

Medicine & Engineering

Our strong combination at FAU Erlangen-Nürnberg

Welcome, Master's Students of Medical Engineering!

Master Welcome Day, October 15th 2021
Claudia Barnickel



- ❑ **Welcome by Prof. Tobias Reichenbach**
(Future Director of the Medical Engineering program)
- ❑ **Welcome by Dr. Heike Leutheuser**
(Director of the Central Institute of Medical Engineering/ZiMT)
- ❑ **Introduction to the Study Program**
(Claudia Barnickel, Study Advisor & Coordinator for Medical Engineering)
- ❑ **Welcome by FSI Medizintechnik**
(Student Association Medical Engineering/FSI MedTech)

The Diversity of Medical Engineering at FAU



Persons in Charge Contact Persons



Program Representatives

- **Future Director Medical Engineering Program
(Dep. Artificial Intelligence in Biomedical Engineering)**
Prof. Dr. Tobias Reichenbach



- **Director Central Institute of Medical Engineering
(ZiMT)**
Dr.-Ing. Heike Leutheuser



- **Study Advisor and Coordinator Medical Engineering**

Claudia Barnickel

Consultation via email, phone, zoom or **in the office (only with previous online registration: study program website → “Infocenter” – “Study Advisory Service”)**

+49 9131 8567337

studienberatung-medizintechnik@fau.de



- all kinds of questions regarding your studies
- accreditation of coursework achievements
- support with formalities
- studying abroad (Erasmus+ program)
- help in situations of crisis

- **Examinations Office Faculty of Engineering**

(Prüfungsamt Technische Fakultät)

Helga Jahreis

helga.jahreis@fau.de



- managing exams, credits, grades online via the Mein Campus portal
- (last-minute withdrawal from exams due to illness or other severe reasons) **In WS 21/22, corona regulations apply: students can withdraw from exams last-minute via Mein Campus or simply not show up and it will not count as a failed attempt.**
- If you were admitted with conditional subjects („Auflagen“): **report to Mrs. Jahreis about the completion of your conditional subjects!**

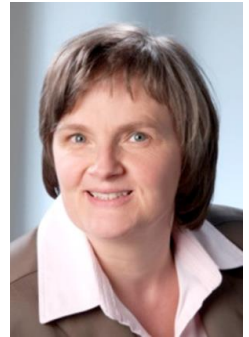
● General Study Advisory

(Informations- und Beratungszentrum, IBZ)

Elisabeth Grosso

elisabeth.baechle-grosso@fau.de

- general study-related problems
- information about changing your study program
(advisor for all engineering programs)
- **student visa issues (certificate for foreigners
office)**



- **Study-Service-Center, Faculty of Engineering**



Gisela Jakschik



Christine Mohr

tf-stib@fau.de

- General information and advice for (international) students
- Inquiries about administrative bodies of the university
- Seminars for soft skills
- International partnership programs of the Faculty of Engineering
- Internships abroad

● Career Service

career-service@fau.de

www.career.fau.de

- Help with your job search
(also student jobs)
- Support with applications
- Professional check of application documents
- Simulation of job interviews
- Useful workshops and seminars



● Office for Gender and Diversity

gender-und-diversity@fau.de

- Support for women
- Advice for students with children
- Help for students with a migratory background
- Support for students experiencing discrimination of any kind (due to gender, ethnicity, religion, sexual orientation etc.)



● Advice for Students with Disabilities or Chronic Diseases

Dr. Jürgen Gündel

juergen.guendel@fau.de

- General advice and support (e.g. accessibility of buildings)
- Compensation of disabilities during examinations (e.g. more time)

What counts as a...

- **disability?** All physical and mental impairments lasting at least 6 months
- **chronic disease?** Illnesses that require at least one medical treatment per quarter over the course of one year

• Psychological-Psychotherapeutic Counseling

**Dipl.-Psych. Elizabeth Provan-Klotz,
Psychological Psychotherapist**

Martensstr. 3, Room 04.154

+49 9131 85-27935

elizabeth.provan-klotz@werkswelt.de

Assistance with:

- Fear of speech, writing and exam
- Difficulties with learning, motivation problems
- Stress management
- Anger and impulse control problems
- Loneliness, depression, feelings of guilt, fears, thoughts of suicide
- Everyday studies with a chronic illness or disability
- Relationship, partner and family problems
- Identity and orientation problems
- Displacement from the parents and from the place of origin
- Questions about addiction and addictions (e.g. nicotine, alcohol, internet)
- Integration and cultural difficulties

