, but you should be told about that when you obtain your visa. If you come from a EU-state, this does not apply to you. Good jobs are of course jobs that are related to the study branch you are in, so in your particular case hopefully some flavour of maths. There are usually many jobs offered at the university departments. As a higher-level student there is the possibility of becoming a tutor for exercise classes. As a starter you will only get more or less boring office jobs – copying, typing, making coffee, whatever. For more information about jobs offered by the TU Darmstadt read the article about HiWi-Jobs on **page 68**.

Particularly interesting for maths-students are jobs at the Fraunhofer Institute for Graphical Data Processing – http://www.igd.fraunhofer.de. They often look for students who are familiar with computers and programming.

What remains? Get enrolled! We will meet in the *Mathebau*.

***Tobias***

# Medical help in Darmstadt

You are sick? You do not know where to go?

Here are a few adresses I have got as a recommendation:

**Emergency doctor:**
Darmstadt (06151) 89 66 69

**Resident doctor:**
Dr. med. Jutta Wellmann
Dieburgerstr.34
Phone: 7 60 60 or 7 42 06

Dr. med. Hans Nübling &
Osterod Muschiol E.
Schloßgartenstr. 67
Phone: 7 96 56

**Dentist:**
Dr. Karel Sedlácek
Rheinstr. 7
Phone:2 55 40

Hans-Georg Enger
Wittmannstr. 4
Phone: 6 24 88

**Eye specialist:**
Dr. med. Martina Hesse
Rheinstr. 5
Phone: 2 59 26

Dr. med. Frank-Dieter Engelbrecht
Frankfurterstr. 42
Phone: 2 36 47

**Skin specialist:**
Dr. Hans-Ludwig Zienau
Frankfurterstr.3
Phone: 29 34 43

Dr. med. C. G. Schirren
Wilhelminenstr. 13
Phone: 99 58 10

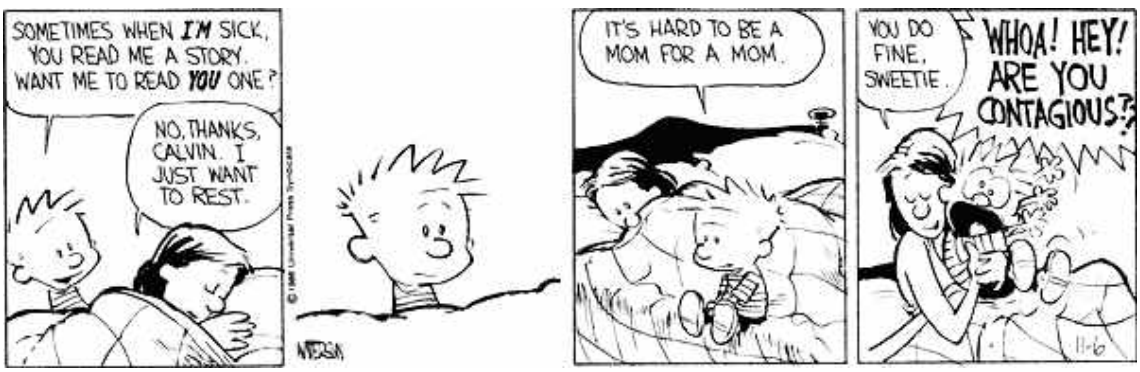
**Ear, nose and throat specialist:**
Dr. Matthias Ey &
Dr. Klaus-Peter Jayme
Ernst-Ludwig-Str. 21
Phone: 99 77 91

**Gynaecologist:**
Dr. Hildegard Gerlach-Schmidt
Heidelbergerstr. 13
Phone: 31 15 83

Dr. Gerhard Neuser
Dieburgerstr. 54
Phone: 7 60 98

Dr. med. Christine Hartmann
Saalbaustr. 22
Phone: 99 70 72

***Britta***



# Learning

## Teaching and learning forms ...

### ...or "how do I learn mathematics here?"

In case you have never been to university before, the *Vorlesungsverzeichnis* can be quite confusing. It would be a lot easier to understand if you knew what is meant by *Vorlesung*, *Übung* or *Tutorium*. This article should give you an idea about what these things are ... There's one thing they all have in common: They are designed to help you learn mathematics. Somebody prepared the material to make it more accessible, and as it will always be a bit hard to get, everything is presented in lots of different forms, so that you can make the most of it. The most important difference to school as you know it is that nobody is forcing you to learn. You have to come and choose your way of getting your head round the stuff, and it's completely up to you *how* you do that. This also means nobody is coming after you if you don't, so it's your very own responsibility. Attendance is normally not obligatory. Maybe you are very smart and understand everything on first read, but more likely you will be just a normal student like most of your classmates and hence need all the help you can possibly get. Because maths really *is* hard.

### The lecture (Vorlesung) ...

...is a monologue of the professor. Students try to follow, but as mortals like me and you seldomly understand everything. You are encouraged to ask questions, but sometimes you can be so lost it is not even possible to ask anything. Obviously, this is not a good thing, so once it happens, try to catch up as hard as you can! The lecture is what determines the speed of the course, so it's easiest to get lost here, and most important not to. Even if it might seem very tempting to stay in bed on a cold and dark monday morning, particularly if there are good lecture notes, you should be very disciplined if you do so. The course goes on, which means you easily get into the viscious circle of "I don't know what we did last time, so I can't possibly understand anything today anyway, so why should I go there?", and before you can say knife the semester is over. Hence only bunk lectures if you actually do work for them instead, not if you might just manage to understand it but never do.

### The excercise class (Übung) ...

...is the point where "understanding" happens for most people. Here you can try what you learned in the lectures with examples and different topics. Professors and assistants have prepared an excercise sheet, and a tutor, normally a senior student, helps you as little as possible, just that you don't get stuck. He doesn't do the excercises for you, but he is there to answer most of your questions or bring you to the right way ... You work in little teams, and it pays to be in a group which is roughly working at the same speed as you do, because everybody in the team has to understand the solution. Teamwork does *not* mean one does the work and explains it to the rest. This sort of teamwork has to be trained hard, but once

you get it, it is way more efficient than fighting all alone. Forget what bad experiences you might have had with teamwork in school, for you have different people round you here.

## The homework (Hausaufgaben) ...

... is also given with the excercise sheet. Normally you have one week to work on the questions alone or in a group. It's important that you write down the solutions yourself, because this is where you are supposed to learn to write mathematically, explain your solution to a reader and express yourself precisely. Your tutor corrects the homework to show you where you could do better or what was good. So copying homework is just a waste of time, only good to annoy your tutor. There are even little credits which count for your exams to make the job go easier. But who does his homework regularly, passes the exam anyway, and who only copies them fails even with the bonus points he might have. That's why many courses don't give any points for homework in the first place.

## The office hour (Sprechstunde) ...

... is another opportunity to meet your tutor, ideally after you had a longer look at your homework. In case you get stuck, don't know where to start or have any questions about the lectures, don't hesitate to visit the office hour, it is not something like a surgery hour for badly wounded people (as the German name suggests) but meant for every normal student who needs a little hint.

## The Orientierungskolloquium ...

... is designed to show you which fields of mathematics are worked on in the department. If you regularly visit the O-Kolloqs during your first two years, you should have a rough overview over the department, which enables you to choose subjects that suit you. The talks are mostly held in German, though.

## The mentoring system ...

... should support you in your first year of studying. During OWO you'll be divided into classes of about 10 people, then a mentor (a professor or assistant) is assigned to you. The basic concept is: you will meet with your mentor a couple of times in the first two semesters to clarify your situation in studying and locate eventual problems. The mentor shouldn't control you, he will support you by offering solutions and helping in your planning of studies.

## The proseminar ...

... comes in different flavors. Most of the time you read small mathematical texts or questions in groups or alone and present them. Focus in the Proseminar is on unusual or interesting approaches to questions, and it is normally not associated with any course you already attend. The best here is to listen carefully when the different professors present what they plan to do in the proseminar they are offering.

***Ha-Jü***

# A mathematical model: The "Darmstädter Modell"

Maybe you have visited some other universities before you concluded that Darmstadt University is the right for you. However you did that you're in a happy position now. Even if the lecture hall and the rest of this university looks to you like all the other universities in the republic.

This article is to give you a overview of what you get when you look behind the scenes. It is to explain the "Darmstädter Modell". Many universities drill their students mathematics in lectures and have so called "Vorrechenübungen" (i.e. one student is doing calculations on the blackboard and in front of the class) – the students are left to their own recources. Darmstadt is different! (Although some professors actually are thinking about trying them out, but this is not clear yet). Of course, lectures are different from professor to professor but people look after the students here. That'll especially become in **exercises classes**. Unlike the "Vorrechenübungen" people in Darmstadt set store by communication and teamwork . . . You do your exercises with the help of a tutor and of course some fellow students. So people don't have to mull over the solution alone but you wrack your brains together and discuss about different ways. Teamwork is a way of importance not only in exercises but also in homework. This is – by the way – an excellent opportunity to get to know each other and to improve each others knowledge of maths.

An other benefit of the "Darmstädter Modell" is the **tutor system**. Your exercise or tutorial tutor is a senior student that had to learn all the stuff some years ago and knows most of your problems because he also had them. Frequently such a student is more qualified for an answer than a professor who is hard to immerse himself in such a trivial (yes you'll hear that word time and again) problem.

Your tutor usually annotates your **homework**, too. Don't worry, if there is more annotion than your own words (sure, I'm going over the top). These people take root of your writings and try to give you some hints to improve your writings. That doesn't mean that your way is wrong but you are to optimate mathematical thinking and writing.

Similar to the exercises classes but still different are the **tutorials**. Here most of the time groups are even smaller, the problems even more complex but not entirely new. By the way there is no homework here.

