Welcome to the Department of Computer Science at the University of Freiburg!

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Martina Nopper
Academic Advisor for Computer Science

The Departmental Academic Advising for Computer Science

- **Martina Nopper (Dipl.Inf.)**
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  - Office: Building 101 02 013a (→ „Prüfungsamt") (Same office as Ms. Epe)

- **Consultation hours:**
  - Monday + Wednesday 2 p.m. – 4 p.m.
  - Tuesday + Thursday 10 a.m. – 12 noon

What am I doing here?

I would like to show you…

- where you are
- how to organize your study /
  build your own study plan
- administrative stuff
- how to proceed if you failed an exam
- where you get information and help

The Faculty of Engineering

- Or "TF" for short
  (from the German name "Technische Fakultät")
- Founded in 1995
- 3 Departments:
  - **Computer Science**
  - Microsystems Engineering
  - Sustainables Systems Engineering
- About 50 professors & group leaders
  (and still growing…),
  more than 450 employees,
  more than 1800 students
- Facilities:
  computer pools, WiFi, robotics labs,
  tele-teaching facilities, engineering library…
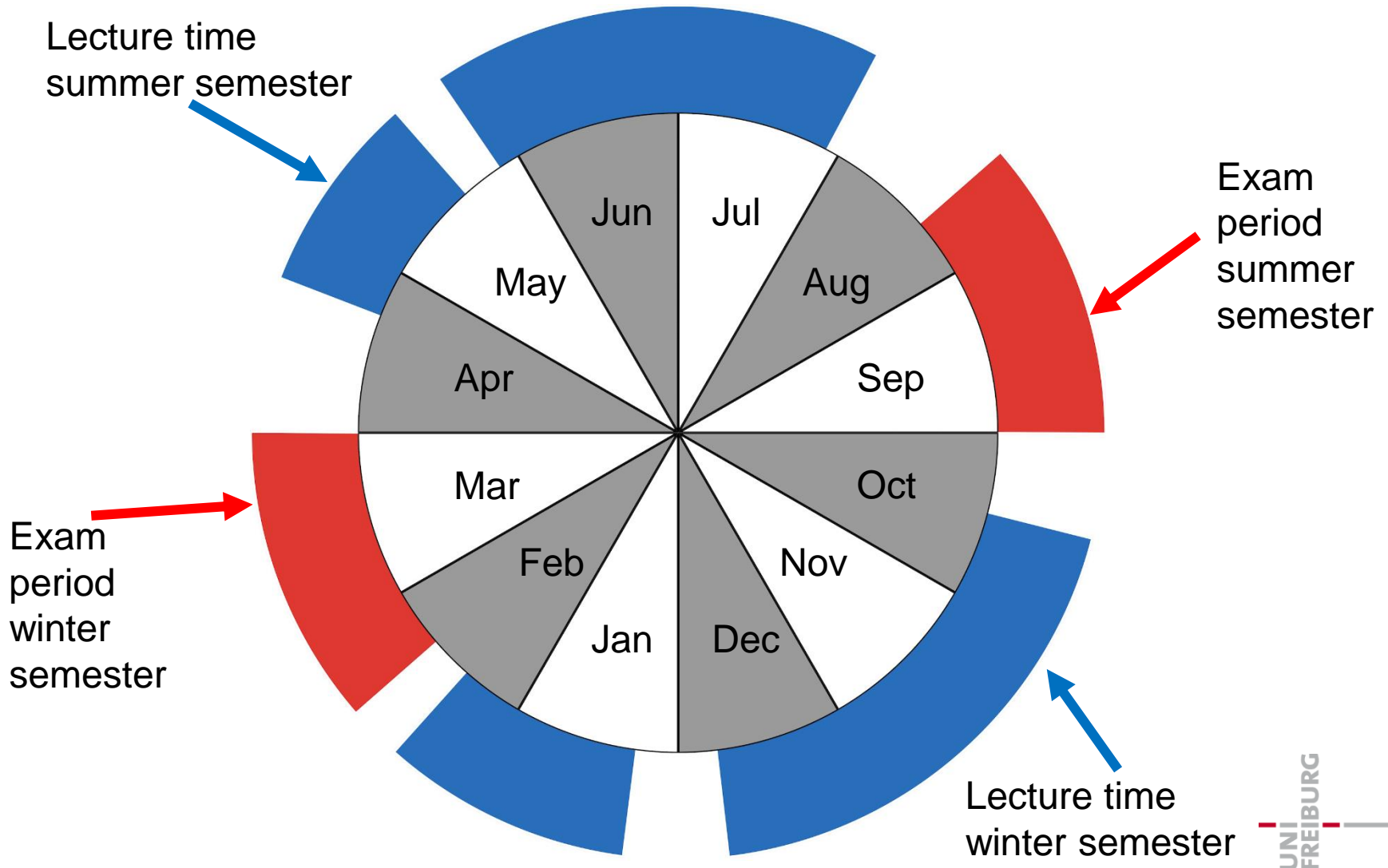
Department of Computer Science