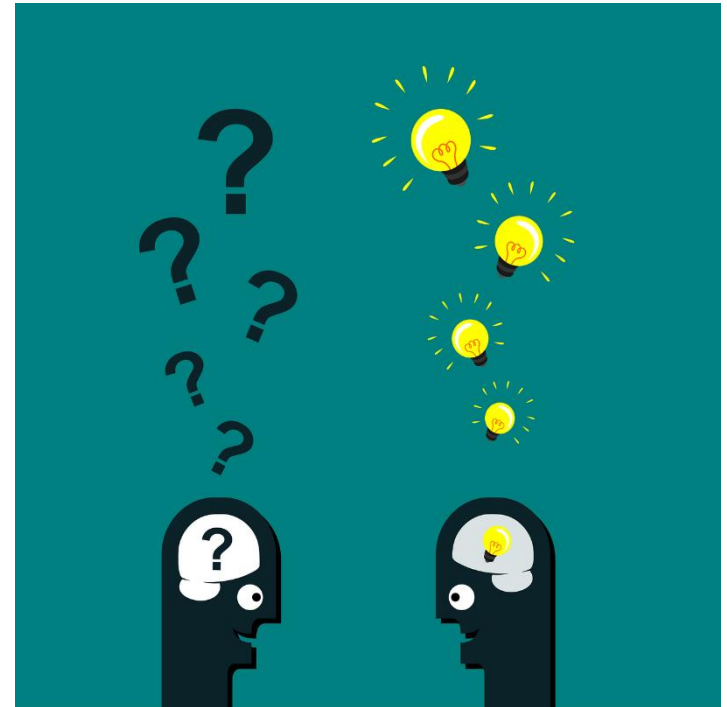


- **Legal Advisory Service:**

rechtsberatung@werkswelt.de

<https://www.werkswelt.de/rechtsberatung>

- Problems with rental contracts, work contracts, visa status etc.
- Free of cost!



How to Find Information...

Weblink for all medical engineering-related services and information:

- www.medical-engineering.study.fau.eu
- www.medizintechnik.fau.de

...including today's presentation!

How to Find Information...

**General information for FAU students:
search the web for 'FAU' + key word**

- e.g. FAU + language courses
- FAU + examinations office
- FAU + psychological services
- FAU + semester dates...

Master's Program Medical Engineering Program Structure



What is ECTS?

- ***European Credit Transfer and Accumulation System***
Assessment of student workload required for the learning outcomes of a program
 - 30 credits: recommended workload per semester
 - 1 credit: \approx 30 working hours

- You will find information on ECTS in the module catalogs, in the online information system UnivIS, on your Master's certificate/Transcript of Records.

Master's Program Medical Engineering: Structure

**M1/Medical Specialisation
Modules, 10 ECTS**

**M4/Advanced Seminar
Medical Engineering,
5 ECTS**

**M6/Practical (lab)
modules, 10 ECTS**

**M7/Flexible Budget Faculty of
Engineering (any engineering
course on Master's level),
10 ECTS**

**M8/Free Choice Uni
(any graded course, all
faculties), 5 ECTS**

**M2, M3, M5 = branches of study
(20+20+10 ECTS)**

- Medical Electronics (German)
- Medical Production Technology, Device Engineering and Prosthetics (German)
- Medical Image and Data Processing (German or English)
- Health & Medical Data Analytics and Entrepreneurship (English)

M9/Master's Thesis (30 ECTS)

Master of Science (M. Sc.)

120 ECTS in total



Master Program Medical Engineering: Structure

- Total of 120 ECTS credits should be evenly spread over four (or five) semesters; no strict rule but **recommended:**
~30 ECTS credits per semester; corona regulation: WS 21/22 counts as a “zero semester” → you have at least 6 semesters for your Master’s degree (+ possible extensions)
- Few compulsory modules (conditional subjects, some mandatory subjects in the catalog, **see footnotes there!**)
- Mostly free choice within the list for each module group
- Not all lectures are offered in winter and summer (see catalog), time slots may differ from semester to semester; there might be time overlaps (refer to video lectures: www.fau.tv)
- Recommended time for going abroad: 3rd or 4th semester (start planning now)

