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Welcome

Preface

Voilà, here it is: Your OWO-Info. Finally. It took a lot of effort by many people to complete it, and we had to go through almost all problems that can possibly occur, but now it is finished. Before we go on, I want to introduce this very important ...

Definition 1: The expression OWO is an abbreviation of "Orientierungs**WO**che" which is German for "orientation week". This is the week from Monday, october 11th till Friday, october 15th 2005, right before the beginning of the lectures. It is completeley dedicated to introducing the fresehers to the TUD.

During this week you will learn how to begin your studies at the TU Darmstadt; you will get hints how to solve frequently occuring problems, you will learn which lectures you have to take, which exams are mandatory, at what time you have to take them, and many other things. You are going to have your first lecture with a real professor and you will learn a lot about the maths building, S2-15, also called "Mathebau" and about the most important room in it: S2-15/219. I hope you will also have a lot of fun!

But the most important thing is that you get to know other people and learn that you can always ask almost everybody in the Mathebau if you have a question: your professors, the assistants, older students and of cause the other first-semesters who begin this semester with you. You can get a lot of help on almost every problem, but you have to ask. The events during the OWO are listed in detail in the OWO time table on page 4 in this OWO-Info (there are two versions of it, depending on whether you are German or Foreigner, due to the language courses).

Okay, now that we have defined the word OWO - what is the purpose of an OWO-Info?

Definition 2: This booklet you are currently reading is called OWO-Info, because it contains information about the OWO (see definition 1 above).

It does not just contain information about the OWO, but also lots of interesting and important things that might help you later on in your studies: how to plan your studies, where you can find the study-advisor (Studienberatung) or your mentor, how our university works, how the mathematics department works, how to finance your studies, why it is almost impossible to find a room in Darmstadt, things you can do in your spare time, and who you can ask if you want to know more.

For the first time, we have interviews with professors in this OWO-Info. You will find exclusive interviews with your analysis and your computer science professors Kohlenbach and Ostermann. And you will also find an interview with Norbert Schappacher who was supposed to be your Linear Algebra professorⁱ. During these interviews we found out how many digits of the number π one really needs to know and that it is not entirely true that mathematicians always drink tea. I hope you enjoy reading the interviews although you may have difficulties understanding everything when they talk about their domain of research ...

And now, I stop writing and wish you a lot of fun with your OWO-Info.

Rafael

ⁱ There are also two additional interviews in German in the German part of this OWO-Info.

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MONDAY (11.10.)	A 00 Peccention	President of the university (S1 01 053)	9 ⁰⁰ German Course		Lunch Break		13 ³⁰ Maths	(S1 03 223)				

OWO timetable MCS (foreigners)

Welcome

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TUESDAY (12.10.)	from 8 <u>30</u> Breakfast	9⁵⁰ Money (S1 31 221)	11 ⁰⁰ Uni-/ City-/ULB-Tour	(meeting point: S2 15)	1 A 00 - · · ·	L 4 I rial Lecuture, Presentation of FS	(S1 03 223) 15²⁰ kg 1 Getting	known, Why math?	17 ^{00 Film}	from the "Studentischer Filmkreis" (S1 01 50)	1 9⁰⁰ Pub Crawl
MONDAY (11.10.)	B ⁰⁰ Reception by the President of the university Talk MCS by Werner Nickel (S11.01.053)	9 ⁵⁰ kG ½	(S1 03 113)	Lunch Break		13 ³⁰ Maths	Precourse (S1 03 223)				

OWO timetable (Germans)

Commented OWO timetable

Monday

The OWO begins for you Monday morning duly at 8 o'clock (well, students also have to get up early sometimes ;-) with the official reception by the president of the university, the dean of the department and the OWO-tutors. Then the foreigners among you have to go to their German courses. The Germans will hear a talk about the MCS program by Werner Nickel and afterwards have the KG ¹/₂, where they get to know the other students, have fun, etc.

Then after the lunch break, there will be the maths precourse for the last time.

Tuesday

Tuesday begins at half past eight with a common breakfast. The Germans can also come later, but the foreigners again have their German course at 9 o'clock. But the Germans should also finish in time to participate in the next point of the program with the name "money". There you will (like the name already says) get information on everything that has something to do with money, BAFöG, jobs, scholarships, habitation, etc. Afterwards the Uni-, City- and ULB-tour takes place, where you will be shown the most important institutions of the university, the city center and the ULB (Universitätsund Landesbibliothek). After lunch you will all meet for your trial lecture. There you will see one of your professors for the first time and find out how a lecture is. Then after a short presentation of the Fachschaft you will be divided into small groups (German "Kleingruppen" KGs). You have the possibility to get to know the others and talk about why you study maths, etc. Afterwards you may watch the film shown by the "Studentischer Filmkreis" (in the OWO free of charge) in the Audimaxx.

In the evening the pub crawl will take place, where you can visit the pubs of Darmstadt with us.

Wednesday

On Wednesday there is no German course, so all of you can start together with another KG, where you will make your plan of studies and the timetable for the semester. Then in the OWO-Rallye you will get to know the maths building and much more...

In the afternoon you will meet again in your KGs for KG 2, which is about the forms of teaching and learning and how you can learn in the maths building. Afterwards there is the *Fachschaftssitzung light*, which is made especially for you, and in which topics which concern you will be discussed. In the evening starting from 7 o'clock the games evening takes place. There will be many games to play, snacks to eat, etc.

Thursday

On Thursday there will be breakfast like on Tuesday. While the foreigners again have their German course, there will be a Bulgarian course for the Germans in the morning. After lunch there will be KG 4 in which you will get to know some of the professors of the department especially your professors of the first semester. Then there will be another important point, the presentation of the proseminars, where the professors will present their proseminars and afterwards you have to register for one.

In the evening the highlight will take place: The traditional OWO theatre play will be played by the OWO-tutors and afterwards the OWO-party takes place on "603 qm"!

Friday

On Friday there will be a common brunch (after the foreigners have had their German course, while the Germans may sleep in). Afterwards there will be the last KG, in which you can give us some feedback, to help us make the next OWO even better. Additionally a surprise is waiting for you. Thus you should come in any case. The last point of the program of the OWO is the feet-balls-game. It is very similar to football, but makes much much more fun, because there is 1 field, 2 goals, 3 balls, 4 teams,...

Well, then you have the OWO already behind you and you may relax during the week end, before in the following week the studies start for real.

