

Medicine & Engineering

Our strong combination at FAU Erlangen-Nürnberg

Welcome, master's students of Medical Engineering!

Master Welcome Day, SS 24 Claudia Barnickel

Agenda



1. Welcome by Prof. Tobias Reichenbach

(Director of the Medical Engineering program)

2. Introduction to the Study Program and FAU Services

(Claudia Barnickel, Study Advisor and Coordinator Medical Eng.)

3. Presentation by our Student Association

(FSI MedTech)

4. Joint walk to the Computer Science Tower (break with drinks and snacks)

- **5. Introduction to our Online portals**
- 6. Guided Campus tour with FSI MedTech

Increase in population and diseases

Demographical development until 2050: More people, longer life expectancy:

- Diabetes: +50%
- Infarction: +100%
- Cancer: +50%
- Increasing demand for diagnostic and therapeutic treatment

Dementia:	+100%
Stroke:	+100%



The Diversity of Medical Engineering in Germany's Medical Valley







Contact Persons (Medical) Engineering



Prof. Dr. Tobias Reichenbach

Chair for Sensory Neuroengineering: <u>www.neurotech.tf.fau.eu</u> Department Artificial Intelligence in Biomedical Engineering (AIBE) Room 03.08 (3rd floor) Werner-von-Siemens Str. 61, 91052 Erlangen (City Center)





Study Advisor and Coordinator Medical Engineering

Claudia Barnickel

Room 02.158 (2nd floor) Martensstraße 3, 91058 Erlangen (blue computer science tower)

Consultation via

- email: <u>studienberatung-medizintechnik@fau.de</u> **OR** <u>Claudia.Barnickel@fau.de</u>
 - (= the same recipient: Please only send one email to one of the two addresses!)
- phone: +49 9131 8567337
- zoom (schedule an appointment via email)
- in person-sessions in the office: only with previous online registration: study program website → "Infocenter" – "Study Advisory Service" → booking tool

Consultation about

- questions regarding your studies
- support with formalities
- accreditation of academic achievements
- help in situations of crisis

→ problems you cannot solve on your own by reading our website, study guide or FAQs



Daniela Novac

Room 01.154-1 (1st floor) Martensstraße 3, 91058 Erlangen (blue computer science tower) +49 9131 8527617 <u>daniela.novac@fau.de</u>

Consultation about

 studying abroad (Erasmus+ program = study exchange with [mostly] European countries)



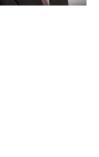


Helga Jahreis

Room 1.042 (1st floor) Halbmondstraße 6, 91054 Erlangen (City Center) +49 9131 8524752 <u>helga.jahreis@fau.de</u>

Consultation about

- managing exams, credits, grades online via the Campo portal
- last-minute withdrawal from exams due to illness or other severe reasons (submission of medical or other certificate)
- application for extension of studies (7th, 8th etc. semester), see form on website of the Examinations Office



9

12. April 2024



General Study Advisory

(Zentrale Studienberatung)



Elisabeth Grosso

Room 1.031 (1st floor) Halbmondstr. 6, 91054 Erlangen (City Center) +49 9131 8524809 elisabeth.baechle-grosso@fau.de

Consultation about

- General study-related questions (e.g. when your program advisor is on holiday or sick leave)
- Advisor for all engineering programs

Study-Service-Center Faculty of Engineering





Gisela Jakschik



Christine Mohr

tf-stib@fau.de

(Office with glass walls in the central lecture hall building)

Consultation about

(SSC TechFak)

- Lost & found objects
- Soft skills courses (free of cost), e.g. presentation skills, communicating at the workplace etc.
- Studying abroad: international partnership programs of the Faculty of Engineering (non-Erasmus = non-European countries)

Friedrich-Alexander-Universität Technische Fakultät



Other FAU Services



FAU email account

www.faumail.fau.de

• Forward emails from your FAUmail account to you private email account:

Log into <u>www.idm.fau.de</u> – "self service" – "email" – click on the magnifying glass symbol – enter your private email address.

 All important information regarding your studies will be sent to your FAUmail account. You are responsible for receiving and reading it!





24/7 access to the Computer Science building

www.idm.fau.de

- Activate the 24/7 access function for your FAUcard in the IDM portal via "Door Access - Computer Science Tower". Your FAUcard will then function as a key card for the building outside of its regular opening hours.
- You can come anytime to use the computer rooms!