Semesters & Exams

- Regular duration of studies: 4 semesters/two years (can be extended to 5 semesters by re-registering + paying the semester fee); **winter semester 21/22 = „zero semester“**
- Semester: lecture period (14 or 15 weeks) + lecture-free period ('holidays' ≈ 12 weeks)
- Two exam periods: first 2 weeks and last 3 weeks **of the lecture-free period**
- Failing an exam: **2nd + 3rd chance** in the **following two semesters** (automatic + **mandatory** registration) – **exception: conditions/'Auflagen'** (max. 2 chances, i.e. 1 year!)
- You can/must only take exams if you register for them.
- **Withdrawal** from registered exams: usually until 3 working days (Mon – Fri) before the exam without a reason – or later in case of illness/severe reasons (medical/other certificate); **corona regulation: withdrawal last-minute via Mein Campus/not attending the exam) possible: no medical certificate, no failed attempt**

Semesters & Exams

Winter semester 21/22 (October 1st 2021- March 31st 2022):

Lecture Period: Oct 18th 2021- Feb 11th 2022

Exam Registration: Nov 15th – Nov 28th 2021

(Reminder via email!)

Re-registration for summer 2022: Feb 1st- Feb 8th 2022

(Reminder via email!)

Semester break (no lectures): Feb 12th – Apr 24th 2022

Christmas break: Dec 24th 2021 – Jan 6th 2022

Exam periods: Feb 14th – Feb 25th & Mar 31st – Apr 22nd

www.fau.eu/education/study-organisation/semester-dates/

www.fau.eu/education/advice-and-services/examination-offices/examinations-office-faculty-of-engineering/

Conditional Subjects/‘Auflagen’

- **Must be passed within one year (deadline: September 30th 2022)**
Otherwise they will prevent successful re-registration for the 3rd semester.
- **After successful completion of conditional subjects: Actively inform** Mrs. Jahreis (Examinations Office)!
- **Examination results of the 2nd semester might be published late.**
If this is your case, contact Mrs. Jahreis in due time to get a faster correction.
- **The credits of conditional subjects are not part of the 120 credits for your Master’s program but you can use them in M8 (Free Choice Uni) if you wish.**

Conditional Subjects/‘Auflagen’

Lectures are usually offered only once a year in summer semester (SS) or winter semester (WS):

- Grundlagen der Elektrotechnik II: SS, exam also in WS
- Algorithmen und Datenstrukturen für MT: WS (exercise classes and exam also in SS)
- Mathematik A3: WS; Mathematik A4: SS; exam also in SS/WS respectively
- Engineering Mathematics: SS, exam also on WS
- Advanced C++ Programming: online course (WS+SS) at the **Virtual University Bavaria (VHB)***: www.vhb.org
→ *Choose study program **“Gesundheitstechnik”** for the registration at VHB.

Types of Courses

- V/L: Vorlesung/lecture – generally no registration, attendance not mandatory → **Just go to the first lecture (or attend the online course respectively if held online).**
- Ü/E: Übung/Tutorium; exercise class/tutorial – accompany lectures, usually start in the 2nd week, further details in the 1st lecture, attendance usually not mandatory → **Attend the 1st lecture.**
- P: Praktikum/practical course (lab course) – attendance mandatory, early registration (see UnivIS) – **not relevant/recommended for 1st semester**
- S: Seminar – attendance mandatory, early registration (see UnivIS) – **not relevant/recommended for 1st semester**

Types of Exams/Course Achievements

- **Prüfungsleistung (PL)/Graded course achievement (gCA)**

- schriftlich [written]
- mündlich [oral]
- Seminar (presentation and paper)

Despite the pandemic, most of the exams at FAU are still on-site exams, very few online exams!