Sven



Some of your OWO tutors

Studying

Interview with professor Kohlenbach

Professor Ulrich Kohlenbach will be your "Analysis I for MCS" instructor.

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 π 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

Studying

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.

Interview with professor Ostermann

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

What do you prefer? Coffee or tea?

I drink both, basically. I prefer coffee in the morning and tea in the evening.

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

I began my studies in 1995 in Bonn. Then, after I finished my studies in 2001, I went to Siemens in Munic where I made my PhD and worked there. And after the PhD, I came to Darmstadt and now I'm a Junior Professor. I started in april this year.

Why did you study Computer Science?

Because I thought that that was something that was impressing to me. No special reason.

Do you think that in the future you will stay in the university or maybe go into the industry?

I have not yet decided but my short-term plan is to stay at the university.

So, how long are you going to be a Junior Professor in fact?

You can be a Junior Professor for at most six years. And after six years you have to look for something else.

Can you explain shortly your domain of research?

My research is in the domain of software technology and programming languages. I'm particularly interested in new modularity approaches to software engineering that allow you to better separate your software into building blocks that can be composed.

What do you do when you're not lecturing?

In my spare time? Different things, I play piano for example, reading books. Nothing really spectecualar.

And what is your favorite book?

I don't really have a favorite book, and it would be hard to name one.

And a favorite author maybe?

I could say something like Dostojevski or so to impress people.

I don't think you need to impress people.

Well, I've read Harry Potter.

You said you play the piano. What kind of music do you hear?

I like classical music.

How many digits of the number π do you know by heart?

Let me think... 3 point 1 4 1 5 9 2 6 5 3 5 ... something, I don't know more.

Okay, that's a new record. Much more than the four mathematics professors we talked to. Do you know a mathematical joke or a joke about computer science?



Not really a new one, I know only an old one. But I'm not very good in telling jokes. A chemistry guy, an engineer and a computer scientist drive in a car in a desert and the car stops and won't work anymore. They get out and think about what to do next. The chemistry guy says: "It must be something with the fuel, something's wrong with the fuel". The engineer says "No, no, bullshit, it's the engine, let's look at the engine whether we can somehow fix it". And the computer scientist says: "No, guys, let's just get out of the car and get in and try again whether it works then".

Which question would you like to ask the new MCS students?

Hmm... I will see when I start it. I don't know yet any specific questions.

What do you expect from these students?

I expect them to listen to lectures and participate in the exercises and show me that they're good students.

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

There is a deep relation between mathematics and computer science. There are many branches of computer science that have their roots in mathematics, so it really makes sense to combine both and study it.

Will you teach this Computer Science I course differently because there are many mathematicians in the audience?

Actually, the "Grundlagen der Informatik 1" course will be taught by Professor Mezini, and I will work closely together with her so we will probably keep the content exactly the same.

What would you like to give the new students on their way?

The details of what I teach may not necessarily be useful to the student later on. Maybe he will never need it again in his whole life, depending on what he will do. But I think the more important task of this lecture is to teach how to think about problems.

Thank you very much!

The interviewers were Rafael, Sven and Richard.

Interview with professor Schappacher.

Professor Norbert Schappacher is **NOT** your "Linear Algebra I for MCS" professor, but when we made the interview this was not yet clear. Since at time of the printing of the OWO-Info, it was not yet decided who will give the lecture "Linear Algebra I", and since we found the interview with Mr. Schappacher to be quite entertaining, we decided to print it nevertheless:

What do you prefer? Coffee or tea?

Espresso.

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

When or where did I begin my studies? I began my studies as a student in 1969, this was in Bonn and later I studied in Göttingen. But from Göttingen I went to many places, I went all over the World. I was a student in Barkley for some time and then later on as a post-doc I was in Paris and in Princeton and so on and after a long trip I got my first job in Strassburg in France where I have been for more then ten years and now I'm in Darmstadt!

So, you've seen a lot of Europe.

No, no! Barkley and Princeton are in the United States. Barkley – California, Princeton – New Jersey. So I spent

something like two years altogether in the States but not in one scope.

Why did you study mathematics?

In fact what I originally wanted to do was philosophy! But then I realised very soon when I was still at school in the Gymnasium, that it was very dangerous to just major in Philosophy for reasons of finding a job afterwards. So when I started out being a student at the University in Bonn in the Fall '69, I started philosophy of course because that was what I wanted to do and also Physics. And then it took me exactly four weeks to find out that I was not a physicist! Very clearly not. But since I had enrolled in these Physics classes I also had to naturally take mathematics lectures and they looked so very different form what I had seen at my High School. So they interested me and this is how I got into mathematics! So I stayed with it and finally dropped Philosophy, quite late actually.

But the mathematics you heard was very different from the Philosophy.

Yes absolutely! I mean these were two different things for me! What I also did in Bonn was I took all these classes in 'foundations of mathematics' so 'formal logic', 'set theory', 'recursive functions' these standard courses in mathematical logic which were offered there. In a way I guess these are between philosophy and mathematics. So I did this but for a long time I thought of philosophy and mathematics as being two strictly separated departments of my head.

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

That depends on the non-mathematician! Sometimes it is very difficult to explain. It really depends what kind of interests this person has. If it's a musician it's easy. You can talk about structures. If it's just a somebody off the street, you can just start and try and if he's interested... I don't know. You can try to talk about all the mathematics that is actually without us seeing incorporated in all the objects of everyday life. Whenever

you use a mobile telephone, or maybe this thing here (my MP3-player) there is a lot of mathematics in there it's not technology, it's not engineering it's mathematics really optimization procedures and so on. So depending on the person you talk to this may be a way to get into the subject, but I'm pretty flexible and I'm also very much willing to talk about other subjects than mathematics!

Can you explain shortly your main area of research?

My main area of research is a very active one, and when one tries to explain why it is so active and why so many people, young people especially find it so interesting these days, it is because it is on the borderline of two different disciplines. It's on the borderline of number theory and geometry. So an easy way to explain this is 'Fermat's last Theorem', this $x^n + y^n = z^n$ which has no solutions x, y, z in the positive integers provided the exponent n is 3 or greater¹. This is of course just an equation where you look for integer solutions and the claim is that there aren't any. But you can also look at it as an equation which defines an algebraic curve and you can see this immediately if you take the case that is excluded in the theorem where n = 2. If you divide by z^2 you get the equation of a circle with radius one. So you're really talking about a circle and for the circle there are solutions and this is actually geometrically obvious if you draw it. But then if the exponent is at least 3 what Fermat tells you is that for these more complicated curves that do not look as nice as a circle there are no such solutions. So the way I'm talking about this is I'm mixing systematically things from number theory and things from geometry and it's this interaction between these two disciplines which makes my field of research the 'arithmetic algebraic geometry' so interesting.

