

# TUM Campus Straubing for Biotechnology and Sustainability

TUM



**M.Sc. Chemical Biotechnology**  
**M.Sc. Biomass Technology**  
**M.Sc. Sustainable Energy and Processes**

# Agenda



Introduction to TUM Campus Straubing

Master's Program at TUM Campus Straubing

Application and Admission Process

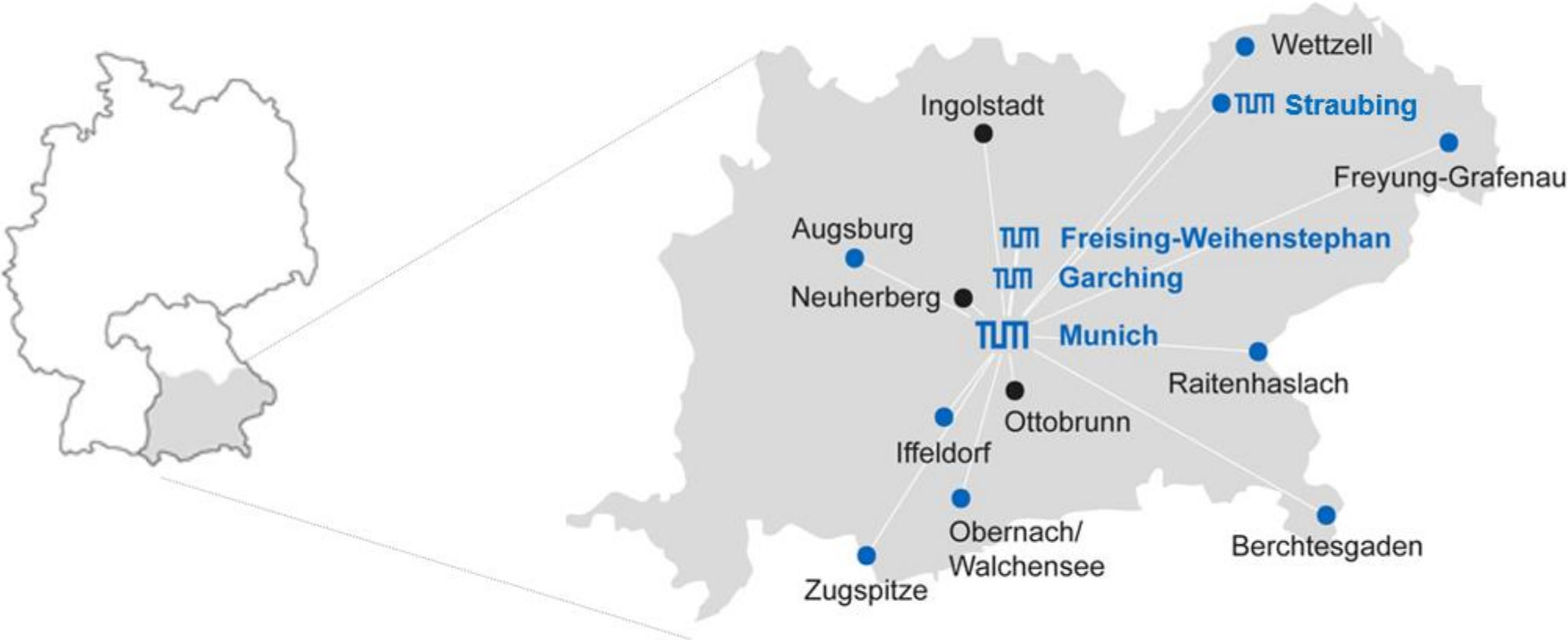
Being a student at TUM Campus Straubing

Q&A Session

# TUM Campus Straubing is the 4th campus of TUM in Bavaria



- TUM Locations
- Scientific Networks



# TUM Campus Straubing of Sustainability and Biotechnology



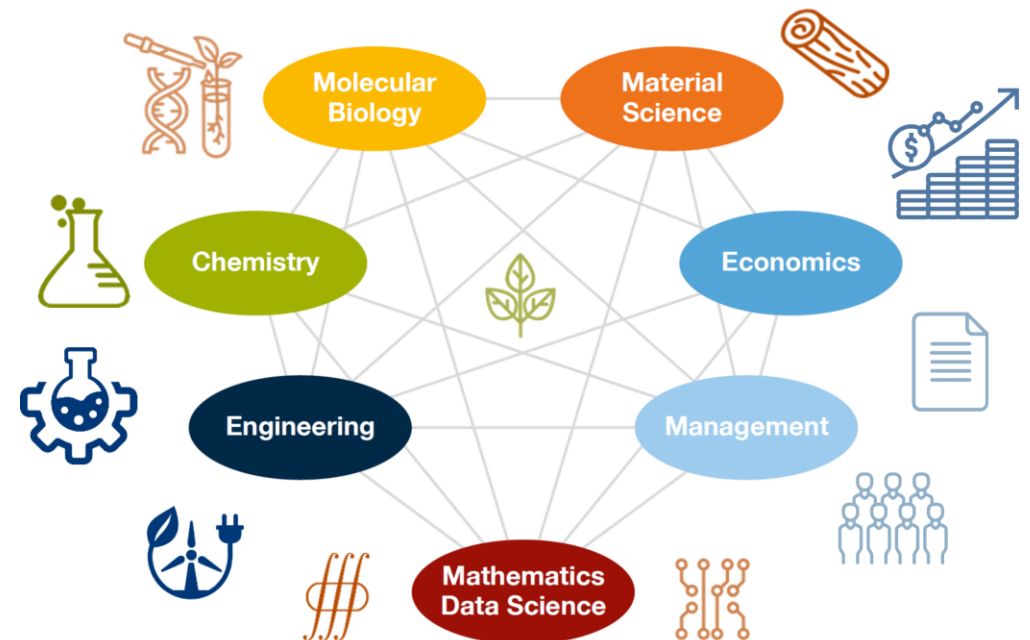
Campus Straubing is one of TUM's teaching and research locations in Germany since **October 2017**. It is organized as an **integrative and interdisciplinary research center**. Professors have affiliation also with other faculties/schools.