- 20 professors & group leaders

- Research areas:
  - Algorithms and Data Structures
  - Computer Architecture and Operating Systems
  - Programming Languages and Software Techniques
  - Artificial Intelligence and Robotics
  - Graphics and Image Processing
  - Communication and Information Systems
  - Gender Studies

Department of Computer Science: Study programs

Master's programs:

- **Master's Program Computer Science / Informatik**

- Master's Program Embedded Systems Engineering (ESE)
  (offered together with the
  Department of Microsystems Engineering)

Time periods in University year

Lecture time summer semester

Exam period summer semester

Exam period winter semester

Lecture time winter semester

Course types in Computer Science

Course type (English)	Kursart (German)	Short description
Lecture and exercise / tutorial	Vorlesung und Übung	Presentation with questions / discussions from a lecturer/professor; tutorials provide (practical) exercises
Seminar	Seminar	Mostly theoretical research; summarizing and presenting (writing paper)
Lab course	Praktikum	Practical course with sturctured assignments (sometimes in special lab rooms), sometimes in groups
(Master) Project (≠ Master Thesis !)	(Master-)Projekt	Individual project with practical and theoretical parts, written portion and final presentation (used as preparation for Master's Thesis)

Important notes on course types

- **Lectures** and **exercises** belong together
  even though they are mentioned seperately in the
  course catalogue
  → you have to register for both!

- **Seminars** can be held weekly or as a compact
  course („Blockseminar" → sometimes no time given
  in course catalogue or only for first meeting)

- **Seminars** and **Lab courses** may vary from
  semester to semester, as most lecturers like to keep
  up-to-date with their research areas

What's in the word „course"?

English name	German name	Explanation
Key course	Kurs-vorlesung	6 specific lectures + tutorials offered annually 3 in winter term , 3 in summer term
Specialization course	Spezial-vorlesung	Lots of different lectures + tutorials on various topics, mostly sorted into 3 big categories depending on the research topics (matching the 3 specialization areas)
Application course	Fachfremdes Wahlmodul	Courses of all kinds in some subjects different than Computer Science (sometimes referred to as *Nebenfach* or *Elective*, meaning *minor subject*)