Have you ever thought about interrupting your studies and taking a position in business?

No because I'm pretty much convinced that I would make a terrible businessman and it just worked out that I happened to be lucky enough to have a continuous career in academics. I don't know what I would do if this hadn't worked out.

Has the industry ever approached you?

The only industry that ever approached me was a publisher! A maths publisher in fact. They offered me a job in their publishing house in the New York branch and I turned it down. This was a secret at the time but I think now I can talk about this, it was a long time ago.

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

Not giving and not preparing lectures. Then there are various things you do. Of course you are also a private person, but professionally what you try to do is research. So the end-product of research is writing papers, which you publish in journals. So this is what you try to create but before the paper is written there are lots of things you have to do! And what is maybe unexpected for those who don't know what mathematical life is like is that a lot of time and effort and activity prior to the actual writing of the paper goes into social contact! This social element that goes into mathematics at least for me is extremely important! I don't mean that you don't have to sit down at home and really do your homework and write down the things you solve and so on but it turns out that there are many meetings, conferences all over the world and you often meet the same people that you already know, sometimes you meet new people. But talking to them and sort of exchanging problems and seeing what they find interesting and seeing ideas that they have and comparing them with ideas that you had is an absolutely essential element in the everyday work of mathematicians.

What kind of music do you like?

ⁱ See also our cover

I personally like mostly classical music. Some non-classical also. Classical in the sense that it may be also twentieth century or contemporary but what is called 'e-Musik' in German. I don't know how to translate this. That's just my personal taste.

What is your favorite book?

Yes I, this is a very difficult question, there is not one favorite book! But if I'm really forced to name one then 'Franz Werfel – Stern der Ungeborenen' his very last novel which he finished only three days before his death in '46 in Hollywood. It's interesting because Franz Werfel is a big writer of novels in the first half of the twentieth century, but in this last novel he sort of makes an attempt of writing something which has essential elements from science fiction. It is interesting to see how this sort of classically trained author of novels copes with the science fiction aspect of things.

How many digits of the number π do you know by heart?

Two.

That's including the one before the comma?

No, three. (laughs)

Do you know a mathematical joke?

I guess I used to know one but I forgot it.ⁱⁱ

Which question would you like to ask the new MCS students?

I can tell you which questions I would not ask: "How much do you know?", "Did you have that in school and this...?" Because this I consider NOT very important. We're here at the university to bring everybody to the same level and it doesn't really matter where they start of. They have to sort of start afresh.

What do you expect from the new students?

Well, I expect from my students that they find their own way. And their own way may be in mathematics and it may be outside of mathematics. And if it turns out to be outside of mathematics, it is in the interest of everybody, their own and my interest, to find out quickly if that's really the case.

Their own way of studying?

Their way in life. Really, what they are meant for, what makes them happy and what is best for them to do. And this can be a future in mathematics but it can also be something quite different. Sometimes one is wrong in certain points in personal development, you may have ideas that later on turn out to be wrong about what you should be doing yourself. I mean this is so nice about life: It's developing, you have to learn to be aware of different potentials and different possibilities.

If a new student is asked by other people what one can do with mathematics later on, what should he answer?

Well, he should answer that at least until right now the job market for mathematicians is excellent. I mean compared to other branches. And there has never in the history of mankind been a period where mathematics was more important to the life of society than today. It's just, that people don't realise it. They think that the mathematics in our everyday life is the doing of engineers. That's not completely wrong, engineers do a lot of things that are extremely useful with a lot of mathematics in it, they build bridges and so on... however, more and more of the applications of mathematics which we have in our everyday life are genuinely mathematical. That is new. That has never

ⁱⁱ In the previous interview he means ... yes, we interviewed him twice

existed in history like this. I mean all these algorithms in your mobile phones or that make elevators stop where they should stop, all these are optimization algorithms that are themselves mathematics. It's not mathematics put into engineering work and then given to everyday life but it's an immediate presence of mathematics that is growing and growing. So, in that sense there is going to be an even more mathematical future.

What else should we know about you?

What else should you know about me? I don't know if you should know any dark secret about me. I mean, what the students will find out is how I teach and how I want them to respond to my teaching, but I consider this as an open process.

What would you like to give the students on their way?

Be open! Being a student for the first time taking mathematics is a wonderful turning point and one should profit from it as much as one possibly can. Even if you have done very good at school, you will hopefully find really new aspects and really new ways of looking at mathematics, you should be as open as possible. Also as I said to the other question before, it's important to find your own way, so be open, in the sense of be aware of what is happening to you. And then, if you find that it definitively does not agree with you, you should not hesitate after talking to maybe me and the assistants or colleagues, other students, you should not hesitate to draw the conclusion. Maybe even change the curriculum. I dont want to drive anybody away! I mean: Just be as honest to yourself as you can and be open!

Thank you very much!

The interviewers were: Rafael, Sven and Richard. Special thanks to Richard who interviewed Professor Schappacher again, after one of the interviewers accidentally deleted the first interview...

Personal tutors: the concept of mentors

The professor of your Proseminar I is automatically your personal mentor.

In our maths building we have the *Prinzip der offenen Türen* "principle of open doors". So why the need for mentors? After all, you can get answers to questions anywhere. Just ask your professor, one of the assistants, one of the exercise tutors, your fellow students, or the *Fachschaft*. The same is true if you are frustrated, you think you don't understand the lecture, you're scared of the exam, ... And if you have any questions about the course of studies, you want to know which exams you have to do or you have similar questions, there are also people who will help you (just ask). So why mentors?

For the main part, they're there to make things easier for you at the beginning, until you have become accustomed to the *Darmstädter Modell*. As your proseminar teachers they will get acquainted with you (and you with them) in the smaller proseminar groups. Once in a while you may meet with your proseminar group for lunch, or over a cup of coffee, to discuss and swap experiences you've made so far. And you will make a many new experiences! Whether you have questions regarding maths, organisational problems or things in general, you can profit from your mentor's knowledge. Especially for those of you who still have qualms about knocking on your lecturers' or their assistants' doors or asking someone from *Fachschaft* for help, the mentors are a good bet of getting help and support. They may not be able to solve all your problems, but they will definitely know who to ask.

