

Medicine & Engineering

Our strong combination at FAU Erlangen-Nürnberg

Welcome, master's students of Medical Engineering!

Master Welcome Day, WS 24/25 Claudia Barnickel

Agenda



- Welcome by Prof. Tobias Reichenbach
 (Director of the Medical Engineering program)
- Introduction to the study program and FAU services
 (Claudia Barnickel, Study Advisor and Coordinator Medical Eng.)
- Presentation by our student association (FSI MedTech)
- Joint walk to the computer science tower; break with drinks and snacks
- Introduction to our online portals (FSI MedTech)
- Guided campus tour (FSI MedTech)
- Option to have lunch at the university canteen (Mensa)

Your "why"



- Why are you here?
- Why Medical Engineering?



The Diversity of Medical Engineering in Germany's **Medical Valley**



Growth Market Medical Technology



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%



Your "why" must go beyond job prospects!



- Potential job prospects are not going to carry you through a 4 + x semester master's program.
- You must find something in day-to-day uni life that interests you and motivates you.
- You don't have to be enthusiatic about every lecture every day, but if you are not enthusiatic about any lecture, you should take it as a sign that the program is not for you.
- Everybody assumes that you are here because you want to be here. → Nobody is going to push you towards receiving your degree.



Contact Persons (Medical) Engineering



Director Medical Engineering Program



Prof. Dr. Tobias Reichenbach

Chair for Sensory Neuroengineering: www.neurotech.tf.fau.eu
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

- questions regarding your studies
- accreditation of academic achievements
- help in situations of crisis
- Studying abroad in European countries (Erasmus+ program)
- = questions you cannot solve on your own by reading our website, study guide or FAQs

Examinations Office Faculty of Engineering



Helga Jahreis

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



- 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

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



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





(SSC TechFak)



Gisela Jakschik



Christine Mohr

tf-stib@fau.de

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

- 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)



Other FAU Services







www.faumail.fau.de

- Forward emails from your FAUmail account to you private email account!
 - Log into www.idm.fau.de "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!





Foreign Language Training

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

- Courses during the lecture period are free of cost.
- Intensive courses during the semester break have a fee.
- 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)
- Language courses are taught on-site, assistance is mandatory, places are limited. If you get into a course, assist regularly and finish it!
- 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 right away. Recommended VHB online course: "German after English"!



Foreign Language Training

Language tandem, offered by FAU Language Center:

https://sz.fau.eu/department-media-autonomous-learning/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 Studierendenwerk (Student Services)

- Open event next to cafeteria "Südblick", on Wednesdays 6-8 pm (starting from Oct 23)
- Current languages on offer: German, English, Farsi, Spanish, French
- You can offer to be a tutor for your own language!





<u>career-service@fau.de</u> www.career.fau.de



- Help with your job search (for student jobs & after graduation)
- Professional check of your 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 and networking for the LGBTQ+ student community
- Support for students experiencing discrimination/harassment of any kind (due to gender, ethnicity, religion, sexual orientation/identity etc.)
 → report cases of harassment!







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

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



23

Legal Advisory Service

rechtsberatung@werkswelt.de

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

 Free & professional advice on problems with rental contracts, work contracts, visa status etc.





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. You cannot "survive" in university life without locals who know how things work!!!





Buddy program

https://www.fau.eu/education/international/from-abroad/welcome-programme-for-international-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.





University Sports

www.hochschulsport.fau.de

- Different sports courses at a low price
- Registration for WS has already started (October 7), 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!
- Don't underestimate the effect of sports for your mental health!





How to find information...

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

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

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



How to find information...

Your best strategy to access the **other FAU 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:

- FAU is a public university. You don't pay tuition fees and we want it to stay that way!
- 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



What is ECTS?



- 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: ≈ 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.

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)

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 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: www.fau.tv)
- Recommended time for going abroad: 3rd or 4th semester (start planning now, see study program website)





- 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).

