TUM Campus Straubing for Biotechnology and Sustainability

M.Sc. Chemical Biotechnology
M.Sc. Biomass Technology
M.Sc. Technology of Biogenic Resources
TUM Campus Straubing is the 4th campus of TUM in Bavaria
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
All TUMCS buildings in Straubing.

- Buildings in use
- Future buildings
TUM CS – A Thriving Campus

<table>
<thead>
<tr>
<th>Year</th>
<th>Professors</th>
<th>Employees</th>
<th>Students</th>
<th>Rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>6</td>
<td>80</td>
<td>60</td>
<td>3.400 m²</td>
</tr>
<tr>
<td>2023</td>
<td>23</td>
<td>270</td>
<td>1200</td>
<td>12.000 m²</td>
</tr>
<tr>
<td>2030</td>
<td>34</td>
<td>500</td>
<td>1500</td>
<td>20.000 m²</td>
</tr>
</tbody>
</table>
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Being a student at TUM Campus Straubing

Q&A Session
Program structure of M.Sc. Chemical Biotechnology

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

90 CP

Interdisciplinary Electives (total of 5 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 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. Technology of Biogenic Resources

<table>
<thead>
<tr>
<th>Semester</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Renewables Utilization</td>
<td>Energy process engineering</td>
<td>Mechanical process engineering</td>
<td>Conceptual process design</td>
</tr>
<tr>
<td></td>
<td>Wahlmodul technisch</td>
<td>Wahlmodul technisch</td>
<td>Wahlmodul technisch</td>
<td>Wahlmodul technisch</td>
</tr>
<tr>
<td></td>
<td>Cooperative Design Project</td>
<td>Energetic use of biomass and residuals</td>
<td>Wahlmodul technisch</td>
<td>Wahlmodul technisch</td>
</tr>
<tr>
<td></td>
<td>Wahlmodul technisch</td>
<td>Wahlmodul technisch</td>
<td>Wahlmodul technisch</td>
<td>Wahlmodul allgemein</td>
</tr>
<tr>
<td></td>
<td>Master's Thesis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Wahlmodul technisch* refers to technical elective modules.
*Wahlmodul allgemein* refers to general elective modules.
# Program structure M.Sc. Technology of Biogenic Resources

<table>
<thead>
<tr>
<th>Electives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 capture, storage, and utilization</td>
<td>Biogenic polymers</td>
</tr>
<tr>
<td>Modelling and Optimization of Energy Systems</td>
<td>Flowsheet balancing and simulation</td>
</tr>
<tr>
<td>Energy and Economics</td>
<td>Microbial and plant biotechnology</td>
</tr>
<tr>
<td>Hydropower</td>
<td>Wind Power</td>
</tr>
<tr>
<td>Medicinal and spice plants</td>
<td>Phytopharmaceuticals and natural products</td>
</tr>
</tbody>
</table>
Going abroad

• 50 countries
• 235 universities
• Deadline: January 15th each year
• Third semester abroad
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Q&A Session
Details of the aptitude assessment procedure

Application via TUM-online

Upload required documents

TUM evaluates your documents

Stage 1

Stage 2
Details of the aptitude assessment procedure

Application via TUM-online

Upload required documents

TUM evaluates your documents

Stage 1

Stage 2

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

1. Application via TUM-online
2. Upload required documents
3. TUM evaluates your documents
4. Stage 1
5. Stage 2
Details of the aptitude assessment procedure

General information:

• Application via TUM-online within the application period:
  winter semester: **01.04.- 31.05.2024 (next!)**
  summer semester: 01.11.2024 – 30.11.2024

• 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

Application via TUM-online

Upload required documents

TUM evaluates your documents

Stage 1

Stage 2
Details of the aptitude assessment procedure

**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
- Motivation letter (TBR)
- Passport
- For admissions from non-EU/EEC countries: preliminary documentation by uni-assist
Details of the aptitude assessment procedure

Application via TUM-online

Upload required documents

TUM evaluates your documents

Stage 1

Stage 2

The first three steps are the same in the three master’s programs
Details of the aptitude assessment procedure

1. Application via TUM-online
2. Upload required documents
3. TUM evaluates your documents
4. Stage 1
5. Stage 2
Details of the aptitude assessment procedure / M.Sc. Chemical Biotechnology

Stage 1:

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

\[
\begin{align*}
\rightarrow \geq 70 \text{ points} & \rightarrow \text{Admission in Stage 1} \\
\rightarrow < 50 \text{ points} & \rightarrow \text{Rejection} \\
\rightarrow 50-69 \text{ points} & \rightarrow \text{Stage 2}
\end{align*}
\]
Details of the aptitude assessment procedure / M.Sc. Chemical Biotechnology

Stage 2:
- Aptitude Test (40 questions / 60 minutes) $\rightarrow$ max. 30 points

professional qualifications (stage 1)

+ GPA (stage 1)

+ Aptitude Test

$\rightarrow$ ≥ 70 points $\rightarrow$ Admission in Stage 2

$\rightarrow$ < 70 points $\rightarrow$ Rejection
Details of the aptitude assessment procedure / M.Sc. Biomass Technology

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

→ ≥ 30 points → Admission
→ < 30 points → Rejection
Details of the aptitude assessment procedure / M.Sc. Technology of Biogenic Resources

Stage 1:

• Professional qualifications (→ max. 60 points)
  – Mathematics and computer science → 15 points
  – Natural science → 10 points
  – Engineering sciences → 15 points
  – energy technology → 10 points
  – process engineering → 10 points
• Grade Point Average (GPA) → max. 20 points
• Essay → max. 20 points

→ ≥ 70 points → Admission in Stage 1
→ < 50 points → Rejection
→ 50-69 points → Stage 2
Details of the aptitude assessment procedure / M.Sc. Technology of Biogenic Resources

Stage 2:
- Aptitude Test → max. 60 points

Professional qualifications (stage 1) + GPA (stage 1) + Aptitude Test

→ ≥ 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 (except BMT starts in summer semester 2025).
- The tuition fee per semester will be **4,000 €** for a Master’s program in Straubing.

- **Info session “Waiver Scholarships for Tuition Fees for Students from Non-EU Countries”**
  March 22, 2024, 11:00 a.m. – 1:00 p.m.
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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

Fachschafft TUM Campus Straubing

TUM Campus AK Garten Straubing

AK STOTELES

Green Office TUM Campus Straubing
TUMCampusStraubing

Groups: TUM – Campus Straubing, Studentenwohnungen Straubing

@tumcampusstraubing

TUM Campus Straubing

www.cs.tum.de

studieren.straubing@tum.de
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Q&A Session
Q&A Session
Thank you!