- **Studienleistung (SL)/Ungraded course achievement (uCA)**

- e.g. exercise classes or practical courses
- Hochschulpraktikum/Academic Laboratory (M6.1)
- Forschungspraktikum/Research Laboratory (M6.2)

Module Catalogs (available on the Medical Engineering webpage)

| Typpe | Modulnummer | Module | | V+Ü+S+P | Gesamt | | | | Studien- und Prüfungsleistungen | Department | Modulverantwortlicher / Dozent | WS/SS |
|-------|-------------|---------------------------------------|-----------|---------|--------|----|----|----|---------------------------------|------------|--------------------------------|-------|
| | | Modulbezeichnung (Veranstaltungsname) | Abkürzung | | WS | SS | WS | SS | | | | |

‘Grundcurriculum’/ common catalog (for all branches taught in German)

| M 1 Medizinische Vertiefungsmodule | | | | | | | | | | | | |
|---|--|-------------|---------|-----|-----|-----|---|---|-------|---------|--|-------|
| | | | V+Ü+S+P | 10 | 5 | 5 | 0 | 0 | PL | | | |
| M 1.1 ¹ | Grundlagen der Anatomie & Physiologie für Nichtmediziner | AnaPhys_MIT | 4+0+0+0 | 5 | 2,5 | 2,5 | 0 | 0 | 60 s | VORKLIN | Prof. Dr. Clemens Forster | WS/SS |
| | Clinical Applications of Optical Technologies and Associated Fundamentals of Anatomy | OMED/CA | 4+0+0+0 | 5 | | 5 | | | 45 s | KLIN | Prof. Dr. med. Michael Eichhorn | SS |
| M 1.2 | Medizinische Vertiefung 1 | | | 5 | 5 | 0 | 0 | 0 | 60 s | KLIN | N.N. | WS |
| M 1.3 | Medizinische Vertiefung 2 | | | 5 | 0 | 5 | 0 | 0 | 60 s | KLIN | N.N. | SS |
| Liste der Lehrveranstaltungen für M1.2 bzw. M1.3 | | | | | | | | | | | | |
| | Interdisziplinäre Medizin | | 0+0+2+0 | 2 | 2 | 0 | 0 | 0 | 45 s | | Prof. Dr. med. Harald Mang | WS |
| | IT-Unterstützung im Prozess der diagnostischen Bildgebung | | 1+0+0+0 | 1 | 1 | 0 | 0 | 0 | 45 s | | Dr. Thomas Kauer | WS |
| | Grundlagen der biologischen Strahlentherapie | | 4+0+0+0 | 4 | 0 | 0 | 0 | 0 | 45 s | | Prof. Dr. med. habil. Christoph Distler | SS |
| | Grundlagen der biologischen Strahlentherapie | | 2+0+0+0 | 2,5 | 0 | 0 | 0 | 0 | 45 s | | Prof. Dr. med. Ludger Distler | WS |
| | Grundlagen der Krankheitserkennung | | 4+0+0+0 | 5 | 5 | 0 | 0 | 0 | 90 s | | Prof. Dr. med. Harald Mang | WS |
| | Medizinische Biotechnologie | MBT | 3+1+0+0 | 5 | 5 | 0 | 0 | 0 | 120 s | | Prof. Dr. med. habil. Dr. rer. nat. Oliver Friedrich | WS |
| | Audiologie und Hörgeräte | | 1+0+3+0 | 5 | 5 | 0 | 0 | 0 | 90 s | | Prof. Dr.-Ing. Dr. rer. med. Ulrich Hoppe | WS |
| | Medizinische Physik (Kathodenstrahlentherapie) | | | | | | | | | | | |
| | Cognitive Neurowissenschaften | | | | | | | | | | | |

An updated version is published at the beginning of every semester!