Exams



- 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.
- You have 4 chances in total for every exam (1 chance per semester). You can decide in which semester you want to take your exam attempts, but don't wait to long (lecturer might leave FAU, only 6 semesters are guaranteed for the master's)!
- Failed 4th exam 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 4th attempt!
- Cheating in exams is graded with 5.0 (failed) and reported to our examinations office. If you are caught cheating several times you are deregistered from the study program.



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 must 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!



Studying for exams

- Memorizing and reproducing course content is not enough. You are expected to understand the underlying concepts and apply them to new contexts (calculate, code etc.).
- Study with old exams from FSI (student association). But be aware: The
 exam will include questions/taks you have never seen before. You are
 expected to solve them independently.
- Start studying early on (i.e. when lectures start). You won't be able to prepare exams a few days ahead of the exam date.
- Find a system to study in parallel for several exams (exam dates will lie close to each other, you cannot study for one exam at a time).
- Attending the exercises and submitting exercise sheets regularly is your best exam preparation.
- Ask questions in class and during the exercises. It is seen as 100% positive and is highly appreciated by your lecturers!
- Form study groups with fellow students (it helps to compare and assess where you currently stand).

Exam results



- 1, 0 = best grade; 4,0 = worst passing grade; 5,0 = failed
- Grades are feedback on your skills!
- If you fail an exam once, it means that you prepared for it the wrong way. → Adapt your preparation strategy!
- If you fail several exams in your first semester → Ask yourself if it is your preparation strategy or if the program is not the right fit for you.
- If you continue to fail several exams and/or receive unsatisfactory grades (3,0 − 4,0) → prepare an exit strategy (other study program, other university/university of applied sciences, prepare to enter the job market etc.)
- If your studies aren't going well, don't wait too long to opt for alternatives!
 You will only lose time and money.
- You will not find a supervisor for the master's thesis with an unsatisfactory grade average.
- You will not find a job in Germany/Europe based on a master's degree with an unsatisfactory final grade.
- There is a fitting educational program for everyone. If it is not ours, search actively for yours!



Semester Dates

Winter semester 24/25 (Oct 1 2024 - March 31 2025):

Lecture Period: Oct 14 2024 - Feb 7 2025

Exam Registration: Nov 18 - Dec 8 2024

(Reminder via email!)

Re-registration for winter 2024/25: Feb 5 - 9 2025

(Reminder via email!)

Semester break (no lectures): Dec 20 2024 – Jan 6 2025

& Feb 8 – Apr 21 2025

Exam periods: Feb 10-22 & Mar 21-April 7 2025

Resources: www.fau.eu/education/study-organisation/semester-dates/ www.fau.eu/education/advice-and-services/examination-offices/examinations-office-faculty-of-engineering/





- V/L: Vorlesung/lecture generally no registration, attendance not mandatory. → Just attend the first lecture.
- Ü/E: Übung/Tutorium; exercise class/tutorial accompanies lectures, usually starts in the 2nd week, further details in the 1st lecture. Usually not mandatory, but completing the exercises may give you bonus points for the exam. Attending exercises = best exam preparation!→ 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



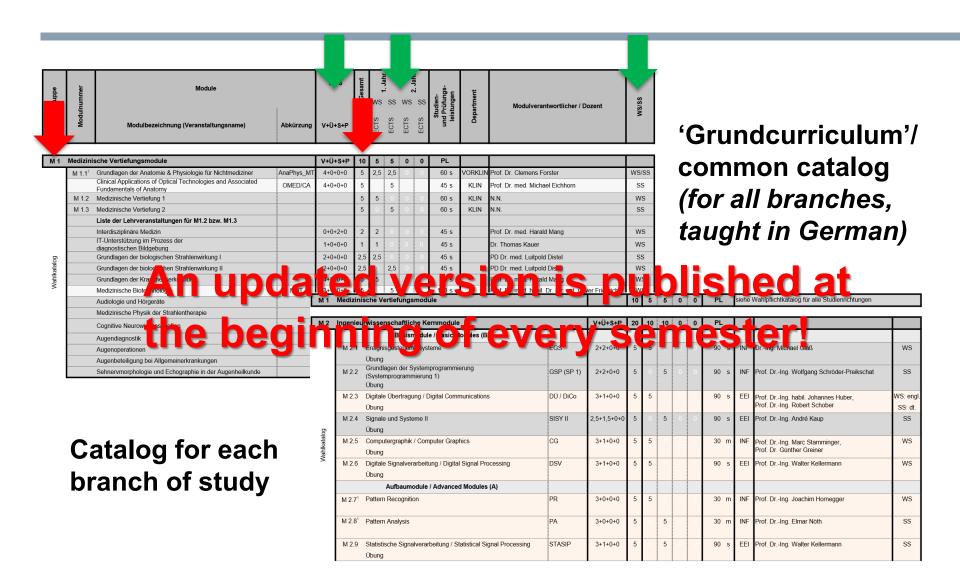
- Prüfungsleistung (PL)/Graded course achievement (gCA)
 - schriftlich/written
 - mündlich/oral
 - Seminar (presentation and paper)