The usefulness of this concept depends largely on commitment from both sides. The more your mentors know about you, the better they will be able to help you through your *Grundstudium*. And the better you know them, the easier it will be for you to come to them if you run into problems. So please give your mentor a chance, and try to get to know him or her better. It may be difficult to strike up a conversation with someone you hardly know, and moreover someone who is a professor. But whether you believe it or not, they are just as afraid of you as you of them. ;-)

No matter whether you prefer to get help from your mentors or you'd rather ask one of the many other helpful people buzzing about the maths building, make sure you benefit from this easy way of getting help and answers! The fact that problems may be passed on to others is one of the major advantages of Darmstadt. Don't make life extra hard for yourself.

ela & Frauke

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. Additionally you will choose a proseminar I (PS I) with 2 SWS. 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). From the PS I you will need a *Leistungsschein*, i.e. a certificate that you took part.

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 and PS II), where LA has now changed into a 2+2 course.

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

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 (Bachelor)

Basic Modules

Semester		Subject		
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 ex- am	Written trial ex- am	Written trial ex- am; 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 Computer Science Basic Module Exam after the second 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 (usually in september and october) 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		
3rd	Analysis III (4+4) Differential Equa- tions (2+2) Multidimensional Integration (2+2)	Introduction to Algebra (2+2)	Introduction to Numeric and Software (3+3) preparatory course in Mat- lab	
After 3rd	Oral exam (ca. 40 minutes)	Oral exam (ca. 20 minutes)	Oral exam (ca. 30 minutes)	
4th	Free Choice in pure maths (at least 2+2)	Free Choice in applied maths (at least 2+2)	Statistics (3+3)	Free Choice in Computer Science (at least 2+2)
After 4th	Oral exam (at least 20 minutes)	Oral exam (at least 20 minutes)	Written "Aufbau- modul" exam	Written or oral exam

Analysis III

It consists of two courses: Differential Equations and Multidimensional Integration. The exam is combined.

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		
5th & 6th	Free choice in pure maths [∗] (≤ 12)	Free choice in applied maths* (≤ 12)	Free choice in computer science (≥ 8)	Intermediate Sem- inar (2+0)
After 5th or 6th	Oral exam (at least 45 minutes)	Oral exam (at least 45 minutes)	Written exam	Project (2+0)
In or af- ter 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 So far, nobody really knows how exactly the projects will work for you. But don't worry, you'll get all information you need in the coming semesters.

Bachelor Thesis Still undecided how it has to look like. :-)

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 teaspoonsⁱ. 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

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 the nuclear physics hall, S2/14-024, 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*: vortragsreihe@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

Beginning to study mathematics – problem or adventure?

Studies in mathematics – one-sided, too theoretical and complicated Maths students – boring number-obsessed outsiders, that are not capable of any reasonable conversation and don't understand anything except computers and formulae.

When I started studying mathematics at the TU Darmstadt, I doubted if this thing, I had laden myself with, was really going to be the right choice. The usual questions as "And what are you going to do with that later?" or "You're completely mad, how can one study such a thing like maths?" weren't exactly helpful. All the prejudices everyone has in mind who thinks about studies in mathematics, bothered me a lot. Living on my own for the first time in my life wasn't making it any easier – after living with my parents for 19 long years. Far away from home, my first own apartment – that sounds exciting, on one hand, but on the other hand I wasn't really sure if I was going to be comfortable here in Darmstadt.

And the difficulties started way ahead of the beginning of the studies. Finding a place to live at the beginning of a new semester is kind of impossible in Darmstadt. At the student residences I wanted to apply for, I would have had to wait for a couple of months. After innumerous adverts in papers, the internet or the bords in and around college and many needless train journeys from my home town to Darmstadt, I finally found a place to live. But I couldn't move in until two weeks of the semester would be already past. What was I going to be doing until then? The youth hostel came into my mind. That would be a secure place to find a room for a couple of days. But that turned out to be a huge mistake: "We are very sorry, but we are closed do to refurbishment." So, what now? Neither was I willing to pay for an expensive hotel, nor did I want to sleep on a bench in the park. That was the time when I first learned something that keeps coming into my mind and cheers me up: maths students in Darmstadt are really openminded and very helpful! So I finally was able to stay with another student, whom I had just known for a couple of days. So, let the studies begin!

I was kind of nervous as I entered the university at the first day of the OWO. A week with a lot of fun and very little sleep this was said to be. I soon realised that the prejudices I knew about maths students weren't very (or not at all?) true and that my worries – being alone in this new town – soon disappeared. Already during the first days we got to know each other while participating in the OWO-activities and parties. Also other problems such as timetable, minor subject or "Where do I actually have to go?" disappeared pretty quickly. And then the real studies began.

My first lectures in analysis and linear algebra were pretty shocking. Before, I was pretty convinced to know some maths. At least I did get very good marks at school and never had problems with understanding anything. And now the professors kept writing proofs on the board that I just couldn't follow, as much as I wanted to. Was I too dumb to be studying maths? Why was everybody so much smarter than me? During the group exercises I realise that almost everybody had problems with these new expressions and methods. That was kind of a relieve and probably one of the reasons for not giving up again immediately. "It's pretty hard and frustrating at the beginning" we were told by one of the professors again and again. "Just try not to give up – it'll improve soon." So we kept working and waiting for the very moment, from which on everything seemed to be easy and clear. But this moment didn't come... – but instead of that I found something else: the enthusiasm for mathematics. Even if I

wasn't able to finish these studies without problems and frustration, I can say for me: "Maths is great! Maths is fun!" And I know that it is not impossible for me, to succeed in these studies. The exams are really fair and one can mostly pass them without too many problems (even if one doesn't believe that beforehand!). There will always be astonished questions and prejudices while telling that you are studying maths. But by that time you will already have found a bunch of people who think the same as you do about maths and don't call you crazy.

Susanne Pape

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

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 (or my successor). 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 per eMail (studienberatung@mathematik.tu-darmstadt.de) and we can find a date. 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 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. You want to know more? Then come and visit us.