Catalog for each branch of study

| M 2 Ingenieurwissenschaftliche Kernmodule | | | | | | | | | | | | |
|--|---|------------|-------------|----|----|----|---|---|------|-----|---|---------------------|
| | | | V+Ü+S+P | 20 | 10 | 10 | 0 | 0 | PL | | | |
| Basismodule / Basic Modules (B) | | | | | | | | | | | | |
| M 2.1 | Ereignisgesteuerte Systeme | EGS | 2+2+0+0 | 5 | 5 | 0 | 0 | 0 | 90 s | INF | Dr.-Ing. Michael Glaß | WS |
| | Übung | | | | | | | | | | | |
| M 2.2 | Grundlagen der Systemprogrammierung (Systemprogrammierung 1) | GSP (SP 1) | 2+2+0+0 | 5 | 0 | 5 | 0 | 0 | 90 s | INF | Prof. Dr.-Ing. Wolfgang Schröder-Preikschat | SS |
| | Übung | | | | | | | | | | | |
| M 2.3 | Digitale Übertragung / Digital Communications | DÜ / DiCo | 3+1+0+0 | 5 | 5 | 0 | 0 | 0 | 90 s | EEL | Prof. Dr.-Ing. habil. Johannes Huber, Prof. Dr.-Ing. Robert Schober | WS: engl SS: dt. |
| | Übung | | | | | | | | | | | |
| M 2.4 | Signale und Systeme II | SISY II | 2,5+1,5+0+0 | 5 | 0 | 5 | 0 | 0 | 90 s | EEL | Prof. Dr.-Ing. André Kaup | SS |
| | Übung | | | | | | | | | | | |
| M 2.5 | Computergraphik / Computer Graphics | CG | 3+1+0+0 | 5 | 5 | 0 | 0 | 0 | 30 m | INF | Prof. Dr.-Ing. Marc Stamminger, Prof. Dr. Günther Greiner | WS |
| | Übung | | | | | | | | | | | |
| M 2.6 | Digitale Signalverarbeitung / Digital Signal Processing | DSV | 3+1+0+0 | 5 | 5 | 0 | 0 | 0 | 90 s | EEL | Prof. Dr.-Ing. Walter Kellermann | WS |
| | Übung | | | | | | | | | | | |
| Aufbaumodule / Advanced Modules (A) | | | | | | | | | | | | |
| M 2.7 ¹ | Pattern Recognition | PR | 3+0+0+0 | 5 | 5 | 0 | 0 | 0 | 30 m | INF | Prof. Dr.-Ing. Joachim Hornegger | WS |
| M 2.8 ¹ | Pattern Analysis | PA | 3+0+0+0 | 5 | 5 | 0 | 0 | 0 | 30 m | INF | Prof. Dr.-Ing. Elmar Nöth | SS |
| M 2.9 | Statistische Signalverarbeitung / Statistical Signal Processing | STASIP | 3+1+0+0 | 5 | 5 | 0 | 0 | 0 | 90 s | EEL | Prof. Dr.-Ing. Walter Kellermann | SS |
| | Übung | | | | | | | | | | | |

Where can I find all the catalogs?

Website of the Medical Engineering programme:

<http://www.medizintechnik.studium.fau.de/>

→ Studierende → Masterstudium → Überblick und
Modulkataloge **FPO 2019**

<http://www.medical-engineering.study.fau.eu/>

→ Current students → General Study Information Master's
Program → General Study Information & Course Syllabus
(FPO 2019)

**Your FPO version remains valid for you throughout
your whole studies!**

Module catalogs are updated every semester!

Please read the footnotes in the catalogs!

What else can I find on the study program website?

<http://www.medizintechnik.studium.fau.de/>

<http://www.medical-engineering.study.fau.eu/>

- Study Guide (German and English version)
- Today's presentation slides
- Further information: on the Academic Lab & Research Lab, Master's Thesis, studying abroad, accreditation of coursework etc.
- Links to examination regulations (for the Medical Engineering program=FPO, for the Faculty of Engineering: ABMPO)
- Important forms
- FAQ section
- News & events

M 9: Master's Thesis

- **independent execution of scientific tasks in Medical Engineering**
 - **Prepare yourself early on:** e.g. lecture “Nailing your thesis” (SS) can be used for Flexible Budget Faculty of Engineering (M 7)
- Prerequisites: 75 ECTS credits, completion of all conditional subjects and mandatory modules (see footnotes in catalogs)
- to be completed within 6 months
- Look for your topic **in due time** (end of your penultimate semester at the latest)!
 - **Select your modules in preparation of your thesis topic.**
- Look for thesis topics on the labs' websites, ask for personalized/non-advertised topics at the labs (professor, PhD students).
- Specific details, formalities, thesis form → Medical Engineering website

Foreign Language Training

Sprachenzentrum (Language Center): www.sz.fau.de

- Courses during the lecture period are **free of cost**.
- Intensive courses (with a fee) during the semester break
- **Registration** required for all courses.
- Registration for **German courses (open as of now): highly recommended for internships & future job!**
- Recommended languages to prepare for studying abroad:
e.g. English, Spanish, Portuguese
- Courses also suitable for module group **M8 (Free Choice Uni)**
- **All German courses and most other language courses are taught on-site again.**

Online Tools



UnivIS



IdM portal: www.idm.fau.de Manage your personal data!