The understanding of the lecture stuff happens in the exercises classes and tutorials, but mathematical thinking you're about to learn in a **proseminar**. Such a proseminar consist of some students – less than in the exercises – and a professor. Here you are to work close to a professor and to learn about different aspects of mathematics.

At last I have to mention the **office hours**. Sounds for hopeless people, but it isn't!! At first there are no hopeless people. Everyone who is interested and not ashamed to ask is able to solve mathematics. Notice you are not stupid if you don't understand everythig. I myself do not know anyone who does. On the contrary you'll recognize that most of the people have the same problems like you. Therefore are the office hours. Here you can meet your tutor or an assistant or an professor who can answer all your questions until you get it.

In general you can knock on every door – even, if it isn't open yet – and ask the people behind them. They'll give you an answer or send you to someone who is able to answer your question. We call it the **principle of open doors**.

***Matthias***

# Learning in the Mathebau

Rumors say that there are students who sometimes have to learn something for their studies. Let it be the postprocessing of lectures, the preparation of tests, homework or learning for the Vordiplom.

Not everyone can or wants to do this at home. The reasons can be loud neighbours having barbecue the third day in a row, not enough space on the table or simply "too much distraction". You could barbecue with your neighbours. Besides, your on your own with maths at home. So why not consider the Mathebau?

It surely is not the aim of every math student to spend every day in the S2|15 building, which (we admit it) does not appear on the list of worldwide important architectural buildings. But the advantages are clear:

The five open collegiate work rooms (217, 336, 415, 417, 444) are ideal for learning; you can go there in small groups (or alone if you prefer) and do your work. Quiet and objective discussing is allowed, even desired, as long as it does not bother others.

A second reason is the LZM, the Lernzentrum Mathematik (room 244). Not only can you work here, you can also look at file folders with exercises and solutions (as long as the professor offers them). And there is the unbeaten opportunity to consult a tutor, he's there for you daily in the semester. You can access the files when he is there.

Last but not least there is the library (room 240). So if you're looking for a really quiet place to concentrate and learn, this could be a possibility. You have to list your name and cannot carry any bags inside, though. In exchange you have extensive literature.

Furthermore there are some natural benefits of the Mathebau: you meet many like-minded people, and can ask a professor or assistant (if they have got time). Besides, you can definitely find someone who is working on the same problem, so you can encourage each other if necessary.

So, take the Mathebau into your consideration.

***Heho (translated by Stephan)***

# Aims of studying

The studies in one of the Diploma courses or "Mathematics with Computer Science" in the Department of Mathematics are supposed to prepare a student for the work as a mathematician in economic, industrial, administrational or scientific fields at an international level. Students shall be enabled to understand, to analyse independently and responsibly and to treat problems both mathematical and nonmathematical with mathematical methods.

With regard to content the following aims of studies are aspired:

- basic knowledge in analysis, geometry, algebra and stochastics, deeper knowledge in some special fields of mathematics
- skills in important mathematical methods and the knowledge that they have grown historically
- understanding how mathematics develops, changes its aims and what initiates mathematical work and makes it necessary
- the ability to use the language and methods of mathematics correctly and appropriately
- the ability to link mathematical contents and methods to nonmathematical circumstances and use them in mathematical models or for building models
- the ability to communicate and work with scientists of other disciplines and users of mathematics
- the ability to critically examine contents and methods of mathematics and their social consequences

In the course of studies students shall recognise mathematics as a rich cultural heritage and experience the fascination of mathematics.

In general the following properties are to be promoted:

- self-confidence and independence in scientific work
- patience, persistency and an willingness to perform in solving mathematical problems
- to be open for the contention with and the aim for new insights
- the willingness to cooperate and communicate as well as the pursuit of responsible actions

These objectives do not only aim at providing in-depth technical knowledge, but also at developing insights and skills which can give students the flexibility to cope with the requirements in their professional life.

In the course Mathematics with computer science the following aims are particularly emphasized:

- the ability to express oneself in a foreign language both orally and written and to communicate
- the ability and the language-specific skills to communicate and work with scientists from different cultural backgrounds
- knowledge of political, economical, social and historical circumstances in a different country
- getting to know different systems of education and science and being able to compare them

***Ha-Jü***

# Цели на следването във Факултета по Математика

Обучението ви във Факултета по математика ви подготвя за професията на математик в иконимиката, индустрията, администрацията или научните среди на международно ниво. По време на следването си студентите се запознават отблизо с математиката като културен фактор и се научават как да разбират и анализират както нея самата, така и сходни на нея проблеми чрез употребата на математически средства за разрешаването им.

Целите на изучаването на математика в частност са:

- Придобиване на фундаментални познания по Анализ, Геометрия, Алгебра и Стохастика; специализация на придобитите знания в различни области на математиката
- Запознаване с важни методически стратегии в математиката и историческото им развитие
- Разбиране за еволюцията на математиката, как се променят целите й, кое стимулира употребата на математиката и защо тя е необходима
- Овладяване на употребата на математически способи и абстракция по правилен и подходящ начин за успешното разрешаване на проблеми и задания в други изследователски сфери, както и за изграждането на математически модели
- Способността да се общува и работи в екип с учени и изследователи от други области, както и с такива, практикуващи чиста математика
- Умението да се анализират целенасочено предметите на изучаване и способите на математиката, както и нейната конкретна връзка с обществената среда като цяло

Гонят се следните цели:

- Придобиване на самоувереност и независимост в научната работа
- Проява на издържливост, постоянство и мотивация при решаването на математически задъния
- Откритост към анализ и критика и стремеж към нови познания

- Желание за сработване и съвместна работа и общуване в екип
- Поемане на отговорности и осъзнаване на последиците от собствените действия

Не се цели единствено преподаването на специализирани знания, а по-скоро студентите сами да развият разбирането и способностите си, които биха им помогнали да се справят с предпоставките на бъдещата им професия.
В специалността «Математика с компютърни науки (MCS)» се преследват следните конкретни цели:

- Способността да се общува на чужд език, изразяване устно и в писмена форма
- Способността да се общува и работи със специалисти от други области
- Опознаването на политическата, икономическата и социалната ситуация в друга държава, а също така и нейната история
- Запознаването и сравнението на различни образователни системи

Превод: Лъчезар Димитров

# (Anti-)frustration article

If you read this article, it has been almost exactly year since I read my own OWO-Info. When I began my studies of math, I imagined it to be pretty simple. I liked the subject, there just couldn't be a better one! It could not be difficult, I had been one of the best in my Mathe-LK. So what could go wrong? Well, I was disabused . . .

For there were many situations in those two semesters, when I asked myself: Is this really the right thing to do? Will you be able to do this?

The first doubts came in my first trial lecture, Introduction to linear algebra by Prof. Herrmann. He came into the hall, saw, and confused . . .

Full of energy and a bit scattered (may he forgive me this description), I could see him faintly – I was sitting in the back – wilding some geometric models. It was impossible for me to follow the speed of his sketch, let alone to follow his performance. I tried desperately, it could be important (I later learned that it would be repeated again . . . ).

I resigned and turned to all sides, where I either saw people taking notes hectically, or I looked into faces as shocked as I was. I finally got over my shadow and asked my neighbour if he understood anything. "No, not a word. You?" "No . . . "

Of course, the "real" lectures did not always take course like that, but that you (meaning: me) can always follow a lecture from the beginning to the end without problems is very rare. You could be happy if you weren't taken down by the professor in the first quarter. Heliked to skip some proofs because of their 'triviality', and you sat there understanding nothing. There were some exercises where you couldn't even figure out the task, which is "very" frustrating.

It probably won't be very different for you in your first semester, but you will see: you'll get used it, shocked faces turn into amused ones, in some lectures only half of the students take notes any more – it makes sense sometimes. And most important: You are not alone! I claim that 90% of your fellow sufferers, eh, fellow students, face the same problems. There are some people who find studies to be very simple, but they are few (and they still have to do something. There is a benefit of being "normal": the collective perplexity binds together, learning groups are made, you get to know many new people very fast. If you should not be able to do an exercise, or have a question about the script or something like that: go to the Mathebau! There is always someone who can help you, tutors, students from higher semesters, assistant's or professors, most of them are willing to help. And I promise you, you will have questions!

Another important theme are tests. It is a broadly shared falsity that they are designed to maximize the number of students failing. On the contrary: With the proper preparartion, they can always be passed, sometimes surprisingly easy. What I want to say by this: Even if you are fully convinced that you didn't learn enough and cannot do anything, take part in it regardless – perhaps you will be gladly surprised!

A last thing I want to give you on your way: Don't be devastated if you don't always understand everything, nobody does. You will learn that you understand some proofs and sentences months after, when you know all interrelations. So don't give up early, you will do it!

Recapitulating, I can say that math-studies is not easy, but it can be done, with fun even. I hope you will come to the same conclusion in a year, perhaps you will write this article. Till then, have fun!

***Daniel***

# Living

## Sports offers

That the university provides some sports offers is a well known fact, but that does not hit the main point. One should know about the extensive, free-of-charge sports offers. First one should get the (free) programme that is available at the Hochschulsportzentrum (HSZ) in Alexanderstraße 25. Finding the HSZ is not that easy, but you can find a picture online. Alternatively you can identify it by the red uni-sign at the front of the building. Generally one can bank on: If the door is open, so is the HSZ. You can also find the programme and much more information at http://www.hsz-tud.de.

### First about the scenes of action:

One can do sport in many different places, the largest and best known being the Hochschulstadion. Here you can find soccer and tennis courts, a swimming pool and a running track as well as gyms. You get there with tram #9, getting off at stops Jahnstraße or Steinberg. While the student-id is usually checked at the entrance of the stadium (at least during the summer), this case is seldom in the gyms.