Study programs cover the **entire value chain of biogenic raw materials and waste streams**. The unique feature of the interdisciplinary center is the research and teaching focus on **sustainability and biotechnology**.

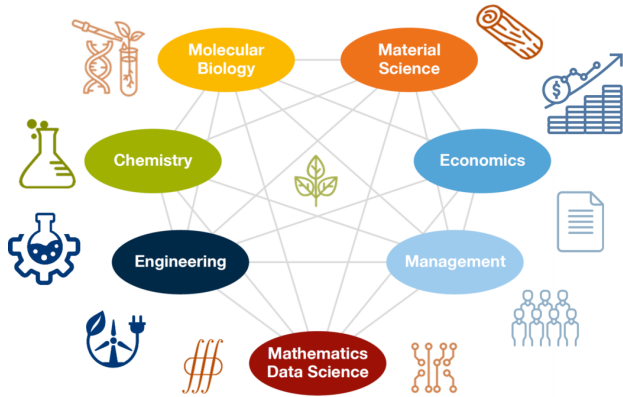
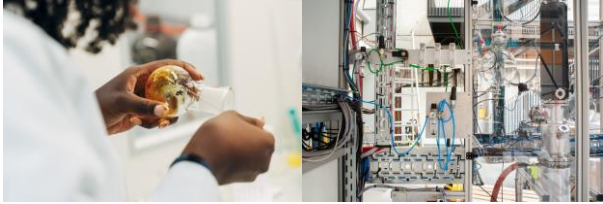
## Mission of TUMCS: making bioeconomy happen

The mission of TUMCS is to enable the **transformation of the economy and society towards sustainability** via a profound interdisciplinary research and training in sustainable bio- and circular economy.

The unique selling point of TUMCS is that it bundles and connects the cross-cutting expertise and experts in the relevant fields of biotechnology, chemistry, economics, management, material science, process engineering and social sciences and placing them under one roof.



# Mission of TUMCS: making bioeconomy happen



The transformation of industry and society:

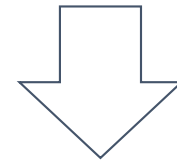
- Intensified research (biological, chemical, physical, technical, engineering)
- Transportation, media and information technologies, economic and social sciences must be adapted

**Teaching** has to integrate these topics



**Interdisciplinarity**

is essential for the realization of a bioeconomy



**Research** has to integrate these topics

# TUMCS Buildings in Straubing



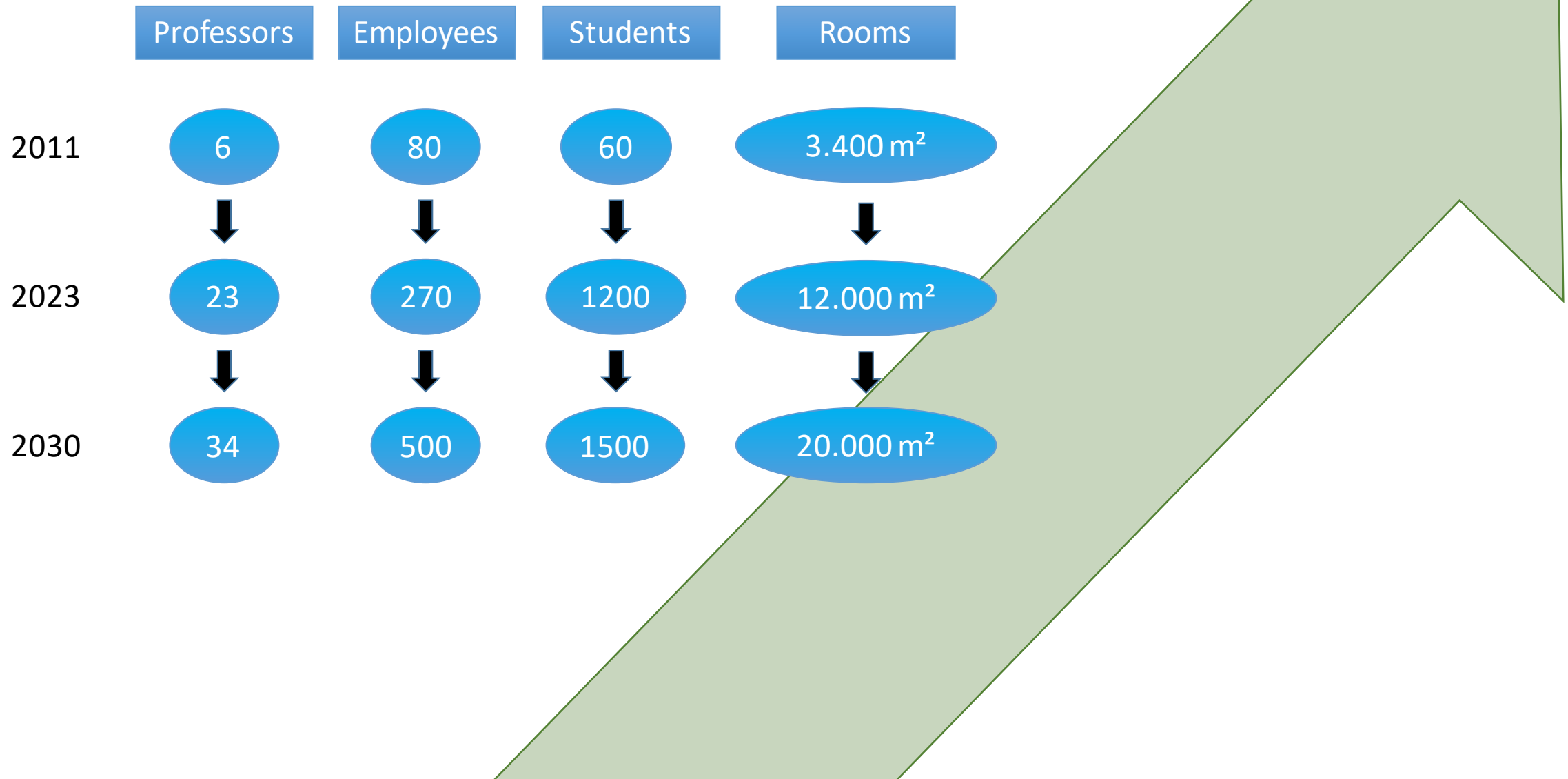
All TUMCS buildings in Straubing.