Franziska Siebel (translated by Rafael)

Dr. Reiner Liese und Franziska Siebel 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/index.en.html
- 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) Franziska Siebel – room S2-15/424, Tel. 06151-163787 Dr. Reiner Liese – room S2-15/413, Tel. 06151-162087 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 9:30-13:30 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

TUD maps

City ("Stadtmitte") - section S2



City ("Stadtmitte") - section S1



City ("Stadtmitte") - section S3



Alech

Floor plan of the maths building



1st floor

103 - 108 AG Fachdidaktik

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 with the *Fachschaft*'s **homepage**, which can be found at http://www.mathebau.de. There you can find a list with important dates, an archive with old Mathe-Infos a board to discuss with other students and much more. Just come and take a look.

Next one should have a look at the various **mailinglists** served by majordomo@mathematik.tu-darmstadt.de. If you don't know how to use its service just sent a mail to this very address with a single line in the message's body: "help". But note that it won't work when you put it in the Subject: line. And if it still doesn't work you can find additional help at http://www.mathematik.tu-darmstadt.de/~fachschaft/files /majordomo.pdf.

Lists one can find there are for example mcs2004@mathematik.tu-darmstadt.de and m2004@mathematik.tu-darmstadt.de which, as 2004 suggests, are yours. Lists like these exist also for 2003, 2002 etc... One also has to mention that, while most mails on m200?@mathematik... are written in German, it's OK to write one in English. On the mcs200?@mathematik... lists you should write only in English, so that everybody is able to understand them, because not all of us have sufficient knowledge in German, Bulgarian, Chinese, etc.

Another issue of netiquette is to make sure that you only write to the lists if you want to reach the whole list. Private mails better remain private, so please check the "To:" line when replying to a mail send via one of the lists.

But let's continue with the lists themselves, because there's another attraction one should mention when asking majordomo aboutr all available "lists": the "Was geht?" mailinglist: wasgeht@mathematik.tu-darmstadt.de. This one is mainly for important announcements (read: parties, games evenings etc) from students for students.

But there are still more lists; namely the owo@mathematik.tu-darmstadt.de and eih@ mathematik.tu-darmstadt.de ones, which, although mainly concerned with the organisation of the OWO and the EiHⁱ, are also the right place to ask questions about these specific events. Speaking of events another triple comes to mind: ball-ag@mathematik. tu-darmstadt.de, fun-ag@mathematik.tu-darmstadt.de, and musikabend@mathebau.de for the maths ball, the occasional games evening and music night. Here one also has to mention the zapf-ag@mathebau.de which does the bartending for the various parties.

And last but not least you can of course reach the *Fachschaft* by mail: fachschaft@ mathematik.tu-darmstadt.de.

ⁱ Einführung ins Haupstudium; OWO for grown-ups

Study-fees

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

Well, the semester-contribution has nothing to do with the study-fees. The semestercontribution 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 $170,90 \in$. This amount consists of $50 \in$ for the Studentenwerk (these are the people how run most of the student dorms and the Mensa for example), $70,90 \in$ for the AStA (this contains the semester ticket for the trains and busses) and $50 \in$ 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 a 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 websites: www.uebergebuehr.de and www.streik.mathebau.de

Patrick (translated by Nicole)

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 $170.90 \in$ for the winter semester 2004/2005. It is composed of $50 \in$ going to the *Studentenwerk* – so they can i.e. maintain the mensa – $70.90 \in$ for the AStA – student-body representatives elected by the students' parliament – including the *Semesterticket* and $50 \in$ 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 33.

The Semesterticket mentioned above is a nice thing, as it allows you to use any public transportation in the RMVⁱ 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 120 through 260 \in 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 $150 \in$ for a sublet room up to $350 \in$ 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. 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 $2 \in$. So here one spends 40 to $50 \in$ 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 $600 \in$. 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

ⁱ RMV is a business venture of public transport providers

your studies. That is why you have to clarify in advance, where the money is going to come from.

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 web sites, unfortunately, are 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 62.

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

Looking for a place to live...

Have you tried to find a room? Was it difficult? I doubt that you'll say it wasn't because what we experience the recent years is a bit disturbing. The situation with the accomodation has become quite complicated. Most students face great difficulties until they find something to live in. Thats why we will try to help you with some useful information.

First piece of advice – *don't* wait till the last moment. This is a disadvantage that can create big problems, especially if you still haven't found anything till the beginning of the semester. You will have to deal with the living problem, instead of taking care of your studies. And not on last place, there will be more and more newcomers in October which means that finding accomodation will be even more stressful.

The first place where you should look for a room is :

Studentenwerk Darmstadt	Tel. 06151-162710 (from 1-4 p.m.)
Alexanderstraße 4	Fax 06151-162110
64283 Darmstadt	wrv@stw.tu-darmstadt.de
	www.studentenwerkdarmstadt.de

If you already know where the Mensa is, then *Studentenwerk* is situated on the first floor of the building.

Another possibility is looking at all the advertisment for rooms, which you can find in the Mathbuilding (Mathebau) on the ground floor; in the Old Main Building (*Altes Hauptgebäude*) near the main entrance and near the door leading to the Mensa.

You can find sufficient information in the Karlshof- and Niederramstädterstraße-blocks. The people living there can choose the new roommate on their own. It is always a good idea to pass by and see if the people who are looking for a roommate will find you nice.

The local newspapers can help you as well. Each Wednesday you can search through the advertisments in *Darmstädter Echo*. You can find them in the special pages "*Wohnungsmarkt*". In Internet *Darmstädter Echo* is available on http://www.echo-online.de.

Another newspaper is *Sperrmüll* – there you can find information especially on Friday. http://www.sperrmuell.de

When you are loking for a room in the newspapers be careful what you are choosing! Not all offered rooms are furnitured! And if you have difficulties with German, contact a person who can help you!

The possibilities to find a single room are smaller, thats why try to find some friends and search for something bigger together – an appartment or a house.

Don't forget to check in internet. There are some useful sites, e.g. http://www.studenten-wg.de and http://www.studenten-wohnungen.de.

Hopefully this information will help you. We wish you luck and welcome in Darmstadt! Katia

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 & Dr. med. Silvia Hoppe 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

A mathematical model: The "Darmstädter Modell"

When my humble self as a high-school and potential college student sat down in a Darmstadtian lecture hall not quite two years ago, just to get an impression of lectures, the university and everything, it looked to me just like all the other lecture halls and universities in the rest of the republic. This not really differentiated view of the world of mine was caused by the fact that my view behind the scenes and out of the lecture hall onto that, what sometimes is canvassingly called *Darmstädter Modell*, was blocked by the fact that I had not yet the pleasure of attending exercises, tutorials and proseminars ...