### But now the actual offers:

Really every sport one can or cannot imagine is offered. From aerobic and "Schwitz Fit" over badminton and soccer to "exotics" like unicycle-hockey, canoe-polo or Ultimate Frisbee everything appears in the programme. Often there are special courses for beginners and advancers. In addition to these regular offers there are workshops like scuba diving or tap-dance. Most sports are free and do not require registration; for some a small fee of 10 to 20 € has to be paid at the HSZ. You can get further information about your sport from the Obleuten (contact-persons) who are listed in the programme. For some sports there are even international contests (IHM). Information about those can be obtained online at http://www.adh.de or from the Obleuten.

### The most important possibilities are:

The best and highly used proposal is the unheated outdoor pool at the uni-stadium. In summerterm it is open between 03/15 and 08/31 and it is free. You just have have to bring your student-ID and a bathing suit. Possibly a one Euro coin to use the lockers and a bottle of water as the prices at the shop are extreme (like at any outdoor pool). Here you can also find the Kraftraum (exercise room; you can do strength training here, e.g. weight lifting). Using it is not free but 25 € for a full year is very(!) cheap compared to a professional exercise room. To get in you just have to knock on the door (that is not obvious...) or, if there is nobody in there, you have to go to the stadium keeper (around the left hand corner and 10m straight forward starting with your face to the door of the Kraftraum) and get the key. Everybody who is interested not in training strength but condition or who just likes jogging may try the Lauftreff . It offers several groups, starting points, speed possibilities etc. (details in the programme). Of

course it it also possible to do sports that need more than a bathing suit or a ball: One can get a tennis card or go to the driving range (located at the mechanical engineering building at the Lichtwiese). The range is newly built and belongs to the university so with 2 € for 20 balls its prices are very reasonable. On the Sportgesundheitsamt's ground is a climbing tower which costs 10 € to use, but it is only allowed for experienced climbers.

Finally a remark about the TU-in-Bewegung-Tag: Each summerterm on the TU-moving-day several tournaments and fun-tournaments take place. For example the Ultramarathon (up to 12 runners share the distance of a real marathon), the beachvolleyball contest or the streetball tournament. The highlight is certainly the Fischerstechen, a kind of standing-on-surfboard-&-beating-each-other-with-cotton-bud.

***Sebastian P., Susanne***


# The Bar-Guide

A small guide of taverns and bars in Darmstadt – we listed some locations and compared them, so you'll have something to do after your lectures. Have fun exploring!

## Cocktail bars:

- **Bar Brasil** (Kopernikusplatz 1)
- **Havanna Ba**r Caipi 6,30 €, Cola (0,2) 1,80 €, daily 17-20h, Mo. Pizza 3 €, Caipi 4 €
- **Pueblo** (Erbacher Str. 5)
- **Coyote Bar** (Waldspirale 8) Caipi 7 €, Cola 3 €, daily 17-20h, thursday from 17h, in the Hundertwasserhaus
- **Enchilada** (Kasinostr. 5) Magharitas for half the price from 23h
- **Che** (Kranichsteiner Str. 8) Caipi 6,80 €, daily 18-20h
- **AussieBar Corroboree** (Kasinostr. 4-6) Happy Hour: 18-19h, Cocktail Hour: 19-20h
- **Sahara** (Mauerstr.) Caipi 6,50 €, tasty mexican food

## Cafes

- **603qm** (Alexanderstr. 2) Latte Macchiato 1,60 €, events almost every evening. By students for students.
- **Café Chaos** (Mühlstr. 36) cake for free after midnight
- **Carpe Diem** (Schuhknechtstr. 1)
- **Linie 3** (Ludwigshöhstr.) good milkcoffee (Milchkaffee)
- **Café Blue** (Lauteschläger Str. 28a) Latte Macchiato 2,40 €, Cola (0,2) 1,60 €
- **NT (Nachrichtentreff)** (Elisabethenstr. 20) Milkshake 2,30 €, best milkshake in town, 11.45-23.30h warm kitchen
- **Café Godot** (Bessunger Str. 2)
- **KuK** (Carrée) very expensive breakfast, 12.30-23.30h warme Küche
- **Bormuth-Café** (Marktplatz) good cake

## Booze and beer gardens:

- **Biergarten Dieburger Strae** (Dieburger Str.) litre 5 €, Cola 2,50 €, Cozy and easy to attain (F-bus)
- **Bayrischer Biergarten** (Kastanienallee 4) H-bus or line 5, WLan Hotspot

- **Biergarten Lichtwiese** (Mensa Lichtwiese) student-friendly
- **Rossdorfer Biergarten** (Industriestr. 18, Rossdorf) a little distance outside, line 5502
- **Brauerei Grohe** (Nieder-Ramstädter-Str. 3)
- **Braustübl** (Goebelstr. 7)
- **Ratskeller** (Marktplatz)

## Dance halls:

- **Disco A5** (Gräfenhäuserstr. 75) line 5515 large capacity - disco, thursday lady's night (free entrance ladys, Tequila, Sombreros 1 €), 3 Floors
- **Natrix** (Landwehrstr. 89) large capacity - disco, line 3 towards main station; Black, Hip-Hop, RnB
- **Nachtcafé** (Carrée) House good clothing desired
- **Room 106** (Mainzer Str. 106) from House to Chill-out, quite expensive but cool
- **Odéon** (Frankfurt,Seilerstraße 34) large capacity - disco, thursdays students - day (5 €, for students 3 €, incl. midnightbuffet)
- **Centralstation** (Carrée) many events and well-known bands
- **Schlosskeller** (Schloss) groovy music, student-friendly www.schlosskeller.de
- **Goldene Krone** (Schustergasse 18) often local bands
- **Kuckucksnest** (Landgraf-Georg-Str. 25) pop music and pee-party, mainly pupils
- **Steinbruch Theater** (Odenwaldstr. 26) a little distance outside, no stuff for underages
- **Linie 9** (Griesheim) line 9 till "Markthalle", from chilly to groovy, often an alternative
- **Stella** (Neckarstr.) small dance hall with a chilly roof terrace

## Döner:

- **Mak Döner** (Landgraf-Georg-Str., next to the Kuckucksnest) student-döner 3,00 €, sauce-bread 1,00 €, open till 4 h; best Döner in Darmstadt
- **XS-Döner** (Lauteschlägerstr.), student-döner 3,00 €, next to the Uni
- **Döner Cleopatra** (Schulstraße) Hähnchendöner 2,50 €, seat inside

## Shisha Bars:

- **Arabesque** (Julius-Reiber-Str. 32) Shisha 4,00 €, Cola 2,00 €, Cocktails 5,10 - 7,50 €, long opening-times, huge range of tabac
- **Vacaciones** (City, above Burger King) Shisha 5,00 €, cozy chillout-lounge with mawkish tabacsmell

## Irish Pubs:

- **An Sibin** (Landgraf-Georg-Str.) Cola (0,2) 1,60 €, Guinness (0,5) 3,60 €, typical smoke-fillded pub, tuesdays quiz, thursdays karaoke
- **Ireland Pub** (Mauerstr. 22) Cola (0,2) 1,40 €, Guinness (0,5) 3,50 €, much guiness and good mood, Sa. - Th. 0,50 € discount on all drinks
- **Celtic Pub** (Mauerstr. 20) Cola (0,2) 1,50 €, beer (0,5) 2,60 €, 18 - 20 h, Pizza 3 €; take along too

## Taverns for students:

- **Hobbit** (Lauteschlägerstr.) Cola (0,2) 1,50 €, beer (0,3) 1,90 €, next to the uni and very cheap (eat a pizza ork)
- **Latino Apetito** (Soderstr. 21) very cheap, yummy mexican buritos
- **Osttangente** (Liebfrauenstr. 38) small wine tavern
- **Hotzenplotz** (Mauerstr.) pizza and escalope, very popular with some students
- **Café Hans** (Dieburger Str. 19) friendly and gay
- **Weststadtbar** (Mainzer Straße 106) cool flair in an old car hall, cocktails and more
- **Clusters** (Wilhelm-Leuchner-Str. 48) sunny couch tavern
- **Carambolage** (Heinheimer Str.18) Cola (0,2) 1,30 €, cheap & good pizza

## What's also happening:

- **Cinemaxx** (Goebelstr. 11) directly at the main station, brand-new blockbusters
- **Citydome** (Wilhelminenpassage) the downtown cinemas (Helia, Rex & Pali)
- **Studentenkino Audimax** (Audimax, Uni) 2,00 € per film, once 2,50 € for registration, blockbuster-cinema, extremely cheap with students-athmosphere
- **Staatstheater** (Marienplatz 2) huge theater with several houses
- **Halb-Neun-Theater** (Sandstraße 32) comedy & variété
- **Kikeriki Theater** (Bessunger Str. 88) variété
- **Comedy Hall** (Heidelberger Str. 131) comedy, often sold out for months
- **Bessunger Knabenschule** (Ludwigshöhstraße) different events and concerts
- **Centralstation** (Carrée) concerts, exhibitions, readings (www.centralstation-darmtadt.de)
- **Ticketshop** (Luisenplatz) tickets for concerts and events, infos for tourists & maps of the city

***Marcus & Susanne***

# The Freshers' Weekend 2003

In 2003 year a new tradition was founded in the department 4. The *Freshers' Weekend* was held for the first time. This year we will continue what was such a great success.

The basic idea was that many, many Freshers go to a nice seminar-house together with their tutors and there they all spend a weekend full of "fun and games" to get to know each other better then in the uni environment.

This worked very well! There were enough drivers and cars for 40 Freshers and 20 elder students. So no one needed to take the long train ride and they all went to Schriesheim-Altenbach in the heart of nature. There[i] is a big seminar-house which is rented from the protestant church there, where you could easily cook, play, sleep or spend your energy in other ways.

Our time there was spent very differently from person to person. Some groups wandered around in the near vicinity and others played basketball in front of the house. In the house itself there was a group playing table-tennis and another big one watching movies. There were of course other games and talks and also some were learning (from the Freshers), because they didn't want to "waste" a whole weekend on fun alone. But the learning was easier then usual as their tutors were close-by.