■ Buildings in use

■ Future buildings



# TUM CS – A Thriving Campus





A modern, multi-story building with a grey concrete facade and a section of vertical wooden slats. Four blue flags with the TUM logo are flying on tall poles in front of the building. The sky is blue with scattered white clouds. In the foreground, there is a concrete wall and a paved area.

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# Program structure of M.Sc. Chemical Biotechnology

Semester 1	Semester 2	Semester 3	Semester 4
Applied Microbiology and Metabolic Engineering (5 CP)	Advanced scientific planning based on current research topics at TUM (5 CP)	Technical Electives (total of 25 CP)	Master's Thesis (30 CP)
Enzymatic Biotransformations (5 CP)	Technical Electives (total of 25 CP)		
Conceptual Design of Bioprocesses (5 CP)		Technical Electives (total of 25 CP)	Interdisciplinary Electives (total of 5 CP)
Technical Electives (total of 15 CP)			
90 CP			30 CP

# Electives

## Technical Electives Micro & Molecular Biology

Enzyme Engineering, Regulation of Microbial Metabolism, Plant Biotechnology, Advances in Metabolic Engineering

## Technical Electives Chemistry

Sustainable Chemistry, Advanced Electrochemistry, Production of Renewable Fuels, Renewables Utilization

## Technical Electives Process engineering

Biorefinery, Conceptual Process Design, Applied Process Engineering

## Technical Electives Specializations

Electrobiotechnology, Artificial Intelligence of Biotechnology, Biological Materials in Nature and Technology, Polymer Processing, Research Internship Master Chemical Biotechnology

## Interdisciplinary Electives

Angewandte Ethik zu Nachwachsenden Rohstoffen, Arbeitswissenschaft und Arbeitssicherheit, Beratung und Kommunikation, Corporate Sustainability Management, English, Führungspsychologie, Heil- und Gewürzpflanzen, Renewable Resources at Schools, Rhetoric and Dialectic, Social Media Marketing, Spanish

# Program structure M.Sc. Biomass Technology

Master's Thesis							30 Credits
Elective modules of Category 1							20 Credits
Specialization modules of Category 2							48 Credits
Production and Provision of Biogenic Raw Materials 12 Credits	Materials 12 Credits	Chemicals-Material Use 12 Credits	Life Cycle Assessment 12 Credits	Management 12 Credits	Economy 12 Credits	Energetic Use 12 Credits	
Subject elective modules of Category 3							19 Credits
General elective modules of Category 3							3 Credits