Now one might object that **exercises** are by no means exotic at German universities, but still things are somewhat different in Darmstadt. While at many other universities for mathematicians there are so-called *Vorrechenübungen*, i.e. one student is doing calculations on the blackboard and in front of the class, here the concept can be paraphrased as *five out of 25*, which is again canvassingly supposed to indicate that the exercise groups of only about 25 students each try to find the solutions for the exercise problems in teamwork in small groups of about five people. So here people have not pondered over the solutions at home alone, to have them being calculated at the blackboard by somebody else a week later, but they rack their brains together; and that not only in the exercises, but ideally also with the homework. This is – by the way – an excellent opportunity to get to know each other, and to improve each others knowledge of maths.

Apropos **homeworks**: These are handed in a week later to the exercise tutor, to be returned another week later corrected and with comments. And comments are more than just numbers and points, but hints to the correct solutions. That being said the exercise tutors are important persons to turn to, who you can ask not only during the exercises if no-one in the group has the rescuing idea but, of course, also during their weekly office hours, even if you can never expect to get complete solutions but always sensible initial steps; which does not mean, that there are not any model solutions, which can be found on the Internet or in the LZM. And in cases you don't have time to attend your tutor's office hour just drop into one of the other tutor's offices and hours.

Similar to the exercises, but still different are the **tutorials**. Here most of the time groups are even smaller, the problems even more complex but not entirely new and the tutors are *Wissenschaftliche Mitarbeiter* (assistants). By the way, there is no homework here, but there are still office hours, and model solutions can also always be found for all the problems.

In addition to exercises and tutorials so-called **proseminars** are offered (in fact visiting them is mandatory), which are supposed to be an introduction to mathematical thinking and working concepts. Here one also works in groups together, especially since the size of an average proseminar is even smaller than that of exercises and tutorials. The topics have, in contrast to exercises and tutorials no direct connection to the lectures, but are very different depending on the professor, so that actually everybody can find a suitable proseminar. Moreover the tutor of your first proseminar automatically becomes your

mentor, so that here you also do not lack a contact to turn to. The mentors are at your disposal beyond your first proseminar for all questions and problems about your studies at any time.

The way it is with mathematical models they indeed describe only an idealized reality, but with the *Darmstädter Modell* one is already very close to one; entirely without *Vorrechenübungen*, that goes without saying.

Andreas

Next summer there'll be a maths dance again!

But bevor that happens, someone, or rather so many people, will have to organise it. Find a band and good show acts, see to the decoration, tickets and neccessary insurances, rent a room, advertise ...

Which is why the dance committee is looking for new members! Want to be one of them? Speak to us, or send us an email to ball-ag@mathebau.de.

carpe dancem, your Ball AG 2005

http://www.mathebau.de/matheball

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. Even if there are credits which count for exams in the end sometimes, the homework is just for you, not for the credit points. 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 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

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

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. To find the HSZ is not that easy but you can find a picture online (www.hsz.tu-darmstadt.de). 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.

First about the scenes of action:

The "Turnhalle" (gym) and the "Spielhalle" (playhall) form a kind of combo-building and are to be reached by the car park at the stadium Böllenfalltor (stop "Steinberg" of line 9). To get into the halls one has to go down the stairs inside(!) the sports bar. Every once in a while there are checks if you have your student-ID and clean indoor gym shoes with you. The *Hochschulstadion* (uni-stadium) is to be reached by a gravel car park and a normal car park in front of the stadium. During summer terms you should bring your students-ID with you. In winter terms there are no controls.

But now the actual proposal:

Really every sport one can imagine is provided. From aerobic over judo to ultimate frisbee everything appears in the programme. Of course one can participate everywhere, but for most of the traditional sports it would be preferable to have some practice. If and which abilities one should have is to be read in the programme. Most offers (expect soccer) are free for gents and ladies. The "contest team" handball for example prefers to go to mixed tournaments. 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 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 for free. You just have have to bring your students-ID and a bathing suit. Eventually a $1 \in \text{coin to use the locker}$ and a bottle of water for the prices at the shop are extreme (like at any outdoor pool). Also at the uni-stadium you can find the *Kraftraum* (exercise room; you can do strength training here, e.g. weight lifting). Using it is not for free but with $25 \in$ for a full year it is very(!) cheap to train there 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 provides 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 $2 \notin$ for 20 balls its prices are very reasonable.

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

Well, what do you do tonight?

Between Lichtwiese on the one side and Central Station on the other side of Darmstadt, there are, beside the university-city, countless pubs and coffee-bars (and a lot more) where you can relax from study-frustrations or just spend a pleasant time.

From a cool beer as a warm up (with each other) to a sleepless disconight everything should be possible – it only depends on you!

The nice thing about Darmstadt is that anything can be comfortably reached by foot, bike or using public transportations (free for students, thanks to the *Semesterticket*) (cf. www.rmv.de).

Here is an extensive offer from us for you to let your soul feel free.

1st step

Recently moved in? If the new neighbour or flatmate has a balcony or a cosy kitchen, occupy it with a bottle of wine (tea) and wait for kindly reactions... can't go wrong. Hihi.

2nd step

Okay, now you are hopefully two! Now then go to the notorious *Studentenkneipen* (student-bars), which you find immediately when leaving University (City): After getting the *Vorlesungsverzeichnis*, if online is not enough, at the Wellnitz you can pass it right and enter the Lauteschlägerstraße. Here you can visit the 80's that is to say the homelike and well known **Hobit** and eat a little Ork there. Behind the **Student-Döner** and the **inhabited art** you'll find the **Hotzenplotz** on the corner (same side), where you can eat delicious pizza, too. Really fantastic breakfast you get at the **Café Blu**, which is 20m further on the left side. Nearly next door there is the **Havanabar** where you can get fruity cocktails. Orthogonal to the *Lauteschlägerstraße* the *Mauerstraße* is located. There you find on the right side the **Celtic Pub** and the little **Irish Pub** where Guiness and Magic Potion waits for you. At the end of the street you find the **LaCita**, also a nice cocktailbar with yummy mexican food, but cocktailbar-prices... Not to forget is the Karlshof own **Exil**, which is a studentbar per definition! (*H-Busstop Karlshof*)