Every night there was a party in the basement, which the landlord didn't like too much. In the upper floors there was some 'Mafia'-playing with wild accusations and murder. Some young adepts where led to understand the secret art of black magic. Especially in this it was obvious that the Fresher still had much to learn to catch up with the others.

There was also a lot of cooking going on most of the time. Magical meals appeared and though the cooking for 60 people is quite complicated it helped a lot that there was an industry sized kitchen and dish-washer available in the house. In any case all the cooks did a great job. The meals that where taken together during the day were the times when all the little groups reunited into a big one. Well, maybe except for breakfast when some where still sleeping. Breakfast was continously going on until midday. So lunch was in the late afternoon and dinner was close to midnight.

An important event was the introduction of the "Fachschaft" to the new Freshers. We talked about all the things that the "Fachschaft" works on and of course some areas could always do with some more people. We talked about the Maths-Music-Night and the many internal groups: Ball-AG, Fun-AG, Zapf-AG . . . Some of the freshers actually liked to help somewhere right away and we thank them for their support.

All in all the feeling emerges, that a *Freshers' Weekend* is a really good idea. You could get to know all kinds of stundents, be it Lehramt, MCS, Diplom or others. It was really different to do things together on a weekend then seeing each other in the uni or to be tutor of some Freshers in an exercise class.

A big thank you goes to Hasan and Frauke who took a lot of stress to organize this nice weekend together. But we also thank all the other little helpers that did the shopping and cooking and cleaning. The very first *Freshers' Weekends* will be seen in the mathbuilding for a long time. You just have to go into room 217 and look at the many colorful pictures in the wall . . .

***Henning, Max & Patrick F. (translated by Richard)***

[i] The place is best described as "somewhere near Heidelberg"

# Organizing

## The “Fachschaft”

The Fachschaft actually means all the students in one department. But practically *Fachschaft Mathematik* means a group of maths students who actively care for the interests of the maths students. Since two years there are two different lists on university elections, the active and the radical Fachschaft. Both engage, but sometimes they have very different views (if you want to know more about the difference, ask their members).

The Fachschaft is open for everybody and organizes its work democratically. Every tuesday at 6.15 pm we meet at the session of the Fachschaft (so called “Fachschaftssitzung”) at the Fachschaftsraum S2|15 219. Here, various topics concerning maths students and the department are discussed and organized. The Fachschaft people form their opinion, based on which the student representatives in the Fachbereichsrat (the most important committee of the department) and its sub-committees argue.

At the Fachschaftssitzung, there are topics which appear regularly like the organisation of the university information days (HiT, HoBIT), the orientation week OWO, the introduction into main studies (EiH), the preparation of the various committee sessions, the planning of the evaluation and much more. For the elections, the Fachschaft always presents candidates in the two lists for the Fachbereichsrat. Of course, not all work can be done at the session itself. The session is more about not forgetting important topics and finding people who care about them and regularly present their results at the Fachschaftssitzung.

Central topics during the last semester were for example the room situation at the department, the employment of several new professors and junior professors, the evaluation of the department, the employment of new assistants, study-fees and the introduction of the new bachelor- and master-program.

Apart from the political work, recreational events are organized by the Fachschaft. These are for example parties, games evenings, the maths music events, the annual maths dance and excursions with and without Fachschafts work.

The current notes of the sessions can be found in the glass box near the Fachschaftsraum, at the pin board in the ground floor and online at http://forum.mathebau.de. There you can also find information on dates of the various working groups (editors of the Mathe-Info, preparation of HIT/HoBIT, OWO, EiH, parties, maths music evening, maths dance, excursions, ...).

The Fachschaftsraum (S2|15 219) with cozy and fluffy sofas, a good old radio, a water boiler and a coffee machine, a small library, the weekly newspaper “Die Zeit”, the satirical magazine “Titanic” and much more is open 24/7 and invites all maths students to have a break and a cup of tea or coffee or other drinks from the Fachschafts-Büro (office).

Everyone who’d like to take part in any of these activities is most cardially invited to drop by at a Fachschafts session! During the orientation week there will be a light-version of the “Fachschafts session” on tuesday at 5.50 pm. There the experienced Fachschaft people will happily welcome you and answer all your questions about the Fachschaft.

***several authors***

# AGs of the Fachschaft

The AGs of the Fachschaft provide a platform for all those who are interested in spending their spare time together with other maths students and are moreover ready to play an active role there. There are no fixed memberships, whoever wants to participate is welcome to do so. Despite in each case a close group, possibly alternating in time, of mainly active people is likely to arise on its own. Intersections with the *usual Fachschaft* work are less common than e.g. with the organization of the OWO, but in certain areas existent. Traditionally there are the following three-and-a-half *Fachschaft*-AGs:

## Fun-AG

The Fun-AG was re-founded in autumn 2002, after existing only apparently for some time. The main point is organizing games nights several times within term and even in the holidays. A games night takes place on a Tuesday most of the time and starts at about 7 pm. As the best place room 217 in maths building comes into view, that's a room open for students with tables and chairs, located right next to the *Fachschaft*'s room. To that room one can withdraw in order to play more *comfortable* games. Next to it is the *Fachschaft*'s bureau, where you can get beverages. Theoretically a games night would be possible even without the Fun-AG, but the Fun-AG takes the organizational part. On the one hand a new date is announced to the mailing lists and by flyers. On the other hand several games belong to the Fun-AG which are enjoyed to be played on games nights. Furthermore sweets are provided on the basis of donations. And a games rental is planned. New members are explicitly desired!

## Ball-AG

Once a year, more precisely in June, there is a maths ball, where one can dance in dinky dress to the music of a live band and admire the show parts. To make potential visitors fit in advance, in summer term dance courses are held in addition, and the tickets have to be sold as well. The amount of work at that very day such as preparation and cleaning as well as the frame program are just a small part of the whole organization. Of course all of that demands a good schedule and enough time. To this end the Ball-AG is re-founded every year. Some *old-timers* sit on that, however often times new faces can be seen, and more people are wanted to participate, in order to make the next maths ball a great success again.

## Zapf-AG

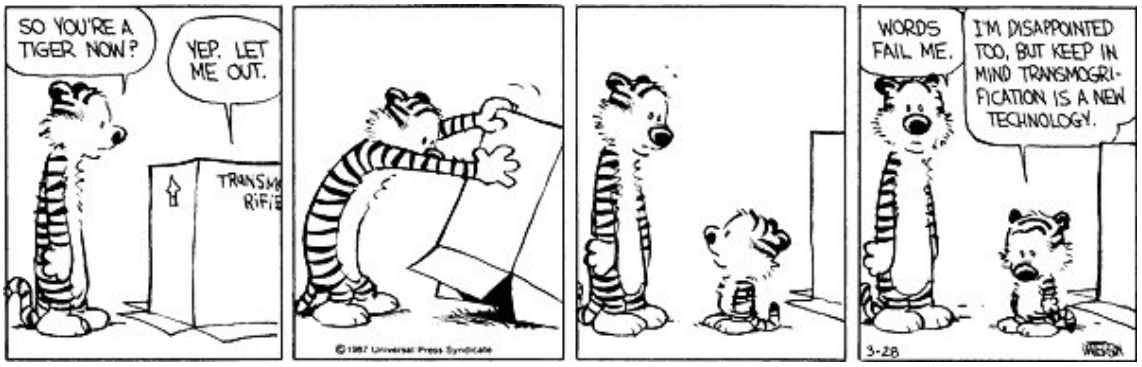
Of course even mathematicians are humans who like to party and also organize parties. There is one in each OWO and EiH, and apart from other *fixed* events like the winter party in February every year there are more reasons. If it's not too cold, the *Hüttchen* near *Hochschulstadion* is perfect, because there you can make a barbecue. Besides there is the *Schlosskeller*, the *Oettinger Villa* or the *Stöferlehalle*[i]. Zapf-AG *zapfes* (i.e. opens beer kegs) as the name suggests, but also organizes. In the past this was done uncoordinated by several people and also the Fun-AG, but now we have a Zapf-AG again. That doesn't mean as a participant you have to e.g. carry all crates on your own but you have to find people helping. All together *zapfing* is not one of those unappreciated jobs, whence it's worth participating. Of course, new members are welcome here, too.

[i] Also known as 603qm. The Editors

## Go

The players of Go meet every Monday at 7 pm in the *Fachschaft*'s room and next door for laying patterns and conquering areas. Actually they do not form a proper AG as there is almost no intersection with the rest of *Fachschaft* both concerning organization and the people. Despite they are mentioned here because their weekly meetings are a special type of games night.

***Josua (revised by Stephan)***




## Riddle #2: Numbers

Often Inge and Karsten solve mental exercises with their father. They should find three natural numbers. $a$ is the smallest, $c$ is the largest number of them and the product $a * b * c$ is 900.

The father tells his daughter Inge the number b and he tells his son either the absolute value of $a + c$ or $b + c$.

Some time after both of his children thougt for a while, he asks Inge if she could tell him the three numbers. But she said "no". The father asks Karsten the same question. But he said also "no". And so on. But the seventh time Karsten knew the three numbers $a$ , $b$ and $c$.

**Which were the three numbers?**

***Thilo S.***

## Riddle #3: The monks

Some monks are living in a monastery. These monks don't talk with each other and communicate also in no other way (like sign language or something else).

In one night all the monks have the same dream: it is predicted to them that some of them will have a lethal disease. After this night all monks who have this disease will get a black point on their forehead. Everyone of them has to find out if he is ill and then has to commit suicide.

In the whole monastery there's no mirror or something similar, so the monks cannot see if they have a black point on their forehead or not.