# Program structure M.Sc. Sustainable Energy and Processes

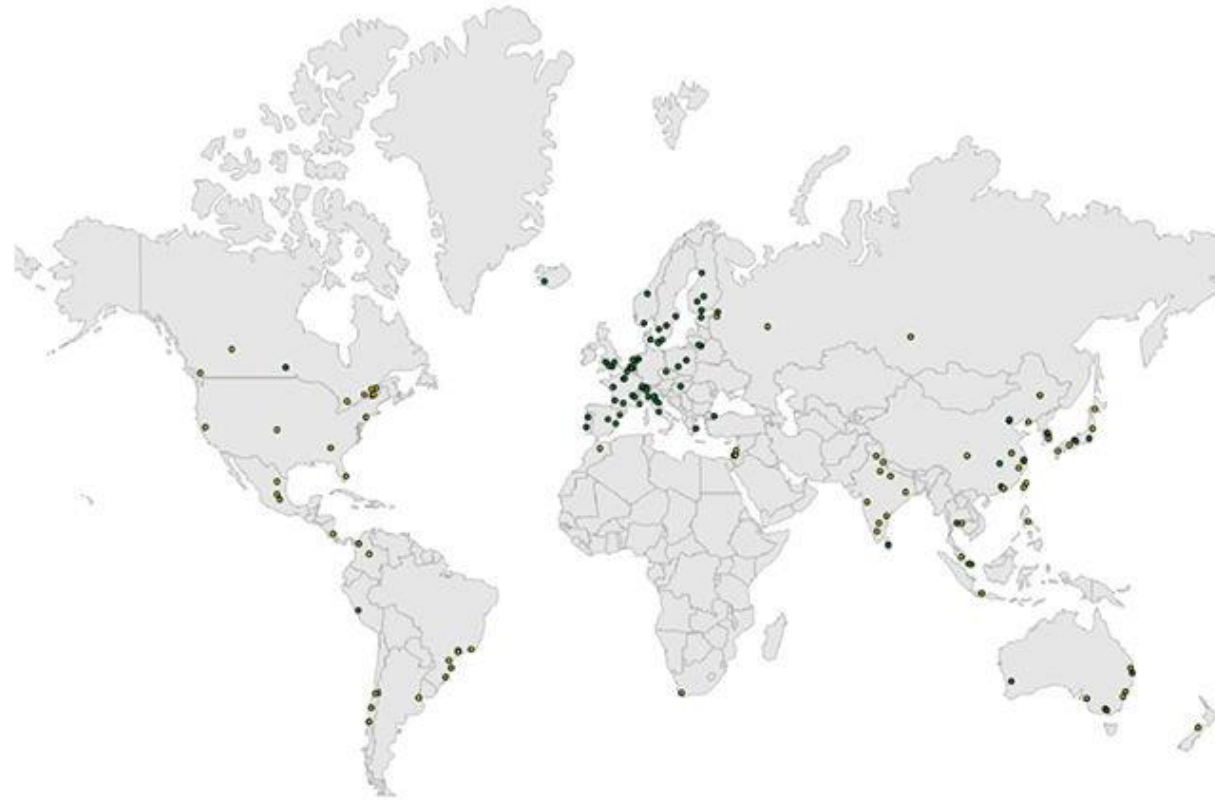
## Module Plan

Example Study Plan for the Master's Program in **Sustainable Energy and Processes**  
Including mandatory and selected elective modules.

Semester	Module						Credit Points / Number of exams
1.	Conceptual Design of Fluid Separation	Technical Thermodynamics and Balancing	Mechanical Processing of Biogenic Materials	Conceptual Design of Bioprocesses	Corrosion and Surface Technologies	Introduction to Management of Renewable Resources	30/6
	Oral Exam 5 CP	Written Exam 5 CP	Written Exam 5 CP	Written Exam 5 CP	Written Exam 5 CP	Written Exam 5 CP	
2.	Energy & Economics	Advanced Downstream Processing	Carbon Capture, Storage and Utilization	Biogas Technology	Sustainable Fibres Technologies	Principles of Economics	30/6
	Written Exam 5 CP	Written Exam 5 CP	Oral Exam 5 CP	Written Exam 5 CP	Written Exam 5 CP	Written Exam 5 CP	
3.	Energy & Process Engineering Project	Energy Process Engineering	Energy and Process Research Lab		Research Internship	Englisch - Intensive Thesis Writers' Workshop C2	30/5
	Project Work 8 CP	Written Exam 6 CP	Lab Work 8 CP		Report 5 CP	Written Exam 3 CP	
4. <b>Mobility window</b>	Master's Thesis						30/1
	30 CP						
Legend:	Compulsory Module	Technical Electives	General Electives	Master's Thesis			

# Going abroad

- 50 countries
- 235 universities
- Deadline: January 15th each year
- Third semester abroad



