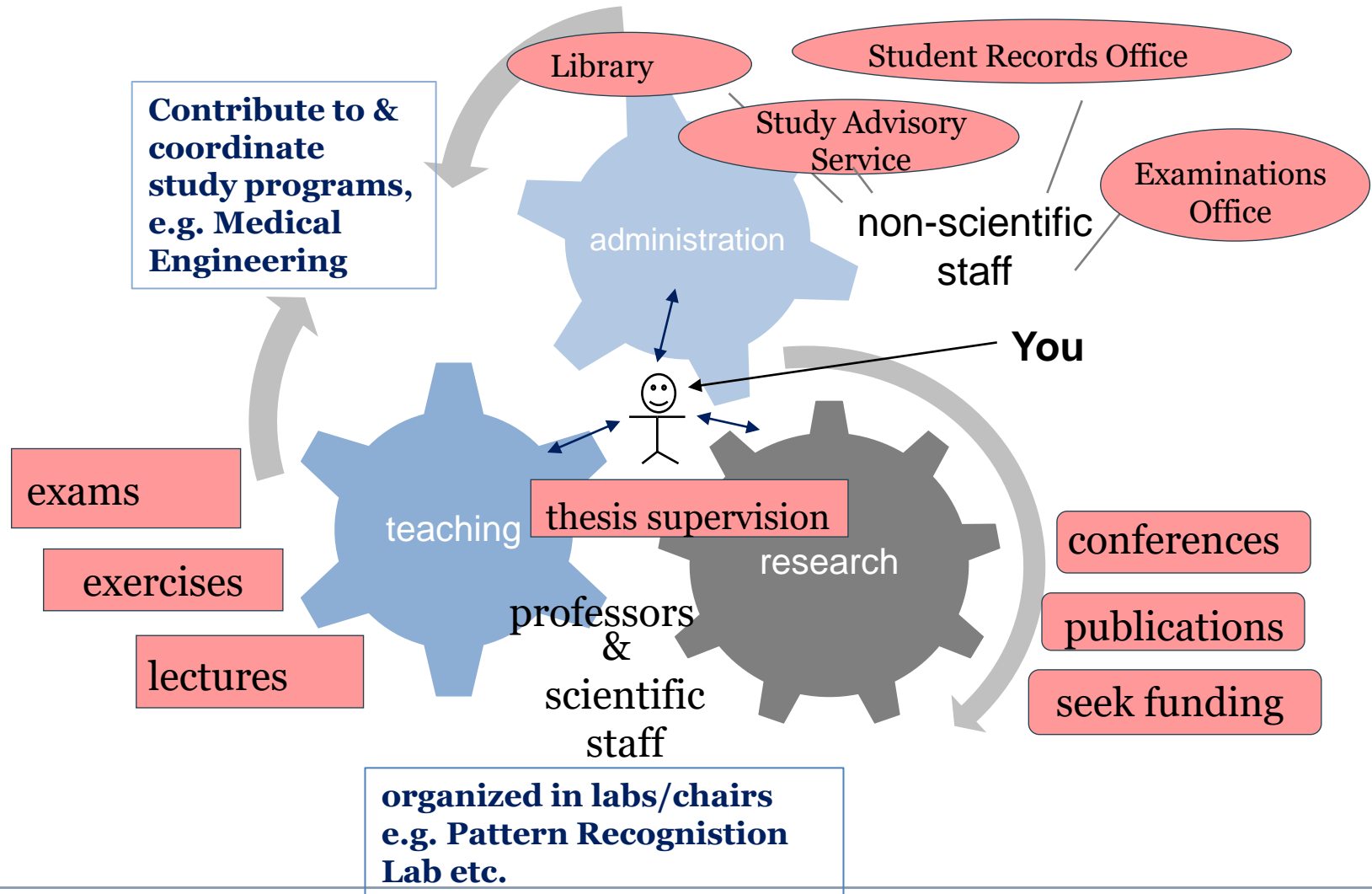


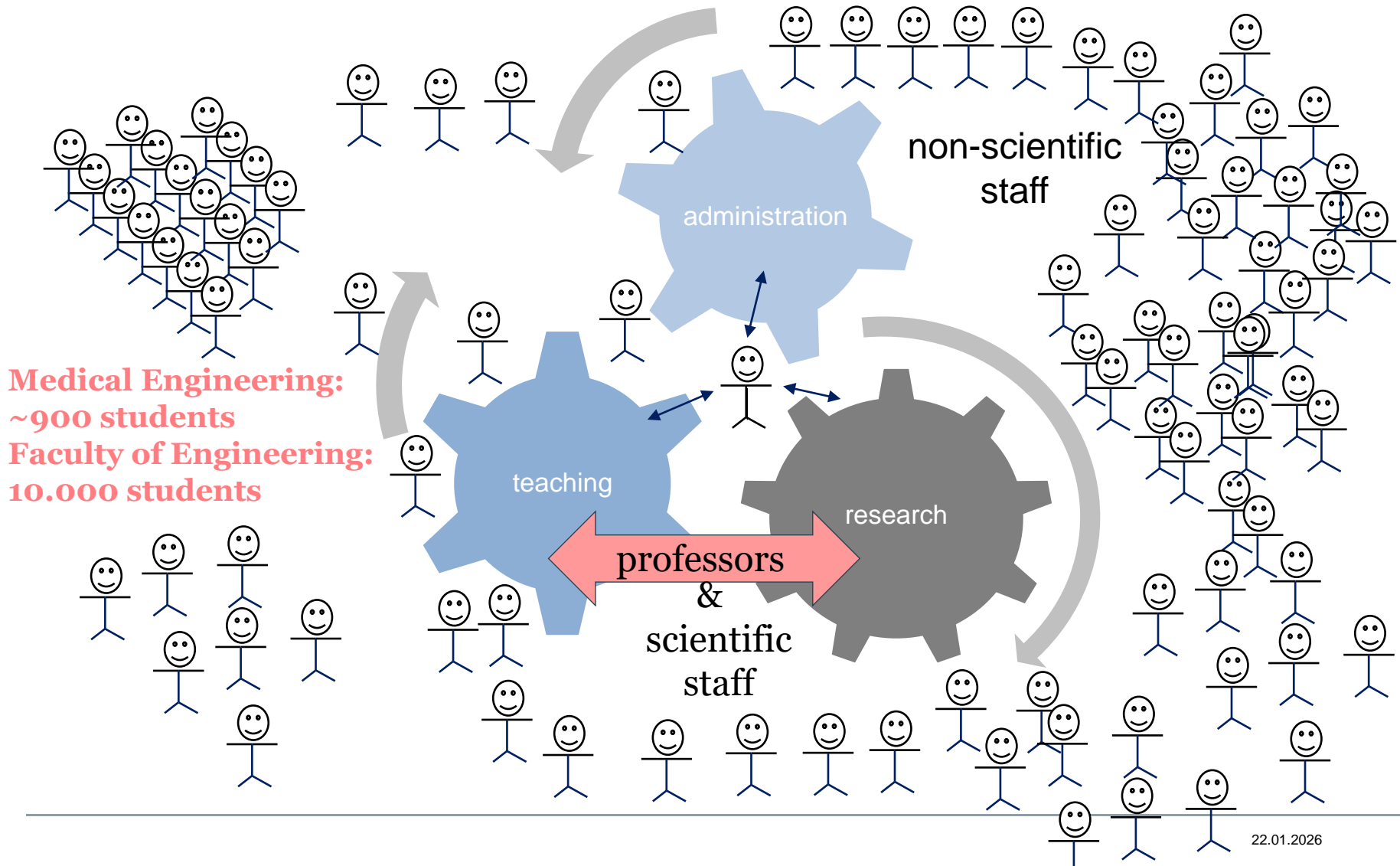
How to find a final thesis

Networking Night Medical Engineering, WS 25/26
Claudia Barnickel

The general context: research at university



The general context: research at university



From the beginning of your studies

- Do not only focus on passing exams and earning credits. Be **intentional** with your course selection, it forms your profile as a thesis candidate. (Avoid „course salad“!)
 - Inform yourself which labs are involved in the curriculum of your program.
 - Ask yourself regularly:
 - Which courses do I find interesting - and why?
 - Which lecturer's teaching style and personality do I enjoy? What is their chair/lab called? Is it a big lab (= theses will be supervised by PhD students) or a small lab (theses may be supervised by the professor themselves)?
 - In which areas am I lacking knowledge? → Intentionally choose courses that will help you fill those gaps!
 - Which tasks/topics am I good at?
 - Which topics would I like to know more about?
- Save these pieces of information regularly on your phone/computer. → When the end of your studies approaches, you already know where to start looking for a thesis!**
- Attend the various networking events/social events of our program/faculty and **TALK TO PEOPLE!!!!!! No socializing = no thesis.**