In the fifth night after the prediction all monks who where ill are dead (They all died in this fifth night and they all committed suicide).

**How many monks were ill?**

***Thilo S.***

# University Policy

## The Board of Students (Fachschaftsrat (FSR))

Student body (of the faculty), those are all students of the Faculty (of Mathematics) according to University Law. In reality "student body" speaks of those students who engage themselves in University Policy, who organize the OWOs (Orientation Weeks) or something else and/or who sometimes come to the meeting of the student body every Tuesday at 6:15 pm. The University Law considers five students to be elected into the Board of Students. At the Faculty of Mathematics it's a little bit different to reality because many students undertake tasks without being elected into the FSR. The students who have been elected into the FSR are more likely contact persons who will help you with your questions.

## The Faculty Council (Fachbereichsrat (FBR))

The Faculty Council as the mightiest committee of the faculty discusses important things, such as there are affairs of study (i.e. the planning of the courses in the coming semesters and the spreading of assistants to the lectures), occupation of councils (i.e. appointment commissions), affair of personnel (i.e. job posting, suggestions about occupation of professorships, adjustment of academic colleagues at the faculty), distribution of the faculty's funds (Do we buy new computers, do we complete our library or do we use the money for anything different?), election of the dean [Dekan] who represents the faculty and leads the current business, election of the vice-dean [Prodekan] and the provost [Studiendekan] who build the deanery (with the dean - of course), distribution of the rooms, and so on... The Faculty Council is a sort of a parliament of the faculty.

Besides five students there are eleven professors, three academic and two administrative–technical assistants, that means the professors theoretically build the majority.

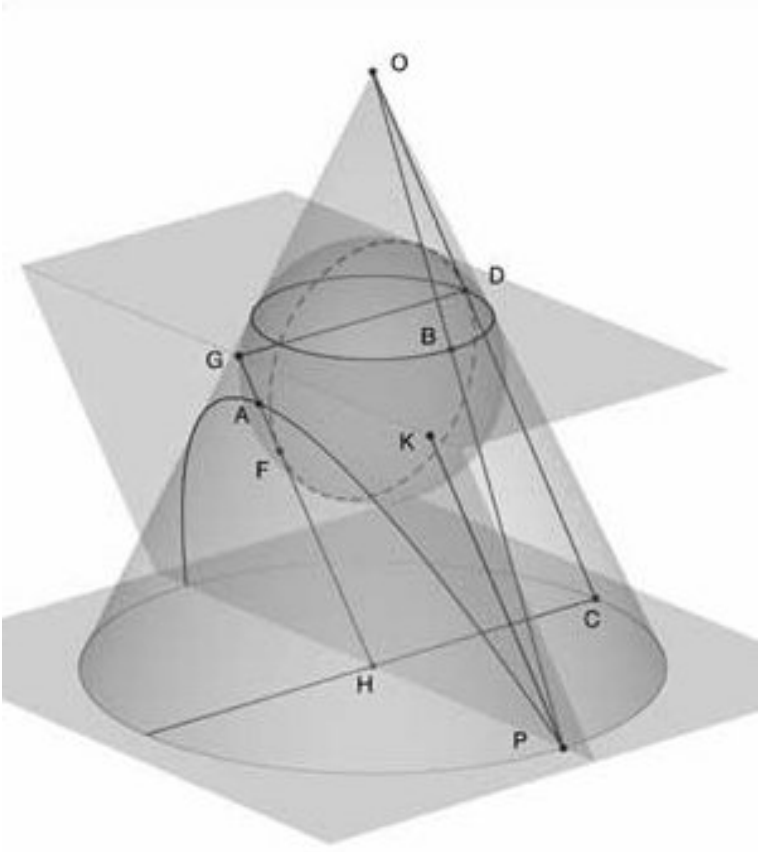
## Parliament of Students (StuPa) and General Studying Committee (AStA)

The Parliament of Students is the legislative organ of the general student body. Its tasks are the election and supervision of the AStA and the budget's passing of the student body. Besides it decides on the students' affairs of principle (i.e. the statute or the term ticket). The Parliament of Student is elected by list election. It is worth while to visit the open sessions (they are always open). The representatives will be highly motivated if there are more interested students. Here also a high election turnout is important. More information to the General Studying Committee (AStA) can be found in the article on **page 60**.

# University Congregation and Senate (Universitätsversammlung und Senat)

The University Congregation (before it was called Highschool Congregation) is a sort of a university's parliament. It issues and changes the basic order and elects the president and vice-president of the university. Here the professors also have the absolute majority: Out of 61 they have 31 seats while the rest distributes on 15 students, 10 academic colleagues and five administrative-technical assistants. Another quite important issue of the University Congregation is the election of the Senate which consists of 11 professors (one of them is the president of the university), 4 students, 3 academic colleagues and 3 administrative-technical assistants. The Senate is a substantially smaller committee with more might. It decides on affairs of science and study (i.e. agreement on all faculties' conditions of study), affairs of research and the academic junior staff, affairs of budget and the university's development planning, university elections, information management (library and computers), affairs of jobs, goal agreement between Land Hesse [Land Hessen] and the university and between the university and the faculties. In the Senate the before mentioned 4 students represent the interests of nearly 17000 students. So you see, it's important to demonstrate interest with a high election turnout and to elect the four best students into this position. Because the four students are elected by the students of the University Congregation it is important which list you elect into it. The lists' way of acting and their estimation you can find on the traditional hustings (election campaign). Additional information, e.g. about the various lists, can be found on the internet, http://www.asta.tu-darmstadt.de/cms/hopo/stupa/.

***Thilo Klinger, revised by Rafael & Stephan***



# AStA

Damn it, another abbreviation you don't know? But AStA is really way too long to write it unabbreviated all the time: "Allgemeiner Studierenden-Ausschuss" (general student committee). The AStA is the representation of students on the university level and a public corporation.

The AStA not only does politics, but offers a lot of service. For example, one can buy an international student card (**ISIC**) at the AStA-office, cheaply rent a **bus** to move, as well as buy **stationery** at the *Lichtwiese*. Besides the deliberation of **BAFöG** and help with other social problems, the AStA furthermore freely offers a **legal advice** (lately a special office hour offering legal advice for foreigners has been added), a **job advice** office hour (how much am I allowed to earn, what are my rights, etc.) and advice for disabled people.

But the funny things in life are not forgotten – therefore the AStA has the **Schlosskeller** and **603qm** (the party hall where the OWO-party will be as well).

Politically, the AStA is involved in the committees on university level, such as senate, *Hochschulversammlung* (university assembly), etc. and represents there (together with other elected students) the interests of the students. And very often this is needed, because one can wait long for the day when the professors represent the interests of the students.

Well, that sounds like work for at least 20 people. It probably is, but the main work is at the moment done by five people, who are supported by a secretary and an executive board.

The structure of the AStA is appointed by the structure of the **Studentenparlament (StuPa)** (student parliament) because it is built of the biggest list. This year the list "FACHWERK" sends representatives to the AStA. Fortunately there are people who accept this arrogation, what's not sure at all.

That's a pity, because you can see: The AStA is one of the most important institutions on which most things are dependent on (for example: the **Fachschaft** gets the money from the AStA). So, if you're interested in assisting them, they would be glad about it.

If that is too much for you, you can indirectly support the AStA: with your vote! This is the minimum of support you can give the people who stand up for and represent your interests. That is also a confirmation for them whether you enjoyed their work or not.

The topic "election" is a very important these times for the TU because the work of the AStA needs much money. The AStA gets his funds from "Land Hessen", but this is a little bit tricky: If there is less than 25% electoral participation the funds will be drastically reduced. This means that projects like 603qm, bus-leasing, legal advice, . . . and especially the "Semesterticket" run risk to be cancelled because the AStA cannot finance them anymore.

This year the result of the vote is: We've done it, we got 42,4% electoral participation and that's more than enough to retain our funds. At the election last year there only was an electoral participation of 10% throughout all students in Darmstadt, so we've reached something! We hope this interest in voting the student's representatives will stay the same the next years, so read the next sentence carefully: Whenever there's a vote of the general student parliament, the AStA or something else, go to the election. Every vote is important and earns ready money.

So, enough recruiting you for elections and enough whining, it is not supposed to look like one cannot enjoy all that (actually one can).

***Alech (revised by Patrick S.)***

# Committees within the department

You, who is reading this booklet, enrolled at the maths department as a new student. But what the hell does such a department do, how does it do that and who takes the decisions? Believe it or not, all of these questions will be answered in this article!

Everything that happens, happens in the committees.

The most important and most powerful committee at the department is the *Fachbereichsrat* (FBR). This is somehow the parliament of the department. All other committees of the department (see below) are appointed by the FBR and create proposals, whose basis on the FBR decides.

The FBR normally meets monthly during the semester. The members of the FBR are elected during the university elections. Every group elects their respective representatives, i.e. the students elect the student representatives, and so do the professors and assistants.

The FBR consists of 11 professors, 5 students, 3 scientific employees and 2 administrative-technical employees. The student representatives currently are Frauke Harrach, Sven Herrmann, Lea Poeplau, Andrea Peter and Christian Burgmann.

The *Studienausschuss* (Study committee) has nine members: three professors, three assistants and three students. The *Studienausschuss* works for the dean's office and the FBR in creating proposals for them. These proposals concern the distribution of the lecturers to the courses as well as the planning and execution of the different courses. Furthermore it creates study plans as well as the teaching report of the department, cares about the course guidance and creates submissions for conditions of study and exams. The student representatives currently are Alexander Kartzow, Leo Poeplau and Henning Sudbrock.

Main task of the *Forschungsauschuss* (research committee) is to propose the FBR the employment of new assistants. These are mostly accepted by the FBR. Besides, other things concerning research within the department are discussed here. Currently the student representative is Max Horn.