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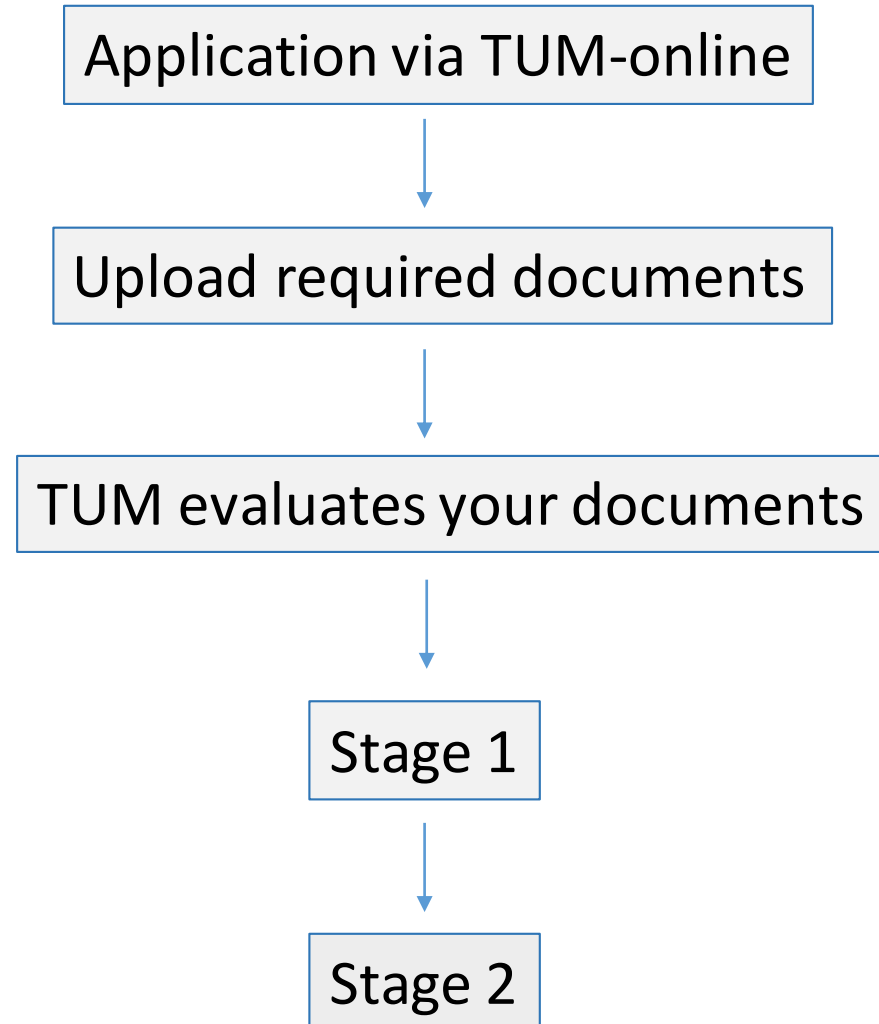
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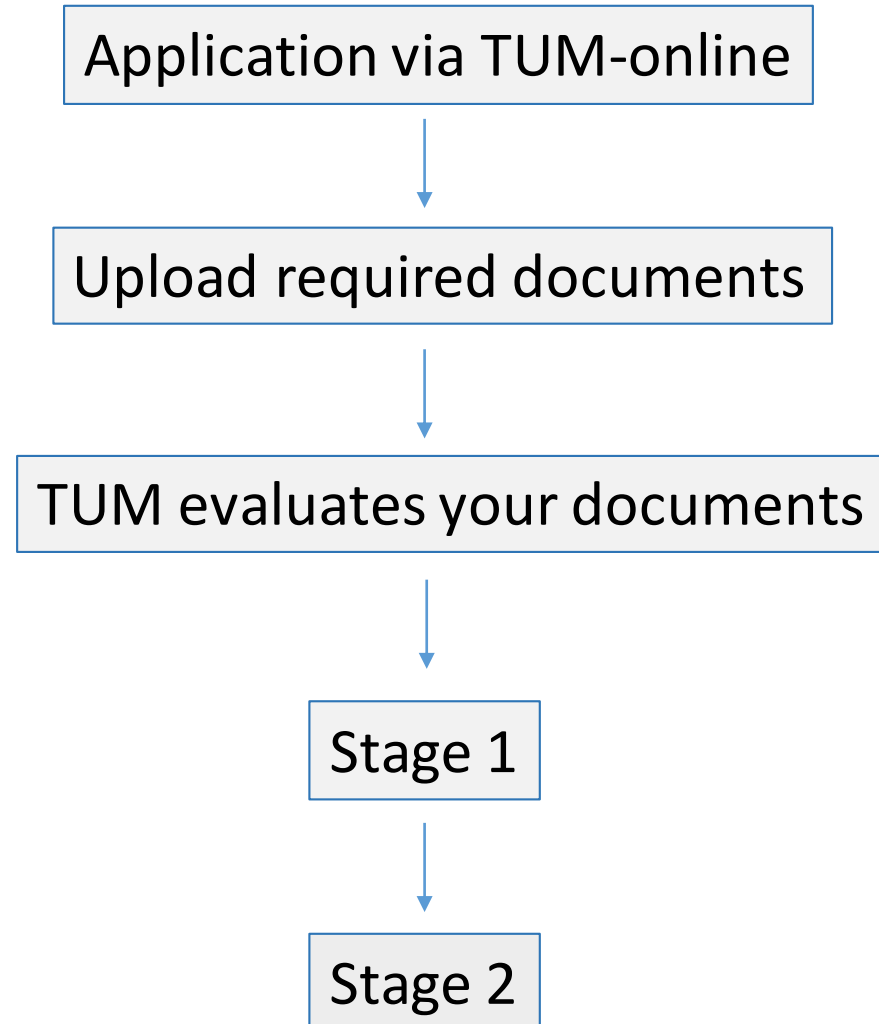
Q&A Session