3rd step

Now it's time to get to know even more **Cafés and Bars** in Darmstadt. From now on we make a list for you, so the overview does not get lost (as far as possible):

student-kindly

- 603qm: Alexanderstraße 2 (Café from 11 am to 7 pm)
- Osttangente: Liebfrauenstraße 38 (Our little winepub, absolutely a sleeper, near Karlshof, there you can buy wine at night, when supermarkets are already closed)
- Carpe Diem: Schuhknechtstraße 1 (snug Café, first of all outside)
- Café Chaos: Mühlstraße 36 (beautiful, crazy, nice, but unfortunately not that cheap)
- Linie 3: Ludwighshöhstraße (with the tram 3 to Bessungen, Stop Orangerie)

student-kindly and cheap

- Bistro ;-): Mensa City, has good coffee and drolly mensa-women
- Coffeemaker: Audimax (the cheapest and most awakening)

friendly

- NT or Nachrichtentreff: Elisabethenstraße 20 (central, a lot of space for a lot of guests, in the pedestrian area of DA)
- Café Godot: Bessungerstraße 2 (with the tram 3 to Bessungen, Stop Freiburger Platz)

friendly and expensive

- KuK: Carrée (Vienesse coffee house with character)
- Bormuth Café: Marktplatz (very good cake you can get here)

friendly and gay

• Café Hans: Dieburger Straße 19

not friendly

• Café Schwarz-Weiß: Schlossgartenstraße (and the worst coffee into the bargain)

4th step

Let yourself be invited and challenged by the wicked and trendy bars in Darmstadt

student-kindly and cheap

- Latino Appetito: Soderstraße 21 (cheap in every way)
- Bar Goldene Krone: Schustergasse 18 (grubby Jazz-Bar for everyone)
- Arabesque: Julius-Reiber-Straße 32 (smoke appletobacco, relax and feel good)

student-kindly

- Hemingways: Sandstraße 30 (cuban flair)
- Café Bar Brasil: Kopernikusplatz 1 (Meals and beverages from all over the world)
- Havana Bars: Kranichsteinerstr. 8 (there are 2 in Darmstadt, you already know one, good food and cocktails)
- **Pueblo:** Erbacherstraße 5 (Cocktails plus Happy Hour)
- Clusters: Wilhelm-Leuschner-Straße 38 (wacky sunny Couchbar, who is first...)

friendly

• Coyote Bar: Waldspirale 8 (worth seeing Bar in the worth seeing Hundertwasserhaus with long-afternoon-happy hour)

friendly and expensive

- Weststadtbar: Mainzer Straße 106 (look and be seen)
- Enchilada: Kasinostraße 5 (expensive, sometimes overworked waiters, exclusive)

To get drunk with beer, beer, and more beer

- **Ratskeller:** Marktplatz
- Braustübl: Goebelstraße 7 (brewery)
- Grohe: Niederramstädter Straße 3 (brewery)

5th step

You want more? Disco, rocking, dancing, grooving, housing or just move your tights smooth? Darmstadt has the following for you:

studentfriendly

- Schlosskeller or StudentInnenkeller: (Thursday for example Basement grooves, various programme, see www.schlosskeller-darmstadt.de)
- Goldene Krone: Schustergasse 18 (Wednesday, Saturday Hardrock, alternative, monday black, and so on, furthermore concerts, poolbar, cinema, parties...)
- Steinbruch-Theater: Odenwaldstraße 26, 64367 Mühltal/Darmstadt (especially Thursdays recommendable)
- Disco Biergarten Dieburg: Hohestraße 17, Dieburg (long way to Dieburg but really to be recommended: not to be confused with Dieburger Biergarten, has a nice Biergarten, too. Rock, House, Black view programme!)

friendly

- Room 106: Mainzerstraße 106
- Centralstation: located at the Carrée (you will often see well known bands here, disco)
- Nachtcafé: Carrée (for all Housefanatics)
- Natrix: Landwehrstraße 89 (Big disco 'best black, RnB & HipHop' if you like it ...)

friendly and gay

• Schlosskeller: first sunday in every month gay & lesbian disco

what else?

- Kuckucksnest: Landgraf-Georg-Straße 25 (Mallorca in Darmstadt, cheesy-popsong-freaks and 'discomouses')
- A5: Gräfenhäuserstraße 75 (Big disco, foamparty and birthday-all you can drinkparty, Ladys Night-Party for the kids ...)

6th step

Darmstadt in the summer! What is best and cheapest, if you chill in the Herrengarten, lie there in the sun... Furthermore other trendy or cozy stuff can be found outside:

Beergardens

- Biergarten Dieburger Straße (friendly talking and looking around)
- Bayrischer Biergarten: Kastanienallee 4
- Biergarten Lichtwiese (since 2003)
- Rossdorfer Biergarten: Industriestraße 18, Rossdorf (bus connection 5502) (open also during winter! Jamaican flair and Reagee-style invite you to dancing, Cocktails and concerts)

Picknick

- Park Rosenhöhe
- Mathildenhöhe
- Orangerie
- Steinbrücker Teich (Oberwaldhaus)
- Grube Prinz von Hessen

7th step

Here we present you a few of Darmstadt's cultural offerings: Finally we don't want to become marshy and have other interesting conversation topics besides mathematics, too :-P.

- Centralstation: Carrée (concerts, expersition, lecture, see programme: www. centralstation-darmstadt.de)
- Bessunger Knabenschule: Ludwigshöhstraße (various events)
- Staatstheater: Marienplatz 2 (great theater)
- Kikeriki: Bessungerstraße 88 (Variété)
- Halb-Neun-Theater: Sandstraße 32 (Comedy, Variété)
- Comedy Hall: Heidelbergerstraße 131 (Comedy)
- cinemas:
 - Audimax: student cinema, in the summertime: OpenAir at the Schloß!
 - **Cinemaxx:** Goebelstraße 11
 - Helia & Rex: Wilhelminenstraße 9
- etc.

8th step

Finally if you like a nice dinner, or if it should even get romantic:

- Fan's Garden: Heinrichstraße 48 (chinese)
- Taverna Romana: Dieburger Straße 6 (italian)

Eddi last revision by Martin

Do you know how to tango???

If not, here's your chance to learn!

This wintersemester, the maths dance committee is offering free lessons in latin and modern dancing. You'll learn chacha, waltz, rumba, tango, hustle and more.

Every Monday, starting on Oktober 18th in room S1-03/204.

Beginners course: 6:00pm to 8:30pm

Advanced course: 8:30pm to 9:00pm

No need to sign up, just show up and bring shoes you're comfortable with (no boots, no 10 inch heels ;-). There's no need to bring a partner, but you may come as a couple if you like.

You'll find further and more up to date information on our website http://www. mathebau.de/matheball.