Sprachenzentrum (Language Center): <u>www.sz.fau.de</u>

- Courses during the lecture period are free of cost.
- Intensive courses (with a fee) during the semester break
- **Registration** required for all courses.
- German courses: highly recommended for daily life, student jobs & future job!
- Recommended languages to prepare for studying abroad:

e.g. Spanish, Portuguese, Italian, Finnish,...

- Language courses suitable for module group M8 (Free Choice Uni)
- Most language courses at FAU are taught on-site. Places are limited.
- The Virtual University of Bavaria (<u>www.vhb.org</u>) offers online courses in different languages (for free), but most of them cannot be counted towards your studies. → Still a good alternative if you don't get into the FAU courses. Recommended online course: "German after English"!



Language tandem, offered by FAU Language Center:

https://sz.fau.eu/department-media-autonomouslearning/autonomous-language-learning/tandem/

- Not a course, but you can sign up to be matched with a native speaking FAU student of your desired language who wants to learn your language.
- You can meet up regularly to practice both languages.

Weekly language meetup "Sprachcafé", organized by Studentenwerk

- open event next to cafeteria "Südblick", on Wednesdays 6-8 pm
- Current languages on offer: German, English, Farsi, Spanish, Japanese
- You can offer to be a tutor for your own language!





career-service@fau.de www.career.fau.de



- Help with your job search (for student jobs & after graduation)
- Professional check of application documents but no placement in companies
- Simulation of job interviews
- Useful workshops and seminars

Free of cost – definitely use this service during your studies!



Office of Equality and Diversity



www.equality-and-diversity.fau.eu

- Support for women in science
- Support and networking for students with a migratory background
- Support and networking for first-generation academics
- Support for the LGBTQ student community
- Support for students experiencing discrimination/harassment of any kind (due to gender, ethnicity, religion, sexual orientation/identity etc.)



Family Service



https://www.familienservice.fau.eu/

- Advice on studying during pregnancy and childcare (special protection measures, benefits and support)
- Advice on childcare facilities
- Meetups with other student parents

→ If you came to FAU with children, definitely make an appointment with the Family Service!

Advice for Students with Disabilities or Chronic Diseases

Dr. Tobias Schulz

beeintraechtigt-studieren@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

Peer-to-peer advice and support: bi-weekly zoom meetup for FAU students and researchers with chronic illnesses and disabilities: https://www.fau.de/termine/zoom-plausch-studium-mit-behinderung/#collapse_0



Psychological Counseling at the Faculty of Engineering



Dipl.-Psych. Elizabeth Provan-Klotz,

Dr. Dominik Özbe-Schönfeld

https://www.tf.fau.de/studium/beratung/psychologischeberatungsstelle/

Assistance with:

- Fear of speech, writing and exams
- Difficulties with learning, motivation problems
- Stress management
- Anger and impulse control problems
- Loneliness, depression, feelings of guilt, fears, thoughts of suicide
- Studying with a chronic illness or disability

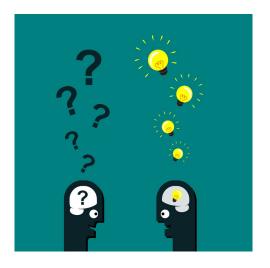


- Relationship, partner and family problems
- Identity and orientation problems
- Displacement from parents/home country
- Questions about addiction and addictions (e.g. nicotine, alcohol, internet)
- Integration and cultural difficulties



rechtsberatung@werkswelt.de https://www.werkswelt.de/rechts beratung

- Advice on problems with rental contracts, work contracts, visa status etc.
- Free of cost!



Student Groups

www.stuve.fau.de/gruppen/

- Groups for all kinds of interests: theater, debate club, robotic soccer, politics, FAUFabLab, mindfulness & meditation, social engagement, national groups (e.g. Chinese or Pakistani students at FAU) etc.
- Just contact the groups and ask about their next meeting.
- You can also found and register your own group!

→ Tip: Pick out one group and join it in your 1st semester. It will make your studies easier, more fun and more successful!