# Details of the aptitude assessment procedure



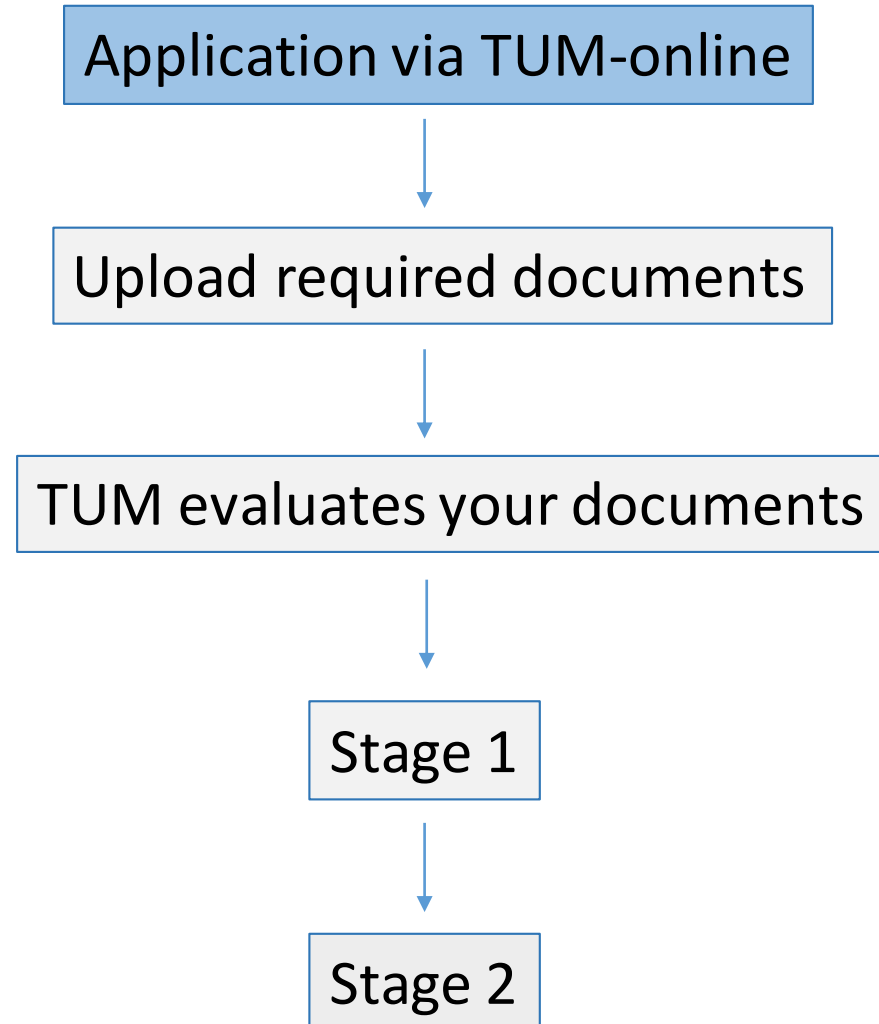


# Details of the aptitude assessment procedure



**Please note:** the admission team of TUM Campus Straubing is **not** involved in this steps and cannot give any feedback during this process. If you have question regarding this step please contact the **TUM Center for Study and Teaching**.

# Details of the aptitude assessment procedure

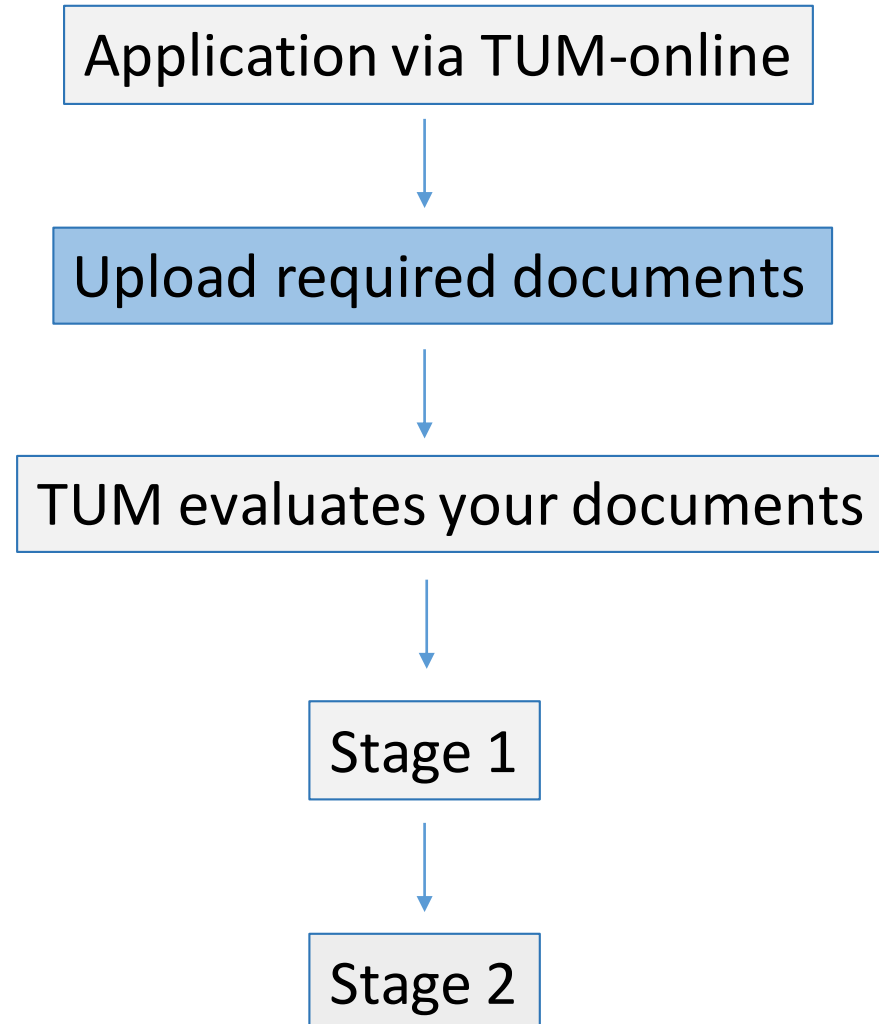


# Details of the aptitude assessment procedure

## General information:

- Application via TUM-online within the application period:  
winter semester: **01.04.- 31.05.2025 (next!)**  
summer semester: 01.11.2025 – 30.11.2025
- The application process runs completely online. You no longer have to submit any hardcopies to TUM at this point.
- Documents issued in German do not have to be translated