Note: „Study course" (=Studiengang) is mostly called *study program*

Key courses

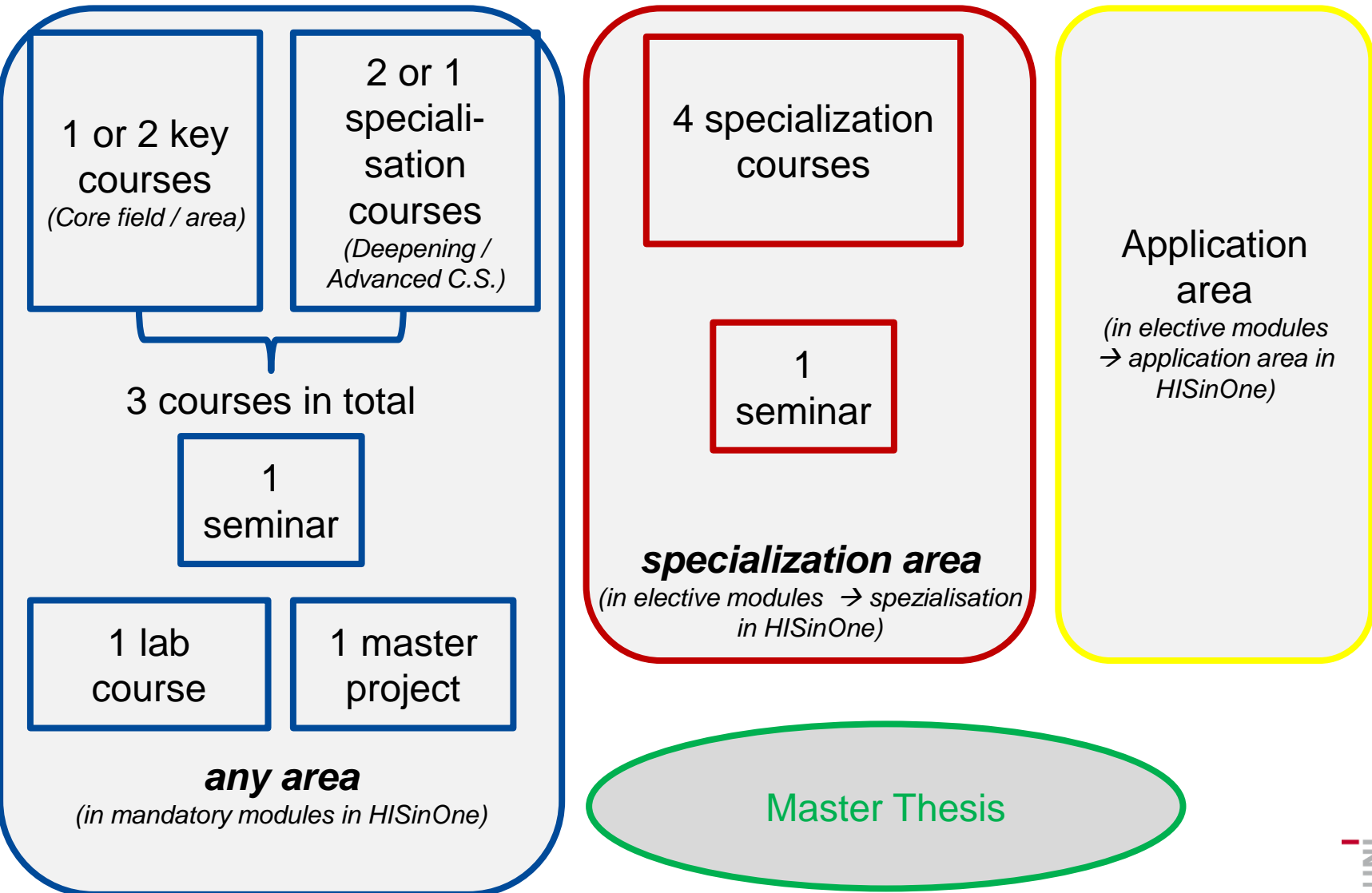| Key course	Semester	Related specialization area
Software Engineering / Softwaretechnik	Summer	Cyber-Physical Systems
Computer Architecture / Rechnerarchitektur	Summer	Cyber-Physical Systems
Foundations of Artificial Intelligence / Grundlagen der Künstlichen Intelligenz	Summer	Cognitive Technical Systems
Image Processing and Computer Graphics / Bildverarbeitung und Computergrafik	Winter	Cognitive Technical Systems
Algorithm Theory / Algorithmentheorie	Winter	Information Systems
Databases and Information Systems / Datenbanken und Informationssysteme	Winter	Information Systems

Study plan – what kind and how many courses

Number	Course Type	Area	ECTS	Category in HISinOne
1 or 2	Key courses	Any area	6 each	Mandatory modules → core field (also called „core area in Comp. Sc.")
2 or 1	Specialization courses	Any area	6 each	Mandatory modules → deepening (also called „Advanced Comp. Sc.")
4	Specialization courses	Specialization area	6 each	Elective modules → spezialisation
1	Seminar	Specialization area	4	Elective modules → spezialisation
1	Seminar	Any area	4	Elective modules → spezialisation
1	Lab course	Any area	6	Mandatory modules → laboratory
1	Master project (≠ Master thesis!)	Any area	16	Mandatory modules → master project
x	Application courses (number depends on chosen subject 18 ECTS in total)		18	Elective modules → application area
1	Master Thesis		30	

3 courses in total

2 seminars in total

Study plan – graphic representation

1 or 2 key courses
(Core field / area)

2 or 1 speciali-sation courses
(Deepening / Advanced C.S.)