Buddy program

https://www.fau.eu/education/internationa I/from-abroad/welcome-programme-forinternational-students/buddy-programme/

- The buddy program puts international students in contact with German students who can answer some of their questions and provide useful tips.
- Buddies are not official advisors they are volunteer FAU students who are interested in other cultures and would like to help international students.
- They can show you around Erlangen, help you find a used bike, recommend a medical doctor etc. - i.e. support you with questions you wouldn't ask your study advisor.





www.hochschulsport.fau.de

- Different sports courses at a low price
- Registration for WS has already started (April 8), but you might still get a left-over spot.
- If you want to get into the popular courses you have to be really fast on registration day!





Your **24/7 source** for all **medical engineering-related** services and information:

- <u>www.medical-engineering.study.fau.eu</u>
- <u>www.medizintechnik.fau.de</u>

...including today's presentations (section "Current Students"/"Studierende")!



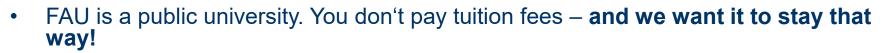
Your best strategy to access the **other services** mentioned today:

Just type "FAU" + keyword in google!

E.g.

"FAU university sports" "FAU psychologist" "FAU legal advice" "FAU language tandem" "FAU semester dates" etc.

Why we expect you to look up information on your own:



- Everything is payed for by the German tax payer. → **Staff is limited!**
- Taking care of yourself is the "price" you pay for not paying for your studies. By not burdening our officers with work when you don't really need their help you ensure that you education stays free of cost.
- We don't have a company-client relationship. We are all members of the FAU community.

Apply the "engineering spirit" to university life: before you send an email, check if you can solve the problem by yourself!

(Side effect: You turn into an autonomous, well-organized human being, i.e. our thesis supervisors' favorite thesis candidate and every company's favorite employee.)



Master's Program Medical Engineering Program Structure





- European Credit Transfer and Accumulation System Assessment of student workload required for the learning outcomes of a program
 - > 30 credits: <u>recommended</u> workload per semester
 - > 1 credit: \approx 30 of hours of work (in class & at home)
- You will find information on ECTS in the module catalogs, in the online information system Campo, on your Master's certificate/Transcript of Records.

FAU

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 (10 ECTS) (any engineering course on Master's level & some economics courses*)

M8 – Free Choice Uni

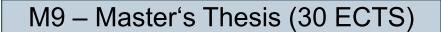
(5 ECTS)

(any graded course, all faculties)

*exception: HMDA, see HMDA catalog!

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 and/or English)
 - Health & Medical Data Analytics and Enterpreneurship (English)
- Medical Robotics (English)



Master of Science (M.Sc.)

120 ECTS in total

Master Program Medical Engineering: Structure



 Total of 120 ECTS credits should be evenly spread over 4-6 semesters; there is no minimum or maximum amount of ECTS per semester but we strongly recommend to acquire

20-30 ECTS credits per semester.

- Few compulsory modules (see footnotes in your module catalog!)
- 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 may be time overlaps (refer to video lectures: <u>www.fau.tv</u>)
- Recommended time for going abroad: 3rd or 4th semester (start planning now, see study program website)



Semester Structure

- Regular duration of studies: 4 semesters/two years
 (can be extended to 5 or 6 semesters simply by re-registering +
 paying the semester fee), further extensions to a 7th, 8th
 semester and beyond possible in justified cases; prerequisite:
 you study actively and pass exams.
- Semester: lecture period (14 or 15 weeks) + lecture-free period ('holidays' ≈ 12 weeks)
- Two exam periods: first 2 weeks and last 4 weeks of the lecture-free period (holidays)
- Every exam takes place **once** per semester in one of the two exam periods (not both).





- You have to register for the exams you want to take. Exam registration is independent from course participation. I.e. you can attend a lecture, but not take the exam. You can choose not to attend a lecture, but study on your own and take the exam.
- Failing an exam: 2nd + 3rd exam attempt in the following two semesters (automatic + mandatory registration for repeat exam), 3 chances in total; failed 3rd attempt = end of Med. Eng. studies & loss of visa (for non-EU students with a study visa) → Apply for alternative study programs at the beginning of every semester in which you have a 3rd attempt!



Withdrawal from registered exams

- Until 3rd working day (Mon-Fri; public holidays don't count) before the exam day without giving any reasons (selfderegistration via Campo portal)
- Last-minute withdrawal is possible in case of illness/severe reasons (send medical/other certificate immediately to Mrs. Jahreis of the Examinations Office)
- If you feel sick during an exam, you can tell the supervisors, leave the exam and see one of the authorized FAU doctors (see Medical Engineering website "Current students"); if the doctor confirms your illness, the exam attempt doesn't count.
- If you don't attend an exam that you are registered for without submitting a medical/other certficate, it counts as a failed attempt!