At the beginning of your penultimate semester

- Check whether you meet all the requirements to start your thesis in your ultimate semester:
 - bachelor's program:
 - GOP has to be passed.
 - You have acquired at least 110 credits.
 - master's program:
 - All mandatory modules have to be passed (see footnotes in module catalog).
 - You have acquired at least 75 credits.
- Start looking on the websites of your favorite labs (section “research”/“theses”/“student projects” or similar) which theses are on offer. Ask yourself **honestly**: Would I have the required knowledge to work on such a topic?
 - **If not: Use the semester to take courses offered by the lab and study hard = best preparation for a thesis at the same lab**

During your penultimate semester: best approach

Actively look for your thesis topic via *personal contact*:

- Attend courses on-site and regularly (especially smaller ones, in which you can build a personal relationship with your lecturers, e.g. seminars, research lab projects or less frequented "special interest" lectures). Be active in the course meetings, show that you are prepared, and ask questions. Approach your professor after class, ask if they have 5 min. and inquire about options for a final thesis.
- Attend academic events by your favorite labs (conferences, scientific talks etc.) and talk to the researchers there. (Follow your favorite labs via social media!)
- While working at a lab (e.g. for the research lab module), be good at your work, be present on-site and use coffee breaks to chat with the lab members. Actively communicate your interest in their research.
- Always approach potential supervisors with a friendly and collaborative attitude. As a student, you are not entitled to carry out your thesis at a specific lab or with a specific professor, hence you cannot demand anybody's supervision. Instead, you should show why you are a good thesis candidate for a determined supervisor (look at it as a type of job interview).

During your penultimate semester: second-best approach

Actively look for your thesis topic *via email*:

- You'll have to send out a bunch of emails to members of different labs before you receive a (positive) reply. This is not a rejection of you as a person. Our staff is very busy and receives hundreds of emails per day.
- Keep your email short and concise (3 - 5 sentences). Our staff appreciates it if you are respectful with their time. Long emails will not be read.
- Don't send generic emails (NEVER chatGPT-generated emails). The recipient will realize that you didn't put any effort into them.
- Show that you are familiar with the person's research work (actually do some research on their work!) and that you are motivated to work on a topic from their research area. Be as specific as possible and avoid empty statements.
- Show that you have some experience with the subject in question (e.g. mention corresponding lectures or projects you have completed).

Tips for contacting supervisors via email

- Communication style: Start with a personal salutation (address people with their *correct* name, gender + academic title!), end with a thank you and sign the email with your complete name, the name of your study program and the semester you are in. Avoid spelling mistakes and proofread your email before you send it. Your email should be easy to read for the recipient.
- If you have a good grade average, it can help to submit a current Campo overview together with your email. If you cannot prove good grades, it is advisable to apply without a grade overview but to invest even more time and energy in writing an impeccable email and in showing your knowledge of the subject and your motivation.
- Inform yourself about the most important public/religious holidays in Germany and don't send your email during those holidays. You should also consider that most staff members take a longer summer holiday and/or attend international conferences during the months of August/September. → They will not respond or respond less during that time.

Common pitfalls and how to avoid them

You do not know yourself well enough (yet):

- Instead of concentrating on which lab/professor you would like to work with due to their reputation (e.g. "I must work with Prof. X because they are a big name in their field!") you should look at your Campo grade overview and determine which subjects you are actually good at.
- It is advisable to look for a topic in the areas which you have good grades in, as this strategy is most likely to result in a successful thesis project for you.

→ Focus on the subject areas you have the most solid knowledge in and build on this knowledge with additional courses and eventually, your thesis project.

Common pitfalls and how to avoid them

You are not taking the supervisor's perspective:

- A thesis supervision is a two-way-street: You need a supervisor to guide you, the supervisor needs students who contribute successfully to their research.
- Ask yourself which kind of person a supervisor would like to work with regarding
 - academic skills
 - time management
 - reliability
 - personal interaction/attitude

→ Identify which aspects you need to improve in order to be an attractive candidate for a thesis – and work on yourself!