The *Haushalts- und Rechnerausschuss* (finance and computer committee) cares about the finances of the department as well as about the computer situation. Within this committee, it is discussed how the money of the department is distributed to the different domains, such as tutors, teaching and research, the dean's office, the library, . . . The committee cares about the computer situation of the department and the rules concerning computer use as well. Currently the student representative is Sven Herrmann.

The *Diplomprüfungskommission* (Diplom exam committee) completes the diplom exams officially within the department. Furthermore it decides about proposals for distinction. It also arranges the approval of new minor subjects as well as examination subjects, prolongation of terms, etc. The rules of approval of exams taken abroad are discussed here as well. Currently the student representative is Andrea Peter.

The *Promotionsausschuss* (doctorate committee) is mainly concerned with the opening of doctorate proceedings as well as the acceptation of doctorate degrees. An application for doctorate grade is discussed in this committee. It also sets up the examination committee. In addition it deals with questions concerning the doctorate in general. Currently the student representative is Rafael Dahmen.

The *Perspektivkommission* (perspective committee) discusses topics that are concerned with the long-term plans of the department, i.e. creating new positions in the different working groups or the weight of the different research groups in the committee. The student representatives currently are Tobias Hartnick and Sven Herrmann.

So all in all there are nine positions, where students can engage themselves besides the Fachbereichsrat. And we can only fill these positions either via a) plurality of offices or b) you. So if you are even only vaguely interested in engaging yourself to support the students in the committees within this department, come to the *Fachschaftssitzung* and let us tell you more about it.

***Alech & Ben (revised by Cedric)***

# Life, university and all the rest

You social life may not be centered around university, but the TUD does provide you with a variety of interesting activities – not just lectures, exercise classes and exams. You'll also find lots of societies, offering a wide spectrum of activities, from artistic to academic, from religious to commercial, from sports to politics.

Let's have a look at the **artistic groups** first, and as there are many kinds of art, so there are many of creative groups, dealing with different artistic activities:

- **Schauspielstudio:** plays ranging from Shakespeare to Dürrenmatt (www.tud-schauspielstudio.de)
- **Filmkreis:** movies from Hollywood to Cannes (http://www.filmkreis.de)
- **Audiomax:** radio with topics covering everything from S1/01 to the cafeteria (http://www.audiomax-campusradio.de)
- **University orchestra:** music by our orchestra . . . (http://www.tu-darmstadt.de/hg/orchester/)
- **University choir:** . . . and the choir (http://ww.tu-darmstadt.de/hg/chor/)

For **academic activities** you might want to look at the following societies:

- **AKASOL:** vehicles using solar energy . . . (http://www.akasol.de)
- **AKAKRAFT:** . . . or an Otto-Motor (http://www.akakraft.hg.tu-darmstadt.de)
- **AKAFLIEG:** gliders — from drawing board to runway (http://www.akaflieg.tu-darmstadt.de)

Then there are **religious groups** such as:

- **Evangelische Studierenden-Gemeinde:** Protestants . . . (http://www.esg-darmstadt.de)
- **Katholische Hochschulgemeinde:** . . . Catholics . . . (http://www.khg-darmstadt.de)
- **Studentenmission in Deutschland:** and Christians in general (http://www.smd-darmstadt.de)

If you want to establish contacts to companies or do a traineeships in a foreign country:

- **Konaktiva:** fair where students meet companies (http://www.konaktiva.tu-darmstadt.de/web/)
- **AIESEC:** traineeships abroad (http://www.aiesec.de/da)

Information about **sports** and **politics** you'll find in other articles in this OWO-Info. And last but not least at http://www.tu-darmstadt.de/hg/ there's a list of all university societies.

***Andreas***

# Working

## What will you be someday?

"What do you study? . . . Math? Wow!" I know this game by now. It seems to start inevitably when I meet people who don't study math. Their reaction reflects perplexity: "Why does someone do this?". Depending on how lost my opponent thinks of me and this theme, he'll either declare himself to be a total failure in math (and end the conversation by that) or raise the awful question: "What can you do with that?"

In the past I escaped with a hint on universal usefulness of mathematicians and a link on numerous fields of work, like mentioned in flyers of the arbeitsamt. But you rather get the pity of a poor, lightly crazy artist than the expression of someone who knows what he is doing.

To be honest, this is the core of the problem: I have no idea of life after university. What to do with my diplomized qualifications? How is it out there? To find out, it is useful to leave the Mathebau for some time during studies, to see the world as a trainee. It is not important if you already know what you will do later, or if you simply study whatever comes by - you should do a practical anyway, not only because it loks good in your resume.

I couldn't bring me working in a bank or insurance company to my mind. But before I put this thought away forever, I wanted to find out how bad it would really be. So I applied for a two-month practical at the Allianz-Lebensversicherungsgesellschaft in Stuttgart, compartment of mathematics and product development. I had been surfing the internet before and was so discouraged by most company's presentation that I only made this application.

### How do you get a traineeship?

There are search engines for traineeships just like for jobs. Luckily there is no big run on trainees for mathematicians, so you can even look at the firms personally. You do not have to restrict on the openly offered trainees, it is also possibly to take the initiative. The responsible contact persons can be found on the "career"-pages of the company. As well as the needed qualifications. I prefer the old application file over the online-version, but this alternative also exists.

### When do you do a traineeship?

In every case after the Grundstudium, as it should enable you to use math-knowledge youn gained, and you'll have to gain it first. It is also almost impossible to free two months of test and lectures in the first semesters. This is the minimum for a trainee-program. AS you will want to keep some lecture-free time for yourself ,the summer holidays are recommended. It is good if you do study a year abroad. The semester often ends earlier than in Darmstadt, there are not tests in the following holidays. So if you like, you can apply (before returning to Germany).

# Note:

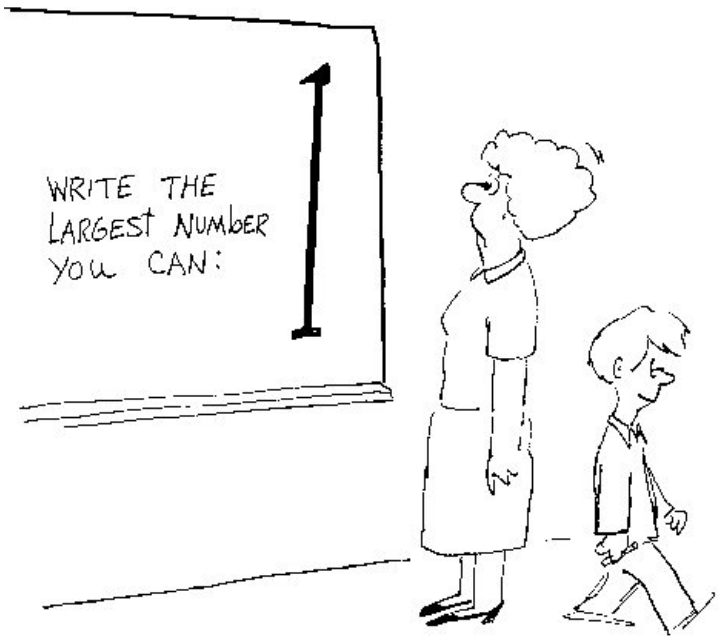
A trainee is worthwile for itself. One should regard that it fits your expectations, otherwise it turns out to be a (moderately paid) summer job.

I liked my time at the Allianz. I worked at the interface between the absolute theoretics, who delivered new ideas for products, and the programmers: those who develop the concept and see that it is realized. The working group was well mixed in age and gender, it fully consisted of math-diplomas. It was a good athmosphere. A new employee started along with me, so we were briefed at the same time: everyone explained their liabilities to us. We got familiar with the individual branches via some small tasks. Along to this extraordinary introduction, I had my own small field of activity. Like in all big companies there were events for all trainees, so I saw a lot more than just my department.

I took some very nice memories from the closing time (along to overtime a good institution that work life has over university life) and the weekends in Stuttgart.

In a trainee program, you get a first-person view of the work you can do with mathematics. Perhaps this is motivating, confirming or frightening. Perhaps it does have an influence on your further decisions in study and similar, perhaps it offers new perspectives. In all, I still do not know what I'm going to be someday. But now I can' t state that insurance companies are too boring anymore. And to everyone who asks me about what I can do with math, I reply by telling him about the Allianz.

***ela (translated by Stephan)***



# Mathematics and working life

## Discover the Options

I studied Mathematics at TU Darmstadt from 1995 to 2003. At first sight this seems to be a very long period but the following article will show the reason. I just want to give an example of ways to gain practical experience and furthermore I want to describe how to get a job.

My second topic was Computer Science. In my third semester I got a Hiwi-Job at the "Frauenhofer Institut für Graphische Datenverarbeitung" (institute for graphical data processing). There is no direct connection between my side topic and that job, but I really could use some of the contents of computer science lectures (Java). At least I learned HTML at the age of Netscape 3 (!) and I experienced a first introduction into the work in front of a computer monitor although the job was quite near to university life.

In my first part of university education it became obvious to me that I wanted to take a look at other subjects. So I went to lectures of other subjects (e.g. Physics). On the other hand I planned to go to a foreign country after my "Vordiplom". I was not very happy with the way Computer Science developed so I changed my second subject to Philosophy. That's why my "Vordiplom" took a much longer time than I had wanted, I had no chance to go abroad.

Luckily there are other means to get experience. One of my first lectures after the Vordiplom was "Einführung in die graphische Datenverarbeitung" (Introduction into graphical data processing) by Prof. Hoschek. In that course we went to companies using Mathematics. There we were able to look at projects, and at the end we could even talk to some employees. Most of the times there was someone from the department of human rescources who told us that the most important qualification is to gather experience in a job in the course of university education. Their image of someone starting to work after having several years of job experience is nearly impossible but you can get quite near to that.