Summer semester 24 (Apr 1 2023 - Sep 30 2024):

Lecture Period:	Apr 15 – Jul 19 2024
Exam Registration:	May 27 – Jun 16 2024
(Reminder via email!)	
Re-registration for winter 2024/25:	Jul 1 - 7 2024
(Reminder via email!)	
Semester break (no lectures):	Jul 20 – Oct 13 2024

Exam periods: Jul 22 – Aug 3 and Sep 20 – Oct 12

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

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

Types of Courses



- V/L: Vorlesung/lecture generally no registration, attendance not mandatory. → Just attend the first lecture.
- Ü/E: Übung/Tutorium; exercise class/tutorial accompany lectures, usually start in the 2nd week, further details in the 1st lecture. Usually not mandatory, but completing the exercises may give you bonus points for the lecture exam. → Just attend the 1st lecture to find out about the exercise modalities.
- P: Praktikum/practical course (lab course) attendance mandatory, early registration (see Campo) – not relevant/recommended for 1st semester
- S: Seminar attendance mandatory, early registration (see Campo)- not relevant/recommended for 1st semester

Types of Exams/ Course Achievements



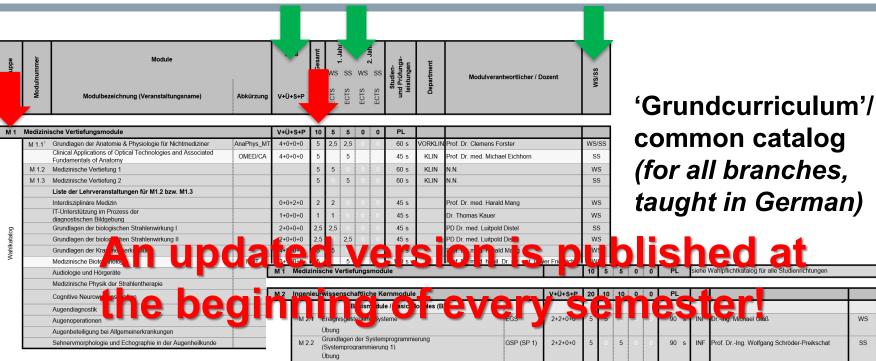
- Prüfungsleistung (PL)/Graded course achievement (gCA)
 - schriftlich/written
 - mündlich/oral
 - Seminar (presentation and paper)

Most of the exams at FAU are on-site exams, very few online exams!

- Studienleistung (SL)/Ungraded course achievement (uCA): pass/fail system
 - e.g. exercise classes or practical courses
 - Hochschulpraktikum/Academic Laboratory (M6.1)
 - Forschungspraktikum/Research Laboratory (M6.2)

Module Catalogs





Catalog for each branch of study

- M z.1	B isn dule / asic lo les (B E E E E E E E E E E E E E E E E E E	EGS	2+2+0+0	-5	ļ	ſ	ſ	Ķ	90		Drmg. Michael Glaß	WS
M 2.2	Obung Grundlagen der Systemprogrammierung (Systemprogrammierung 1) Obung	GSP (SP 1)	2+2+0+0	5	0	5	0	0	90 s	INF	Prof. DrIng. Wolfgang Schröder-Preikschat	SS
M 2.3	Digitale Übertragung / Digital Communications Übung	DÜ / DiCo	3+1+0+0	5	5	0	0	0	90 s	EEI	Prof. DrIng. habil. Johannes Huber, Prof. DrIng. Robert Schober	WS: engl. SS: dt.
M 2.4	Signale und Systeme II Übung	SISY II	2,5+1,5+0+0	5	0	5	0	0	90 s	EEI	Prof. DrIng. André Kaup	SS
M 2.5	Computergraphik / Computer Graphics Übung	CG	3+1+0+0	5	5	0	0	0	30 m	INF	Prof. DrIng. Marc Stamminger, Prof. Dr. Günther Greiner	WS
M 2.6	Digitale Signalverarbeitung / Digital Signal Processing Übung	DSV	3+1+0+0	5	5	0	0	0	90 s	EEI	Prof. DrIng. Walter Kellermann	WS
	Aufbaumodule / Advanced Modules (A)											
M 2.7 ¹	Pattern Recognition	PR	3+0+0+0	5	5	0	0	0	30 m	INF	Prof. DrIng. Joachim Hornegger	WS
M 2.8 ¹	Pattern Analysis	PA	3+0+0+0	5	0	5	0	0	30 m	INF	Prof. DrIng. Elmar Nöth	SS
M 2.9	Statistische Signalverarbeitung / Statistical Signal Processing Übung	STASIP	3+1+0+0	5	0	5	0	0	90 s	EEI	Prof. DrIng. Walter Kellermann	SS

e



Website of the Medical Engineering programme:

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

→ Studierende → Masterstudium → Überblick und Modulkataloge (FPO 2023)

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

- → Current students → General Study Information Master's Program
 → General Study Information & Course Syllabus (FPO 2023)
- Your FPO version remains valid for you throughout your whole studies! In Campo, you can find your courses under "PO-Version 20222".
- Module catalogs are updated every semester on the Medical Eng. website! Always use the current catalog & read the footnotes!

What else can I find on the study program website?



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

- Study Guide (German and English version)
- Today's presentation slides (section "current students"/"Studierende")
- Detailed information on the Academic Lab & Research Lab, Master's Thesis, seminar, 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 → 99% chance that your questions are already answered there!
- News & events
- Job offers



M9: Master's Thesis

• independent execution of scientific tasks in Medical Engineering

→ Prepare yourself early on: e.g. through lectures "Nailing your thesis", "Scientific Writing" etc. (see Medical Engineering website).

- Prerequisites: 75 ECTS credits, completion of all mandatory modules (see footnotes in catalogs)
- to be completed within 6 months
- Look for your topic in due time (in your penultimate semester at the latest)!

→ Select your modules in preparation of your thesis topic, attend the courses physically & interact with the lecturer!

- Look for thesis topics on the labs' websites, ask for personalized/nonadvertised topics at the labs (professors, PhD students).
- Specific details, formalities, thesis form \rightarrow Medical Engineering website



What's next?

- **1.** Compile your class schedule \rightarrow Campo (guided session by student association today)
- 2. Register for courses (only if needed), usually via StudOn (see link on the respective page in Campo) If registration is not required, simply join the first lecture meeting. If you encounter problems with the StudOn course → attend the first lecture meeting and ask your lecturer!
- 3. Register for exams → Campo (Mai/June, reminder via email)
- **4. Re-register for the next semester (1st week of July)** → Campo, bank transfer (reminder and details via email)
- 5. Study continuously from the beginning & pass exams → study groups, time management, practice with old exams from FSI, establish a good system to study *in parallel* for different exams, attend lectures and exercises and ask questions



Tips, tricks and university life hacks



Important information for international/non-EU students



- No enrollment = no study visa! Failed 3rd (=last) exam attempt → deregistration from our Medical Engineering program by the end of the semester → loss of your visa by the end of the semester → You have to return to your home country!
- GOLDEN RULE: At the beginning of the semester, check if you have a 3rd attempt for any exam. If this is the case, you MUST apply for (and receive admission to) another English-taught master's program for the following semester so that you have a backup plan. Take this matter VERY SERIOUSLY! Do not only apply for programs at FAU but for programs at other German universities, too!
- Student jobs (at the university and at companies) and rooms in student dorms depend on your student status. No enrollment = loss of student job and student dorm!
- You must report changes of your study program to the Immigrations Office. You will usually only get permission to change your study program once!

"Safety measures" for international/non-EU FAU students

- Speaking German (B1/B2 level) and being good at programming is your safety net for many problems that may occur during your studies (financial, visa issues etc).
- Learn German and solidify your programming skills! This may help you find a well-paid (full-time) job based on your bachelor's degree if you need it (work visa instead of study visa). On a study visa, you are only allowed to work 140 full days or 280 half days per year.
- If you don't get a spot in the German courses of our Language Center right away, study on your own with the free German courses offered at the Virtual University of Bavaria (<u>www.vhb.org</u>) & speak German at university!
- Seek the advice of our officer of the German Employment Agency early on (consultation sessions at our faculty: <u>michael.huemmer@arbeitsagentur.de</u>)
- Network with companies in the region (events by Medical Valley Center, Zollhoff Tech Incubator, Fraunhofer Institute, job fairs etc.).
- Join the Facebook group "FAU International Master Computational & Medical Engineering" to receive useful information regarding life in Erlangen, job offers etc.
- Be active: Prepare for the worst case scenario, so that you have the best possible time in Germany!