3 courses in total

1 seminar

1 lab course

1 master project

any area
(in mandatory modules in HISinOne)

4 specialization courses

1 seminar

specialization area
(in elective modules → spezialisation in HISinOne)

Application area
(in elective modules → application area in HISinOne)

Master Thesis

Language of instruction

- **Key courses:**
  Databases is always in German.
  Algorithm Theory is always in English.
  The remaining courses are in English every other year:
  - **Winter semester 2018/19:**
    "Databases and Information Systems" in German, "Algorithm Theory" and "Image Processing and Computer Graphics" in English
  - **Summer semester 2019:**"Computer Architecture" in English, "Foundations of Artificial Intelligence" and "Software Engineering" in German
    (at least that's the current plan…)

- **Specialization courses** generally in English

- **Seminars, lab courses, projects:**
  Language might be negotiated
  (but no legal claims!)

Specialization areas – general topics

- **Cognitive Technical Systems**
  - robotics and autonomous intelligent systems
  - artificial intelligence and machine learning
  - computer vision and graphics
- **Cyber-Physical Systems**
  - verification and analysis of hard- and software systems
  - software development and programming languages
  - embedded systems
- **Information Systems**
  - theoretical and applied algorithms
  - networks and distributed systems
  - data management and communication
  - bioinformatics

Specialization areas – course selection

- Recommended „initial courses" for the 3 specialization areas:

Specialization Area	Winter term	Summer term
Cognitive Technical Systems	Computer Vision	Introduction to Mobile Robotics
Cyber-Physical Systems	CPS – Discrete Models	CPS – Program verification
Information Systems	Information Retrieval	Distributed Systems

Application areas

- Archeology (German only)
- Bioinformatics (in English, no previous knowledge required)
- Cognitive Sciences (mostly in German, few English courses available)
- Economics (mostly in English, usually no previous knowledge required)
- Environmental Natural Sciences (German only)
- Mathematics (German only)
- Medicine (German only)
- Microsystems Engineering (in English, no previous knowledge required)
- Neuroscience (in English, no previous knowledge required)
- Physics (German only)
- Political science (German only)
- Psychology (German only; only 3 students per year allowed)

For these two areas: Obligatory registration with study advisor neccessary

In the application area, at least **18 ECTS** have to be completed.
More information can be found here: https://www.tf.uni-freiburg.de/en/studies-and-teaching/module-handbooks → Master Informatik / Computer Science → list of application areas M.Sc. Computer Science PO 2011 (PDF)

Application areas in English

Bioinformatics:

- Bioinformatics I (6 ECTS)
  (for example this WS1819)

- Bioinformatics II (6 ECTS)
  (for example next SS19)

- Specialization course in Bioinformatics
  (6 ECTS) (either winter or summer semester)

Application areas in English

Economics:

English courses (more available in German only):

- Computational Economics (6 ECTS, WS)
- Business Analytics (4 ECTS, WS)
- Electronic Markets (6 ECTS, SS)
- Futures and Options (6 ECTS, SS)
- Computational Finance (6 ECTS, WS)
- Principles of Finance (6 ECTS, SS)
- Advanced Financial Modelling (6 ECTS, WS)
- Seminars at Chair for Information Systems Research (mostly 4 ECTS, some with 6 ECTS)

- Beforehand:
Registration with academic advisor Martina Nopper neccessary!