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







Where can I find the catalogs?

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 2022".
- 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.medizintechnik.studium.fau.de/

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

- Study Guide (German and English version)
- Today's presentation slides (section "Start Current Students"/"Start 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 & thesis offers related to Medical Engineering

The written word is the most trustworthy source of information!





- 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 (beginning of 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 → Medical Engineering website

What's next?



- 1. Compile your class schedule
 - → Campo (guided session by student association today)
- 2. Join the first lecture meetings (starting Monday Oct 14)
 Lecture materials are shared via the e-learning platform StudOn
 If you encounter problems with the StudOn course → attend the first lecture meeting and ask your lecturer!
- 3. Register for exams → Campo (Nov/Dec, reminder via email)
- 4. Re-register for the next semester (1st week of February)
 - → Campo, bank transfer (reminder and details via email)
- 5. Study continuously from the beginning & pass exams!



Good to know...



Important information for international/non-EU students



- No enrollment = no study visa! Failed 4th (=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: When you register for a 4th attempt for any exam, 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 📙 🩈 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 (www.vhb.org) & speak German at university!
- Seek the advice of our officer of the German Employment Agency early on (consultation) sessions at our faculty: michael.huemmer@arbeitsagentur.de)
- Network with companies in the region (attend events by Medical Valley Center, Zollhoff Tech Incubator, Fraunhofer Institute, job fairs etc.).
- Be active: Prepare for the worst case scenario, so that you have the best possible time in Germany!

Important medical information



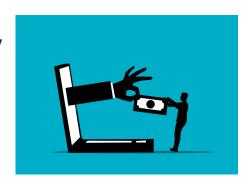
- Make an appointment with a general medical practitioner and get all the recommended vaccines (among others: tick-borne encephalitis, TBE)!
- If you are not vaccinated with an EU-approved covid vaccine yet, you
 can also get vaccinated by any general practitioner.
- All recommended vaccines are covered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



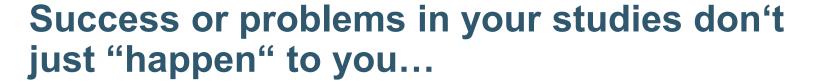
How to avoid pitfalls



 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!

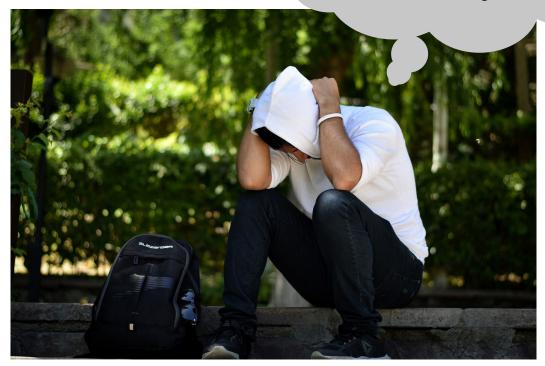


- Don't share your personal data and passwords!
- Beware of scams when looking for housing! Don't transfer any money before you have seen the place and signed the rental contract. If something seems fishy, have the offer checked by our Accommodation Service (accommodation@fau.de)
- Intellectual property (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!





failed 4th exam attempt
= deregistration from
the study program =
loss of study visa!







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.



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







Let's attend a university event! 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!