Common pitfalls and how to avoid them

Inadequate communication style:

- Expressing your admiration for a person or to flatter them might be perceived as fake or manipulative and cause negative emotions. Example: Instead of writing “I admire your ground-breaking research in the field of x” it is better to keep it low-key and subject-related: “I have read your paper on “x” and found your approach for “y” very interesting”.
- When doing your research for the thesis, you are expected to be proactive and come up with your own ideas and solutions. Your supervisor will not tell you exactly what to do, but only point you in the right direction. When you have contact with a supervisor, you should present as a person who has a good understanding of their research field and a hands-on attitude.

International students: You don't know which kind of communication style is considered adequate in this context in Germany? → **Take one of the workshops in intercultural communication which are offered regularly (and for free!) by the Study Service Center of the Faculty of Engineering, our International Office and our FAU Career Service.**

Example: Inadequate communication style

Respected Sir/mam,

I am [REDACTED], writing to you this mail to express my interest in doing **Master's Thesis topic under your supervision** if you are available for next summer semester 2024.

I'm a WS(2022/23) year student at FAU, Erlangen, where I'm mastering in Medical Engineering with the specialization of **Medical Image and Data Processing**. As I enter my third semester, I have finished 65 ECTS and received a grade of 2.6 and expecting **80 credits** at the end of my **current(3rd) semester**.

I have completed courses like **pattern recognition , pattern analysis and machine learning** , which has given me the edge to work on different image modalities. Also, I have gained hands on experience with **developing CNNs for classifying the brain tissue** segmentation in different classes and also work on **optimizing EPI and Flash Sequence** for MR scanner.

In current semester ,I have Also taken **deep learning course** to get more
indeep knowledge of
ML

/DL algorithms used in **image reconstruction /segmentation** of different modalities.

I have completed **MRI 1&2, MRI pulse sequence programming ,Computational MRI and Diagnostic image processing(X-ray/CT imaging)** courses.

I have developed some programming knowledge in **Python**, C+, and Embedded C. I am also proficient in tools like MATLAB, **Visual studio code**, PyCharm,Microsoft office,proteus. I am familiar with the **python libraries like PyTorch, OpenCV, tensorflow, Pandas, Keras and scikit-image** and others.

Thank you for considering my application. Looking forward to **discussing some amazing innovative Ideas with you**.

Here I am attaching my CV & Transcript for your reference.

Regards,
[REDACTED]

Frequently asked questions

Can I propose my own topic to a supervisor?

- You can, but there is no guarantee that it will be accepted. Try to identify whose expertise aligns most with the research task that you have in mind.
- When you approach the supervisor, make sure your proposal is well-prepared (i.e. you have already done some research about it, looked into the relevant literature etc.)

Can I do my thesis in collaboration with an industry partner?

- In principle, yes, but you have to find a suitable FAU professor who is willing to supervise it.
- Chances are very low if the professor doesn't have any connection with the company yet.
- Your chances are better if you inquire which industry collaborations already exist at your favorite FAU lab. Your supervisor needs to see you as a reliable and competent thesis candidate to connect you with a trusted industry partner!

Last but not least

- Use your FAU email address when communicating with supervisors.
- Always communicate via email, don't use StudOn, LinkedIn, Whatsapp, WeChat etc.
- Tip for international students: It is generally not a good idea to choose a supervisor from your home country. If you communicate in your native language, nobody in the university administration will be able to help you if conflicts occur. If you must work with somebody who speaks your native language, ask them from the start to only communicate in English in order to train your academic language skills.
- Many labs will give you 1-2 months to prepare before they officially register your thesis. Use this time to understand the topic and the work culture at the lab. After this period, **make sure the thesis is registered** to avoid legal uncertainty as well as the “endless thesis phenomenon”!
- If problems occur, talk to your study advisor **early on!**

- ...on thesis registration rules and deadlines, how to handle cases of illness during the thesis period etc.:
<https://www.medical-engineering.study.fau.eu/current-students/thesis-paper/>
<https://www.medizintechnik.studium.fau.de/studierende/abschlussarbeiten/>
= must-read for anybody planning a thesis!
- This presentation will be uploaded to
<https://www.medical-engineering.study.fau.eu/current-students/>
<https://www.medizintechnik.studium.fau.de/studierende/>

Thank you for your attention!
Questions?