# Details of the aptitude assessment procedure

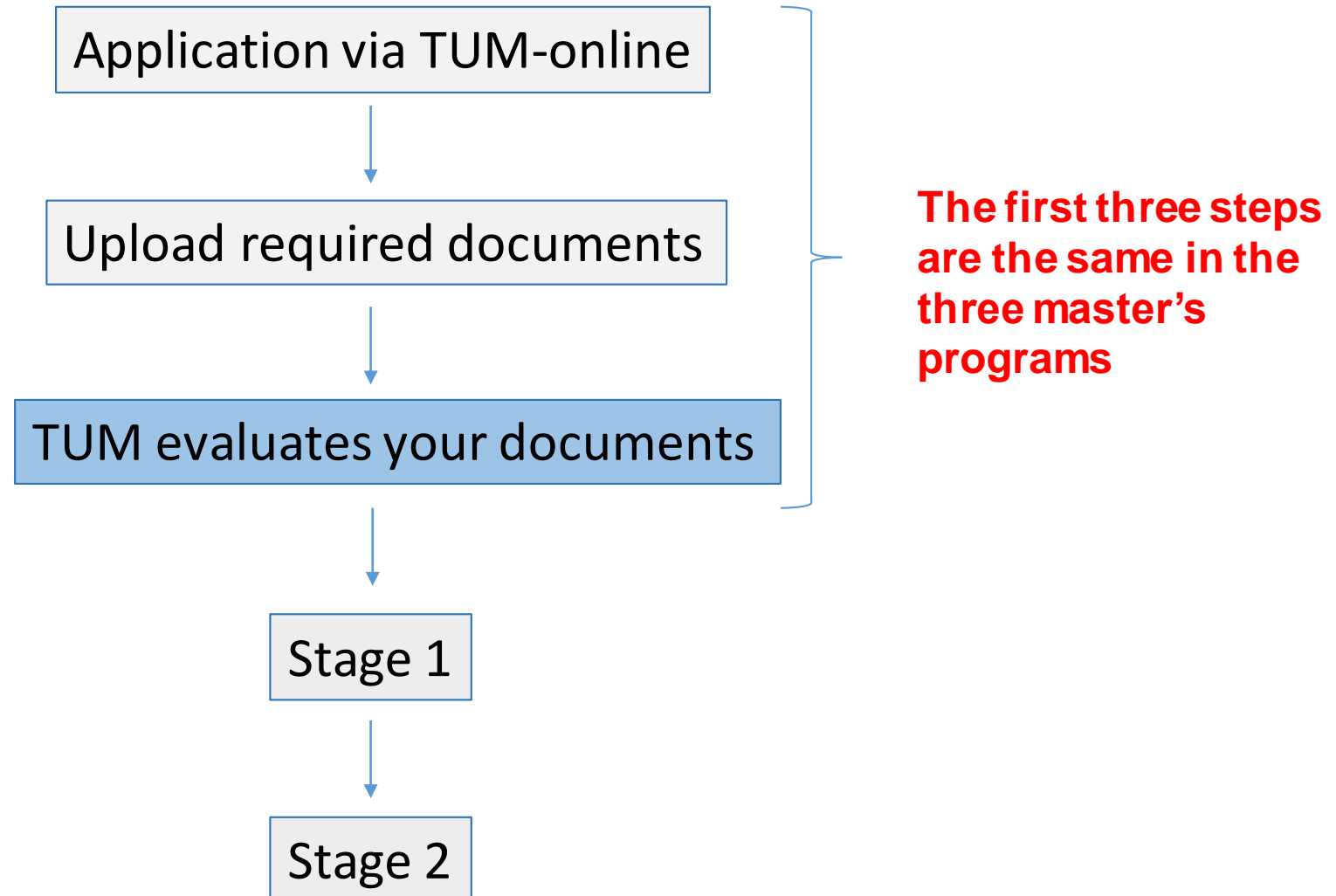


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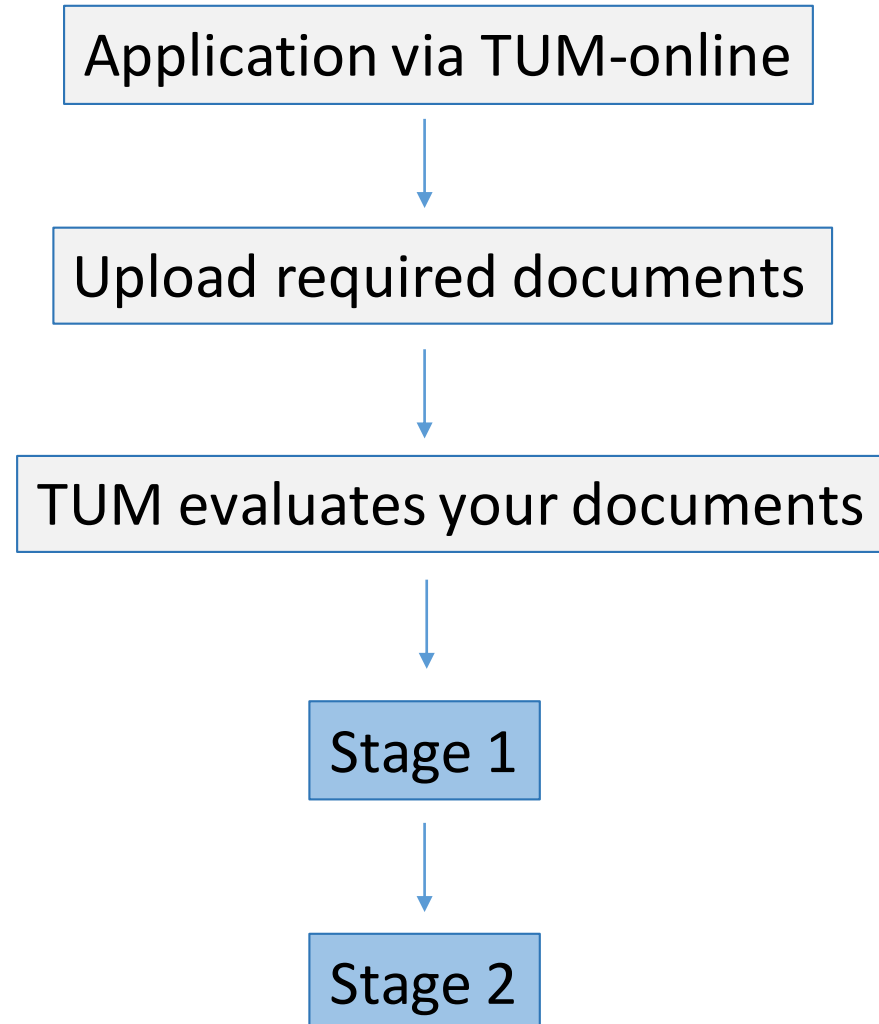
## Required documents:

- Signed application form
- Bachelor's degree certificate
- Transcript of Records (at least 140 ECTS at the time of application)
- Curricular Analysis of your professional qualifications
- Proof of English Language Proficiency (e.g. TOEFL, IELTS, CAE certificate, 12-15 credits in English modules)
- Complete and current Resume/Curriculum Vitae
- Passport
- For admissions from non-EU/EEC countries: preliminary documentation by uni-assist

# Details of the aptitude assessment procedure



# Details of the aptitude assessment procedure



# Details of the aptitude assessment procedure / M.Sc. Chemical Biotechnology

## Stage 1:

- Professional qualifications (→ max. 70 points)
  - Basics (Physics, Advanced Mathematics, Foundations of Programming, Statistics)
  - Chemistry
  - Molecular Biology
  - Process engineering
- Grade Point Average (GPA) (→ max. 30 points)

→ $\geq 70$ points	→ Admission in Stage 1
→ $< 50$ points	→ Rejection
→ 50-69 points	→ Stage 2



# Details of the aptitude assessment procedure / M.Sc. Chemical Biotechnology

## Stage 2:

- Aptitude Test (40 questions / 60 minutes) → max. 30 points

professional qualifications (stage 1)

+

GPA (stage 1)

+

Aptitude Test



→  $\geq 70$  points → Admission in Stage 2

→  $< 70$  points → Rejection

# Details of the aptitude assessment procedure / M.Sc. Biomass Technology

- Grade Point Average (GPA) → max. 20 points
- Aptitude Test → max. 60 points

→  $\geq 30$  points      → Admission

→  $< 30$  points      → Rejection

# Details of the aptitude assessment procedure / M.Sc. Sustainable Energy and Processes

## Stage 1:

- Professional qualifications (→ max. 70 points)
  - Engineering Fundamentals (Chemistry, Technical Mechanics, Materials Science, Thermodynamics, Fluid Mechanics, Heat Transfer, Measurement and Control Engineering) → 35 points
  - Energy Technology (Power Engineering, Electrical Engineering) → 10 points
  - Process Engineering (Chemical / Thermal / Mechanical Process engineering, Bioprocess Engineering) → 25 points
- Grade Point Average (GPA) → max. 30 points

→  $\geq 70$  points → Admission in Stage 1

→  $< 50$  points → Rejection

→ 50-69 points → Stage 2

# Details of the aptitude assessment procedure / M.Sc. Sustainable Energy and Processes

## Stage 2:

- Aptitude Test → max. 60 points

professional qualifications (stage 1)

+

GPA (stage 1)

+

Aptitude Test



→  $\geq 110$  points → Admission in Stage 2

→  $< 110$  points → Rejection

# Tuition Fees for Students from Non-EU Countries

- At the Technical University of Munich (TUM), tuition fees are charged for international students from third countries who newly enroll in a degree program starting in the winter semester of 2024/25.
- The tuition fee per semester will be **4,000 €** for a Master's program in Straubing

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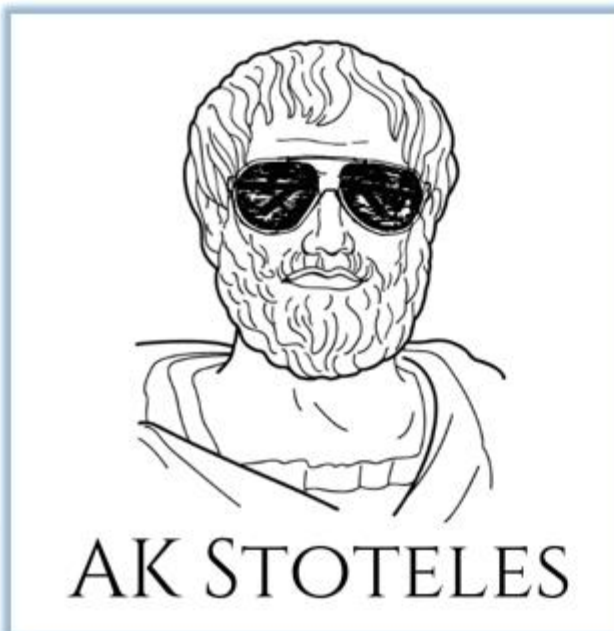
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# Being a student at TUM Campus Straubing

- Young, motivating and innovative Professors
- New buildings, modern laboratories
- Relatively inexpensive living costs
- Small campus, good connections to professors and other students
- Beautiful nature surrounding Straubing
- Lots of free time activities



# Student clubs and activities





# TUM Sustainability Career Day



# Social Media and Contact Information



TUMCampusStraubing

Groups: TUM – Campus Straubing, Studentenwohnungen Straubing



@tumcampusstraubing



TUM Campus Straubing



TUM Campus Straubing

[www.cs.tum.de](http://www.cs.tum.de)

studieren.straubing@tum.de



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Thank you!