If you study Mathematics at a "Fachhochschule" you have to spend two semesters in a company – so why not at our university? So I definitely wanted to take a practical training in a company. When I thought about when to take it, there were two possibilities. On the one hand I could spend three months of my semester holidays, on the other hand I could take a sabbatical and work for six months. There were several reasons why I chose the second one. The main reason was surely that it is easier to find a trainee job for the longer period. This sounds a bit paradox but it is easier to get into the content of the job. So I wrote five informal letters to companies I visited or which I searched online.

I recieved two phone calls. One of them sounded very interesting, so I started in Darmstadt at PROSTEP. Their main topic is the data transfer of three dimensional geometry. There are several subtopics which are very interesting for Mathematicans. I even quit my Hiwi job so that I could start working before my real training began. That secured my trainee job. What was left was to establish the prerequisites at university. Luckily the study advisor helped me. Offically a holiday semester can't be used for a training. That's why it was called "Preparation of diploma exam". Finally I was able to work six months full time for PROSTEP and gather a lot of experience.

When I talked to other students or to collegues in the company I was ensured how important it is to gather job experience in the course of university education. On the other hand, by working in the course of lectures (which was at least 15 hours – two complete days) and the holiday semester my education needed quite a long time. But the experience I gathered was to my point of view worth it. I saw that people who have a diploma with best marks after

eight semester have sometimes fewer chances to get a job than someone who took twelve or thirteen semesters with a lot of job experience.

Nevertheless after my training I returned to "normal" study life and worked partly in a company. In the course of time the question came up which subject my thesis would have. Since I liked 3D-Geometry and I was in Prof. Reif's lecture cycle about spline–approximation, it was clear for me to choose a topic in that theme. Furthermore I worked on that in the company. In the end I found a theme for my thesis in the company which was monitored by Prof. Reif.

There are positive and negative effects when you write your thesis together with a company. On the one hand you get a subject which is down to earth. The company has an interest that the thesis will be finished successfully. One the other hand there are some dangers in that which should not be forgotten. It may happen quite easily that you are doing other work for the company. Furthermore if the company's project takes more time the thesis takes more time as well. That happened to me as well so that the deadline of my thesis was postponed.

Although there were these problems I am satisfied with my decision to take a thesis in the company. The training and that thesis gave me a job I work on for two years. Since I moved to Munich for private reasons, my field of work changed and I seldom work with Mathematics anymore. But my knowledge about geometry from my university education often helps me.

Of course you don't want to spend your whole life as a university student at a company but my suggestion is to take a look at things that differ from university. There are many companies in or near Darmstadt using interesting Mathematics. And when you finally search for a job it is a real help to know what this is all about.

In this spirit, happy studying

***Jochen =8-) (ich@jochen-boy.de)***


# HiWis – student jobs at the university

## What is the job of a HiWi?

The so-called "HiWis" are students, who work in different departments of the university. Their work is intellectual and demanding – most of them are involved into important research process, practical or theoretical development or various social or educational engagements, and, in this way, gaining precious professional experience in those areas. The range is truly vast – from aero-navigation to product development and applied software solutions, from technical text translation to being a tutor.

The concept of introducing the HiWi job is to stimulate further development of one's skills by financing. The benefit is mutual, since the employers could share the burden of a certain project with the HiWi and still supervise its work – in this sense, inciting the feeling of moral responsibility in it. That's why Germans call it "Unterstützung der Forschung und Lehre" – "Promotion of Research and Study".

## Why a HiWi at TUD?

The Technical University of Darmstadt holds one of the leading places in the engagement of professors, assistants and students into research and development not only in Germany, but worldwide as well. Therefore it is not too surprising that the idea of the HiWi is well implemented and commonly embraced in the university's politics. Hundreds of students have jobs as HiWis, most of them even working at more than one place.

## Why would I be interested in the HiWi job as such?

After you receive your visa from the Town Hall, you are allowed to work (only) 90 days per year, in case your home land is a non-member of the European Union. One of the many advantages of a HiWi's job is the fact that its working days are not taken into account when considering these 90 days – that is, this somewhat heavy restriction does not apply to the HiWis. However, according to the university's regulations, a HiWi cannot be engaged for more than 82 hours/month in working for the TUD, regardless of the number of places it works at. Why hours/month? Since one only has to cover those on his/her own judgment – i.e. one may distribute the working hours as one likes. Assume you have signed a contract for 30 hours/month. Then you may work three days ten hours each, or ten days three hours each, or 15 days two hours each or however you want – giving you considerable freedom and flexibility.

Even if the above does not apply to you, that is, you are German or you come from a land, which is a member of the European Union (then you do not have the 90-days work limit), the already mentioned advantages are definitely something to take into account.

The standard payment is 8.02 €/hour – certainly more that the average student's payment in other areas. Whether one pays taxes along with his/her contract or not depends on one's salary – if one earns more that 400 €/month (in the HiWi's case – working 50 or more hours/month), one pays about 10% so-called "Rentenversicherung" (retirement insurance). Otherwise one receives the whole sum, denoted in the contract.

One further point to consider in the HiWi's job is the opportunity to work at home and then present the result to your employer – if this is at all possible and if the employer approves of this, of course.

## How to find a HiWi job?

As a starting point you should prepare your "Lebenslauf" (curriculum vitae, or the more popular term, "cv"). We recommend that, if you are uncertain about whether you are well-acquainted with the standards for writing it, look for a German friend of yours to help you with it. Beware that there *a*re differences between the English and the German standards.

Next, try looking for a HiWi job offer in the Internet site of TUD (http://www.tu-darmstadt.de). Click on "Fachbereiche" following further links to the "Fachgebiete". However, this is quite an involving task, since the pages have different design and structure, so it is not always so easy to find exactly what you are looking for. Moreover, most offers are only in German and, unfortunately, outdated – some departments have not updated their sites for two years now! Therefore, be careful about the offers and try finding a date attached to it, the page, or the main page of the Fachbereich/Fachgebiet, at least.

Once you have a list of all the offers you are interested in, write e-mails to the contact people for them. We recommend this option rather than calling on the phone directly – in the case with outdated offers this could cause quite a confusion to both sides. With mails, the worst thing that could happen is to have an e-mail unanswered.

Many people, however, prefer going directly to the university's buildings and look at the HiWi job offers hanged on the boards inside (those boards are already somewhat traditional to be seen around). Most of those offers are actual and ongoing; moreover, a sheet with a HiWi job offer often gives more information you would like to know that a plain internet page.

Assuming you already got an interview for the position – congratulations, you are not so far from getting the job itself! Be patient on the interviews, show interest in your to-be future task and be frank – do not lie about your capabilities just in order to receive the position desired and the dreamt-for-so-long contract. Lying would get you nowhere, say the wise.

What could possibly get in your way is language. This is not a problem to overcome easily, but, nonetheless, almost everyone in the university is capable of speaking English, with more or less success, but still good enough for you to communicate. You should not be scared or put off. If language is not such a great precondition, and your other skills are good enough for the employer, you would most definitely get the job.

Your initial contract could be for a short period of time (say, one to three months) and for not so many hours monthly. This is an usual test period, so that both you and your employer see whether you are suitable for this job or not. Showing effort and successful results leads to prolonging the contract and sometimes increasing your working hours, if the job becomes more demanding in its nature.

## What documents do I need to complete my contract?

Let's face it, Germany is about paperwork. So before even starting to think of *any* job, you should know what steps you should have completed first. We shall only outline these steps, more thorough information would be given to you by other articles in this issue or by people who are in charge of helping you with them.

Initially, you should register at the Einwohnermeldeamt. Then you should prolong your visa, so that you receive the permission to work 90 days/year (with the temporary visa you receive

in your home country you cannot work at all here), if your land is in the European Union. Even if the latter does not apply to you, you still need your visa to be hired. You should already have a bank account, health insurance and the semester ticket.

The compulsory documents are:

- Vertrag – the contract itself, as well as the
- Fragebogen – a personal questionnaire you fill along with your contract. Do not be ashamed to ask your employers for help in filling these both – even Germans could get lost in some terms and formalities there.
- Passport – the employer needs to photocopy some of its pages
- Studienbescheinigung – you get those together with your semester ticket. Your employer could photocopy it or hold it for him/herself. Anyway, you should have enough of them.
- Lohnsteuerkarte – this one you get from the Einwohnermeldeamt. We *strongly* recommend taking Lohnsteuerkarte EINS and giving it to your employer. We would not like to go to details with the different Lohnsteuerkarten, but we would like to explain what happens to your card as soon as you have submitted it. The card, together with your other documents, is sent to Kassel, where, at the end of the year, your total income is calculated and displayed on it. Then you get it back at the end of the year (unless you demand to have it back earlier). In that way, you may find another HiWi job in the University and still have your Lohnsteuerkarte in Kassel, which is only for your comfort. From the beginning of 2005 the whole tax notation should become digital and the Lohnsteuerkarten would not be needed at all any more. Please contact the Einwohnermeldeamt for further information on that topic. And, one last point to mention – even if you have more than one HiWi job at a time, you still have to submit only *o*ne Lohnsteuerkarte. This is so, since your real employer is actually the state of Hessen, not your employer personally (in the sense we called him/her in this article). Though it *could* happen that, signing a second HiWi Vertrag, you receive a letter in your postbox, demanding that you submit your Lohnsteuerkarte in order to complete the contract. In this case just go to the contact person, mentioned in the letter, and tell him/her you already work as a HiWi and give him/her the number of the Fachbereich you already work in – this should settle the problem.
- Krankenkasse Mitgliedsbescheinigung – this is just a sheet you request from your health insurance company. As an alternative, your employer may just copy your insurance card that you should always carry with you.
- Sozialversicherung – if you have worked anywhere in Germany before you took on a HiWi job, you should have received your Sozialversicherungskarte, sent by post. You should fill the number on it in the Fragebogen. If the HiWi job is your first job at all here, in Germany, then you would be subscribed automatically by the authorities in Kassel to a default social insurance company. In that case, certainly, you do not have to submit any card at all. What you should do is fill out a so-called Sozialversicherungsfragebogen, which goes together with the contract.