Application areas in English

Microsystems Engineering:
(curriculum recommended – deviations possible)

- MST (microsystem technology) Technologies and Processes (5 ECTS)

- Assembly and Packaging Technologies (5 ECTS)

- Signal Processing (5 ECTS)

- 1 course from the concentration area (3 ECTS)

Application areas in English

Neuroscience:

- Computational Neuroscience (18 ECTS overall)
  - Lecture „Foundations in Neuroscience / From Membranes to Brain" (WS)
  - Lecture + exercise "Computational Neuroscience" (SS)
  - Practical exercise "Simulation of Biological Neuronal Networks"(SS)
  - Seminar „Current Research Topics in Systems Neuroscience " (SS or WS)

Please note:

As it is not possible to participate in weekly courses in Computer Science at the same time as the Practical exercise and the Seminar, we recommend to do those at the same time as the master project.

General Rules and Recommendations

- Most courses are offered every other semester; some can be held irregularly, but that would be mentioned in the module handbook (see HISinOne)

- Usually no dependences in the order of courses
  - Nevertheless, check with lecturers for appropriate combinations or order of courses

- Be aware that you might need to change your original study plan

- It is recommended that the Master's Thesis fits your specialization area

Conditional admission –
What does this mean for me?

- Conditions have to be fulfilled in addition to the normal Master's curriculum
  → likely to extend the time you need to graduate

- You have to complete the required modules by the end of the second semester.
  They should be your top priorities!

- You will be automatically registered for these courses, but have to register for the exams yourself
  → Registration for these exams have to be done via PDF form:
  https://www.tf.uni-freiburg.de/de/studium-lehre/a-bis-z-studium/dokumente/Examregistration.pdf

Conditional admission –
What does this mean for me?

- It is not sufficient to take the exam, you have to attend the course.

- If the lecturer requires any exercises or mid-term exams for admission to the final exam, you also have to fulfill these requirements.

- Exams required for conditional admission can only be repeated once.

- If a conditional course collides with one of your mandatory or elective courses, the **conditional course** should always have **higher priority**!

Courses for Conditional Admissions

- Computer Science Theory – Bridging Course
  (online lecture + tutorial) every semester

Summer semester:

- Softwaretechnik / Software Engineering (lecture + exercise, 6 ECTS)
- Grundlagen der Künstlichen Intelligenz / Foundations of AI (lecture + exercise, 6 ECTS)
- Fortgeschrittene Programmierung (lecture + exercise, 6 ECTS)

Winter semester:

- Optimierung (lecture + exercise, 3 ECTS)
- Algorithmen und Datenstrukturen / Algorithms and Data Structures (lecture + exercise, 4 ECTS)
- Informatik III: Theoretische Informatik (lecture + exercise, 6 ECTS)
- Algorithm Theory (lecture + exercise, 6 ECTS)
- Rechnernetze (lecture + exercise, 6 ECTS)
- Softwarepraktikum für Hörer aller Fakultäten (lab course, 6 ECTS)

Some words on intellectual honesty

- Intellectual honesty is important:
  You don't want someone (your co-workers?) to steal your work, so do not do it yourself!

- Do not falsify any results, either.

- Some well-known persons in Germany have fallen prey to plagiarism some years ago
  → *correct quoting is crucial!*

- **Severe consequences** if you get caught! (Failing the course or, if done repeatedly, expulsion possible!)

Tips for your first week

- **Read the official exam regulations!**
  (= terms and conditions of your study program)
- Study the online course catalogue
- Check out a few more courses than you intend to complete
- Most prerequisites stated in the course catalogue are recommendations, they are not mandatory
- Please note: The first exercise/tutorial might take place *after* the first lecture only; check with lecturer, if unsure
- Register (via HISinOne) for the courses you want to take as soon as possible
- You can cancel again any courses **till the end of the lecture period!**
- For **Seminars** there is a special registration period:
  October 15th till 24th!
- Information on dates for course registration:
  https://www.tf.uni-freiburg.de/en/studies-and-teaching/calendar-dates → Booking deadlines for Bachelor and Master courses