Any questions? Contact Katia Bozhikova, Artus Ph. Rosenbusch, or Frauke Harrach at tanzkurs@mathebau.de or drop by the Fachschaftsroom S2-15/219.

... and don't forget, there's a maths dance in June!

Veranstalter: Fachschaft Mathematik der TUD

HTTP://www.mathematik.tu-oarmstadt.de/matheball.

Freshers' Weekend

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

What: You are invited to spend a weekend with your fellow students and the *Fachschaft* in a seminar house and have a lot of fun.

Where: Most likely it will be in Herbstein. That is about 120 km northeast of Darmstadt laying in the nature park Vogelsberg. At the time of the printing, this was not fully decided, though, hence if in doubt ask your OWO-Tutor or visit www. mathebau.de.

When: Friday, November 5th to Sunday, November 7th, 2004

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 Freshers' Weekend you'll have the opportunity to relax, and to get to know some of those people in a more un-mathematical atmosphere. There's no rigid schedule for the weekend. Instead, there'll be lots of time, and lots of interesting people to meet. You decide what you want to do: play board games, collect some friends and go exploring, take your favourite book and find a place away from all the bustle, learn to juggle or play Go, find out about the maths choir or sing along, 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.

Please *sign up* for the weekend, so that we know how many people are coming. Your OWO tutors will explain where and when to sign up.

If you have any questions, ask them or send an email to freshers-weekend@mathebau.de

The Freshers' Weekend 2003

Last 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. Thereⁱ 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.

Out 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 talk and also some 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 indurstry 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 where 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 (translated by Richard)

ⁱ The place is best described as "somewhere in Heidelberg"

Riddles

To add some fun to the equation, we collected some nice small riddles for you. Try to solve them all, if you can. In the unlikely event that you are not quite sure about your solutions, you may look up the answers on page 58. And now: Enjoy!

Ferries

There are two ferries crossing a river, with opposite landing stages. Both ferries cast off at the same time. When they meet they are 70 meters from away one bank. Each ferry waits for 10 minutes after reaching the opposite bank and then returns to the original landing stage. When the ferries meet again they are 50 meters from the other bank. How wide is the river?

Ninety Percent

Ten people wearing hats walk through the Herrngarten. suddenly a gust of wind blows off their hats. A helpful student returns to each one of their hats. What are the odds that exactly nine people get their own hat back?

Look

Where do you often see the fraction 24/31?

Stroll

Suppose your walking velocity is 5 km/h. There is a 3 km long path leading through a 3 km deep forest. How far can you walk into the forest in half an hour?

Knots

Get yourself a cord (a shoelace would do). Can you take both ends and tie a knot without releasing your grip?

The ladder

It is low tide. A ship with a rope ladder on the outer side is anchored in the harbour. At the moment there are 20 steps visible above the water. The distance between two steps is 30 cm and the tide is rising 10 cm per hour. How many steps will be visible at high tide?

The Chain

A chain of 20 meters is hanging between two buildings. Both ends are attached to the buildings at the same level. The distance between these points and the lowest point of the chain is 10 m. What is the distance between the buildings?

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.

The Fachschaft is open for everybody and organizes its work democratically. Every tuesday at 6.00 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 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 as well as the study-fees.

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 and at the pin board in the ground floor. 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, 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" wednesday at 5 pm. There the experienced Fachschaft people will happily welcome you and answer all your questions about 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.

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

ⁱ Also known as 603qm. The Editors

people helping. All together *zapfing* is not one of those unappreciated jobs, whence it's worth participating.

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

Solutions to the riddles from page 55 Ferries: 160 m Ninety Percent: 0 Look: in the calender Stroll: 1.5 km Mots: Yes, you can! The Chain: 20 m The Chain: 20 m For explanations, please ask your OWO tutors!

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, on basis of which the FBR decides. Thus, the FBR has the legislative power within the department.

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 administrativetechnical employees. The student representatives currently are Frauke Harrach, Sven Herrmann, Nicole Nowak, Max Horn and Andrea Peter.

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.

Main task of the *Forschungsausschuss* (research committee) is to present the FBR with a list of proposals for the placement of new assistants. These are in most cases accepted by the FBR. Besides, other things concerning research within the department are discussed here.

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.

The *Diplomprüfungskommission* (Diplom exam committee) is the official body that closes the diplom exams within the department. Furthermore it decides about proposals for distinction. It also arranges the approval of new minor subject as well as examination subjects, prolongation of terms, etc. The rules of approval of exams taken abroad are discussed here as well.

The *Promotionsausschuss* (doctorate committee) is mainly concerned with the opening of doctorate proceedings as well as the acceptation of doctorate degrees. It also decides upon the examination committee.

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.

So all in all there are nine positions, where students can engage themselves outside of 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

AStA and university politics

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.

But 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*. Furthermore free **legal advice** is offered (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 is given.

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.

How the AStA will look like in the new semester, is yet unclear. Probably it will consist of members of the biggest list in the students parliament (FACHWERK – the list of the *Fachschaften*), but whether there are any people willing to do this work, is not yet secured.

It's a pity, because as you might have noticed by now, the AStA is quite an important institution. So if you enjoy standing up for something, the active people are surely happy if you join them.

And if that is all way to much for you, then go and cast your vote at least (even though the election is only in summer), that is the least support you can give to the people who are working for your interest (and unluckily it is not normal to do so, the voter turnout was under *10%* this year).

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

Alech

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 (www.filmkreis.de)
- Audiomax: radio with topics covering everything from S1/01 to the cafeteria (www.audiomax-campusradio.de)
- University orchestra: music by our orchestra ... (www.tu-darmstadt.de/hg/orchester/)
- University choir: ... and the choir (www.tu-darmstadt.de/hg/chor/)

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

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

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

- Evangelische Studierenden-Gemeinde: Protestants ... (www.esg-darmstadt.de),
- Katholische Hochschulgemeinde: ... Catholics ... (www.khg-darmstadt.de),
- Studentenmission in Deutschland: and Christians in general (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 (www.konaktiva.tu-darmstadt.de/web/)
- AIESEC: traineeships abroad (www.da.de.aiesec.org),

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

Andreas

Working

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 $8.02 \notin$ /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 $400 \notin$ /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, to look for a German friend of yours to help you with it. Beware that there *are* differences between the English and the German standards.

Next, try looking for a HiWi job offer in the Internet site of TUD (http://www.tudarmstadt.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 one 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

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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