Technische Fakultät

Important medical information



- Make an appointment with a general medical practitioner and get all the recommended vaccines (among others: tick-borne encephalitis, TBE)!
- If you are not vaccinated with an EU-approved covid vaccine yet, you can also get vaccinated by any general practitioner.
- All recommended vaccines are covered by your health insurance (i.e they are free of cost).



TBE in Germany In Germany, tick-borne encephalitis (TBE) is predominantly confined to the south.

How to avoid pitfalls

 Beware of scams! No university staff member will ever ask you to buy things for them (e.g. google play cards) or send them money. If this happens to you, the respective email account has been hacked.
 Please report to our Computer Center!

Don't share your personal data and passwords!

Technische Fakultät

- Beware of scams when looking for housing! Don't transfer any money before you have seen the place and signed the rental contract. If something seems fishy, have the offer checked by our Accomodation Service (accommodation@fau.de)
 Intellectual property (e.g. own text vs. citing in scientific publications),
 - authorship of lecture recordings/materials, personal rights & privacy (regarding photos etc.) are taken extremely seriously! Never use/share without asking/citing correctly! The use of ghost writing services/ChatGPT in assignments is sanctioned!

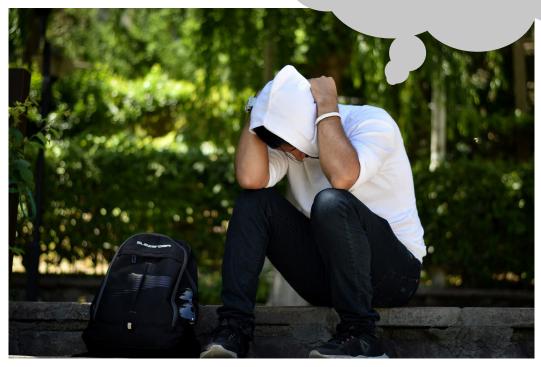






Success or problems in your studies don't FAU just "happen" to you...

failed 3rd exam attempt = deregistration from the study program = loss of study visa!



Most of the problems you will encounter are FAU caused by a series of small bad decisions:

I won't read the study guide. I'll have random students explain to me what they think they understood about the program. I don't have time to socialize with other students. I need to work and concentrate on my studies.

Should I look this up on the Medical Engineering website? Nah..I'll rather go with my gut feeling! **♀**



Success is built through a series of small good decisions:

Let's attend a university event, so we can talk to students from higher semesters. We might even meet PhD students and find a master's thesis?! I'll sign up for a sports course/student group. This will keep me motivated for my studies.

I feel really bad about this situation. I better talk to a study advisor/psychologist about it.



Many small steps set you up for success:



- 1. Inform yourself. Make use of the official resources. Don't rely on rumors!
- 2. Read emails from your study advisor and the FAU administration thoroughly.
- 3. Read the Medical Engineering program website & study guide.
- 4. Read the footnotes in your module catalogs.
- 5. Ask your lecturers/tutors questions in class they enjoy discussing them & it is a great way to show your interest (e.g. for a future master's thesis)!
- 6. If there is a problem (e.g. last exam attempt) talk about it with your tutor/lecturer/study advisor/psychologic counselor as early as possible.
- 7. Engage in campus life (sports, student organizations, trips, fairs etc.).
- 8. Take language classes and soft skills workshops. This is the last time in your life that things are for free!
- 9. Organize study groups, whatsapp groups, coffee meetups etc. Find your peer group and build a network! Don't underestimate the benefits of social life!
- 10. Be polite: Send short, concise emails with a greeting, thank you and your full name + student number. Don't use ChatGPT for emails! Wait 7 days to follow up if you haven't received a reply.

Special tip for international students: Expect the unexpected!



- Reflect on what is typical for university life in your home country (style of lectures, exams, interactions with professors/staff etc.) and operate with the working model that those aspects are going to be different in Germany.
- You'll have plenty of time to observe, ask and research in which ways they are different, but you should never assume that things are as you are used to.
- Assuming that things are like in your home country is the number 1 reason why students drop out of our program!



Thank you for your attention! Questions?



Have a great start of the semester! Stay active, curious and connected!