Registering for/ booking of courses

- Have a look at the course catalogue:
  https://campus.uni-freiburg.de
  → Studies offered
  → Show university course catalog
  → Technische Fakultät
  → Master of Science (M.Sc.)
  → Informatik, PO 2011
- For information on handling the Campus-Management-System see
  https://www.tf.uni-freiburg.de/en/studies-and-teaching/teaching/course-booking
  or use the extensive wiki of HISinOne → Help → Guide for students
- If you have questions or made a mistake while registering:
  Contact us!
  (me or Ms. Moses in the Dean's office: moses@tf.uni-freiburg.de)

What to do if you forgot to register/book a course

- If you forgot to register for a course (or decide very late you would like to try it):
  - Go to the lecturer and ask if there are still places available and if it generally makes sense to start late
  - For lectures, you can register yourself till the end of the lecture time, but the lecturer might also add you manually in the HISinOne system
  - The examination office **can't** help you here!

- Registration for an exam in HISinOne is only possible if you are registered for the course!

Introduction on exam rules etc. from the exmination office team

- On **Thursday, Oct. 11th, 3:00 – 4:00 p.m.** the examination office team will provide a detailed introductory to the exam rules and regulations.
  Room: Georges-Koehler-Allee 101,
  lecture hall 00 026 (ground floor)

- *So I'll keep it very short today…*

Registration for exams

- It's a second, independent step from booking the course. It's **not** done automatically!

- The procedure is similar to booking the courses. For a how-to, see
https://www.tf.uni-freiburg.de/en/studies-and-teaching/a-to-z-study-faq/de-registration-of-exams

- Deadlines for the registration (and de-registration) for exams are also mentioned on this website.

- Without registering for an exam you are not allowed to take it, so **do not forget!**

- To make sure you are correctly registered, we recommend saving/printing the pdf of the in HISinOne → My studies → My course enrollments and exam registrations

How to proceed if you failed an exam

- Number of tries are limited:
  - Every exam can be tried 2 times
  - **Three exams** for courses in the required or elective modules can be tried 3 times
    This rule does not include lab courses or seminars.

- You are registered automatically for the repetitison(s) and **cannot sign off** !

- You cannot substitute a course you already took an exam in with another one!

What to do in case of illness…

- If you are ill on the exam day…

1. You should not take the exam!
   (You can't „take it back" once you did it…)

2. print the Medical certificate for Master students
   (https://www.tf.uni-freiburg.de/en/studies-and-teaching/a-to-z-study-faq/forms-examinations-offics)
   [yes, there is a slight typo at the end of the URL…]

3. go to a general practitioner **on the day of the exam** and ask him to fill in the medical certificate

4. submit the completed medical certificate within three work days to the examination office
   (If you are too late, it will be counted as a fail!)

If you are not sure what to do: Ask in time!

Information via Internet

Some useful links:

- Faculty of Engineering:
  https://www.tf.uni-freiburg.de/en/studies-and-teaching

- calendar, dates and deadlines:
  https://www.tf.uni-freiburg.de/en/studies-and-teaching/calendar-dates

- information about exams etc.:
  https://www.tf.uni-freiburg.de/en/studies-and-teaching/a-to-z-study-faq

- study plans, syllabus, academic rules:
  https://www.tf.uni-freiburg.de/en/studies-and-teaching/module-handbooks

Where to get software you might need for your courses?

- The Computing Center (*Rechenzentrum*) offers lots of software and licenses like MATLAB, Mathematica or LabView:
https://www.rz.uni-freiburg.de/services/beschaffung/software

- For questions you may contact
lizenzen@rz.uni-freiburg.de

Problems with your studies?

- **If you have any questions or problems:**
  Act immediately and do not procrastinate!

- **Contacts & info sources:**
  - Official information sources by university, faculty and study program
  - academic advising
  - Lecturers / assistants /mentors (face-to-face or via e-mail)
  - Fachschaft (departmental student committee)
  - Information centers like the Student Service Center, Office of Student Services etc.
  - fellow students

Persons offering help and information

Function	Person
Program Coordinator	Ms. Ursula Epe
Study / Academic Advisor	Ms. Martina Nopper
Examination Office	Ms. Susanne Stork Ms. Anne-Julchen Müller
Dean of Studies (Computer Science)	Prof. Dr. Thomas Brox
Librarians	Ms. Susanne Hauser