Even if you happen to forget a document or two when going to sign the contract, this is not at all fatal – but you should submit them to your employer as soon as possible.

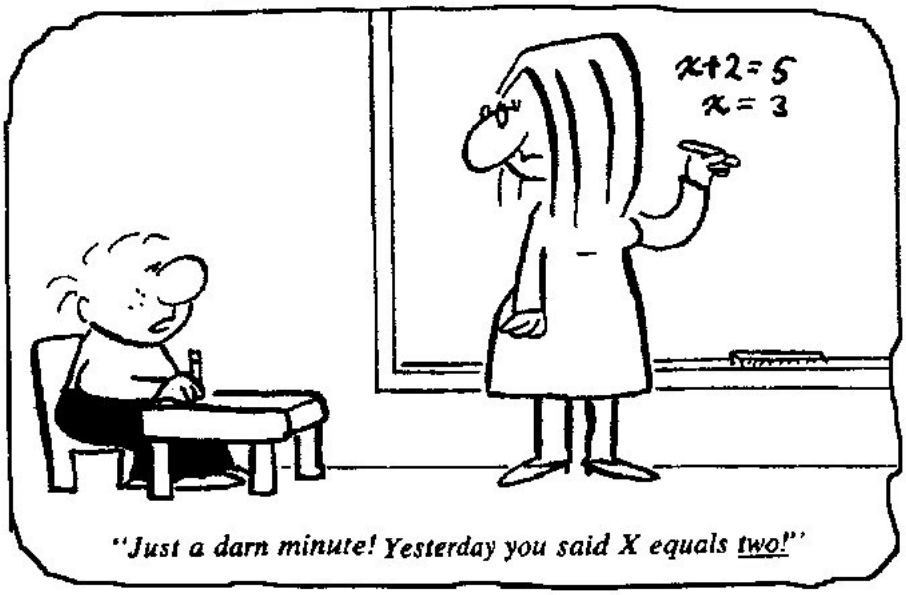
## How do I get my salary?

The initial submission of the bunch of documents described above is a rather slow procedure and it may happen that you do not receive your first salary on time. But once the formalities are over, you would get the delayed salary together with the new one in your bank account.

You submit your bank account details (your Kontonummer and the Bankleitzahl, so make sure you know these by heart or at least carry a small sheet of paper with these number on it with you) when you sign the contract. Once all the already described formalities are overcome, you would start receiving your monthly salary in your bank account on the end of the month.

Finally, I, the author of this article would encourage you strongly to become a HiWi and I await your further questions about or comments on this article. Feel free to contact me at: **lucho_a_d@abv.bg**.

***Lachezar Dimitrov***

# Miscellaneous

## Glossar

**11er-Bau** old synonym for the old main building (S1|03)

**2d** old synonym for the Mathebau (S2|15)

**AAA** academic bureau for everything abroad (Akademisches Auslandsamt)

**AG** working group, where mathematicians with the same research interestes work together

**AllgAlg** (or Alga) General algebra (Allgemeine Algebra)

**ALZ** Allgemeines Lernzentrum, building between the old main building and the mensa. The christmas party is mostly there (S1|04).

**Ana** Analysis, a part of mathematics, where everything is about limiting values (consistency, differentiation, integration etc.)

**AStA** Allgemeiner Studierenden Ausschuss (http://www.asta.tu-darmstadt.de)

**Audimax** Auditorium Maximum, biggest lecture room in an university (S1|01 50). The building S101 is often called Audimax, too.

**BaFöG** Bundesausbildungsförderungsgesetz, the law under which german students can get money from the state to finance their studies

**BK** appointment committee (Berufungskommission)

**BuM** (also BaMa) Bachelor and Master, the new study programs that will replace the old diploma soon

**CE** Computational Engeneering, a study program that does not belong to any department (but math and engineering take care of it), nobody knows what it really is

**CMPE** Computational Mechanical and Process Engineering, a study program from the department of engineering, nobody really knows what the difference to CE is

**CS** Computer Science, see also GdI (not to be confused with a popular ego-shooter)

**DAAD** Deutscher Akademischer Austausch Dienst

**DGLn** differential equation (a part of analysis)

**DPK** diploma examination committee

**ella** see LA

**FA** functional analysis

**FaSeR** Fachschaftsseminar

**FB** department

**FBA** formal concept analysis (formale Begriffsanalyse)

**FBR** Fachbereichsrat

**FreWe** Freshers' Weekend

**FS** Fachschaft

**FSK** Fachschaften conference: a meeting of all Fachschaften of TUD

**FSR** Fachschaftsrat

**GdI** basics of computer science (Grundlagen der Informatik)

**Glossar** What you're reading right now

**HDA** Hochschuldidaktische Arbeitsstelle

**HIS** Hochschul-Informations-Systeme GmbH

**HiT** university information days (HochschulInformationsTage)

**HiWi** Hilfswissenschaftler, students who earn some money as tutors in exercises. See the HiWi-article in this OWO-Info!

**HLM** Höheres Lehramt Mathematik (doesn't exist anymore, it's LAG now)

**HoBIT** university and job-information days

(Hochschul- und BerufsInformationsTage)

**HoPo** university politics

**HRG** Hochschulrahmengesetz

**HRZ** The Hochschulrechenzentrum maintains the PC-Pools with computers which every student can access (see http://www.hrz.tu-darmstadt.de)

**HSZ** Hochschulsportzentrum

**Inf** informatics

**KGB** Karsten Große-Brauckmann (professor from AG 3)

**Kolloq** Kolloquium = a lecture of a professor (often from another university) that is mainly for professors and assistants

**Köhlersaal** room where the Mathemusikabend takes place (S1|03 283)

**KoMa** conference of the german-speaking math-Fachschaften

**LA** linear algebra, another part of math

**LAB** lectureship for vocational schools

**LAG** lectureship for high schools

**LHB** old notation for the ULB

**LiWi** Lichtwiese

**LZM** Lernzentrum Mathematik

**MaschBau** engineering (Maschinenbau)

**MCS** Mathematics with Computer Science

**MFI** multiple integration (a part of analysis)

**MMA** Mathemusikabend

**NF** minor subject (Nebenfach)

**Numa** Numerik, numerical mathematics, math with numbers :-)

**Omega** always the last topic in a FS-Sitzung: pub crawl

**O-Kolloq** orientation colloquium = presentation of the AGs, so that all students gain an overview of math in their Grundstudium

**OMO** orientation month (for students from abroad)

**OWO** orientation week

**PPK** perspective committee

**Pool** a room filled with computers

**PraMa** practical mathematics (statistics und numerik)

**PS** Proseminar

**RBG** Rechnerbetriebsgruppe (belongs to the department of informatics, http://www.informatik.tu-darmstadt.de/RBG/)

**Senat** the highest elected committee, takes position to most changes in university

**SnOWO** seminar after the OWO

**SoFA** seminar without work for the Fachschaft

**SPZ** language center, offers language courses at no charge (http://www.spz.tu-darmstadt.de)

**SS** summer semester

**StuGuG** StudienGuthabenGesetz

**StuPa** parliament of students

**StuWe** Studentenwerk

**sup** Supremum (see inf)

**SÜV** seminar of the usual suspects

**SWS** Semesterwochenstunden, i.e. weekly hours

**TEX** a system to set fonts, used by many mathematicians, they even make OWO-Infos with it

**TH** doesn't exist any more, we are a TU now!

**TMA** Technomathematik

**TOP** TagesOrdnungsPunkt (topic)

**TUD** Technische Universität Darmstadt

**ULB** Universitäts- und Landesbibliothek (the library in the castle)

**WiMi** scientific assistant (Wiss. Mitarbeiter)

**WMA** economical mathematics

**WS** winter semester

**Zintl** the new home of the FB Informatik (S2|02); in fact its called Piloty, but nobody knows

**ZSB** central students consultancy

| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| 08:00 – 08:45 | | | | | |
| 08:55 – 09:40 | | | | | |
| 09:50 – 10:35 | | | | | |
| 10:45 – 11:30 | | | | | |
| 11:40 – 12:25 | | | | | |
| 12:35 – 13:20 | | | | | |
| 13:30 – 14:15 | | | | | |
| 14:25 – 15:10 | | | | | |
| 15:20 – 16:05 | | | | | |
| 16:15 – 17:00 | | | | | |
| 17:10 – 17:55 | | | | | |
| 18:05 – 18:50 | | | | | |
| 19:00 – 19:45 | | | | | |

# Imprint

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- *Fachschafts* **room:** S2-15/219; always open for anybody
- *Fachschafts* **office:** S2-15/220
- *Fachschafts* **meetings:** Every tuesday at 6.15 pm in the *Fachschafts*room. The transcript of the most recent meeting and other information are in the glassbox to the right of the *Fachschafts*office and near the entrance of the *Mathebau*. All transcripts can also be found on the internet at http://forum.mathebau.de/.


Stadtführung
tour the town
Mo 16⁰⁰
extendet
Thu 11⁴⁰
PINBOARD
MATHE BALL
UND
TANZKURS
comming this summer....
Film
Kneipentour
TOUR THE PUBS
Tue 17th. Okt.
19⁰⁰
PARTY
Thu 20th
AT 6030M
GO every Mo
in 217 19⁰⁰
Feet-Balls-Game
FR 21th. okt
15³⁰
BRUNCH
FRIDAY
9⁵⁰
Theater
18³⁰
Thu 20th
GELÄNDESPIEL
We 19th.
17⁰⁰
Games evening
We 19th. Okt
in 217+E
FACHAFTS-
SITZUNG
every Tuesday