- An IdM login is required for nearly all personalized online services at FAU.
- Activate your **IdM Portal account** with the activation password mailed to you.
- Upload a photo to create your student ID card (FAUcard); **it will be sent to your semester address (in Germany).**
- Problems with FAUcard: card@fau.de
- Problems with IdM account: service counter/‘Service-Theke’ RRZE: rrze-zentrale@fau.de

IdM portal: www.idm.fau.de Manage your personal data!

Email address:

- An FAU email address has been generated for you.
- It is used as default recipient for emails from the university.
To relay: IdM Portal → Self Service → Email → Click on the “...”-button → Field “Relay to”
- **All important information regarding your studies (including corona updates) will be sent to your FAU email address!**

Mein Campus: Manage Your Exams

- **Login**

- <https://www.campus.fau.de>
- “Single Sign-On”

- **Prüfungen (*Exams*)**

- Exam registration (mid-November)
- Withdrawal from exams
- Overview of registered exams
- Overview of grades and acquired ECTS credits



Detailed instructions: see Medical Engineering website

StudOn: E-learning Plattform

- <https://www.studon.fau.de>
- Often used for courses that require registration
- Generally used for sharing course materials

The screenshot shows the StudOn user interface. At the top, there is a navigation bar with the StudOn logo, a search bar, and a 'Abmelden' (Logout) button. Below the navigation bar, there is a 'Übersicht' (Overview) section with a notification: 'Zur Beschleunigung der Anzeige wurden die Seitenblöcke "Kalender", "Nachrichten" und "Aktive Nutzer" standardmäßig ausgeblendet. Sie können sie selbst über das Menü "Aktionen" rechts neben dieser Überschrift wieder einblenden.' Below the notification, there are three main sections: 'Nachrichten - Letzte 6 Monate', 'Ausgewählte Angebote', and 'Kalender'. The 'Nachrichten' section shows a list of recent updates, including a Wiki page for corrections, a forum post, and a course update. The 'Ausgewählte Angebote' section shows a list of courses with icons and 'Aktionen' (Actions) buttons. The 'Kalender' section shows a calendar icon and '0 Mail(s)'. The interface is clean and organized, with a light blue and white color scheme.

- 1. Compile your class schedule**
→ UnivIS (guided session by student association afterwards)
- 2. If you study HMDA:** Attend HMDA meeting today at 3 pm:
Martensstraße 3, 2nd floor, **room 02.134-133, or online (same zoom link).**
- 3. Register for courses – only if needed (information in UnivIS):**
usually via StudOn **(see registration link on the respective lecture page in UnivIS)**
If registration is not required, simply join the first meeting.
- 4. Register for exams** → Mein Campus (mid-November, reminder via email)
- 5. Re-register for the next semester (1st week of February 2022)**
→ bank transfer (reminder and details via email)
- 6. Study & pass exams** → study groups, time management, practice with old exams from FSI, get advice from our psychologist if needed
- 7. Actively report on the completion of your conditional subjects**
→ Examinations Office (Mrs. Jahreis)

Important Info for International Students

- If you are still abroad you can study a **selection of courses online** – see list on Medical Engineering website
→ “Information for new Master’s students starting in winter semester 21/22”
- As most exams will take place on-site, you should travel to Germany **by February** at the latest.
- If you cannot travel to Germany due to **visa problems (and can prove it)** your examiners will offer you online exams. Please inform them in due time!
- If you are not vaccinated with an EU-approved vaccine yet, you can get **free covid tests** at test stations until the end of 2021. The **Erlangen vaccination center** offers drop-in sessions and consultation in different languages.

Tips & Tricks for Successful Studies

1. Be proactive, inform yourself, search online, talk to people.
2. **Read the study guide + examination regulations.**
3. **Read the footnotes in your module catalog.**
4. If there is a problem, talk to your tutor/lecturer/study advisor/psychologic counselor **as soon as possible.**
5. Engage in campus life (student organizations:
<https://stuve.fau.de/en/gruppen/>)
6. Take language classes, find a language buddy:
<https://sz.fau.eu/departement-media-autonomous-learning/autonomous-language-learning/tandem/>
7. Build a MedTech network through the workshops, summer schools, hackathons etc. offered/promoted by ZiMT.
8. Organize study groups, whatsapp groups, zoom coffee hours etc., even from abroad. **Connection with fellow students is key!**

Thank you very much!

Have a great start of the
semester!
Stay healthy and connected!

