Pharmaceutical and Industrial Biotechnology – Master of Science
International Master Course – 120 Credit Points

Martin Luther University Halle-Wittenberg

General information

<table>
<thead>
<tr>
<th>Certification</th>
<th>Master of Science (M.Sc.)</th>
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<tbody>
<tr>
<td>Start of the instruction period</td>
<td>The program starts in the winter semester (October)</td>
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<tr>
<td>Duration of Instruction Period</td>
<td>Regular duration: 4 semesters (3 semesters + 1 semester Master’s Thesis)</td>
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<tr>
<td>Language of Instruction and Examinations</td>
<td>English</td>
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</table>

Responsible faculty and institute

Faculty of Natural Sciences I – Biosciences
Institute of Pharmacy

Description of contents

| Main focus: | Biotechnology and biotechnology-based methods are increasing in importance in a global bioeconomy. The 2 years Master Course (120 credit points, ECTS) offers specialization in the fields “Pharmaceutical Biotechnology” or “Industrial Biotechnology.

The field of specialization „Pharmaceutical Biotechnology“ covers all relevant aspects for the development of new biotechnology based drugs, starting from drug target identification over up- and downstream processing till formulation. It also provides a basis for understanding the mechanisms and process involved in diseases.

The field of specialization "Industrial Biotechnology" covers all relevant aspects on the development of new industrial biotechnological processes, starting from access to and pretreatment of renewable resources over up- and downstream processing till application and process optimization. Biocatalysis, synthetic and systems biology and metabolic engineering will be covered during the classes. |

For detailed information, e.g. curriculum, course contents etc. please refer our
Aim
This degree was established at MLU to cover basic aspects of biotechnology as well as the applications relevant to pharmacy and industrial production.

Set of competencies to be acquired
The MSc program in *Pharmaceutical and Industrial Biotechnology* is specifically designed for undergraduates from *bio-*chemistry, biology, biotechnology, biochemical engineering and pharmacy to acquire the necessary knowledge and capabilities to carry out scientific work and critical evaluation of scientific results in a responsible and independent manner. Students will also have the opportunity to learn a range of methodologies and modern laboratory techniques. Successful completion of the course will result in the award of an internationally recognized degree.

Occupational areas
The course qualifies for positions in pharmaceutical and industrial biotechnology and related fields:
- Research and development
- Production
- Teaching
- Management, administration and quality assessment
- Counseling, sales and marketing
The course also qualifies for PhD positions at German universities.

Educational Organization
The curriculum is organized in a way, that students are able to finish their program within the regular duration of 4 semesters (2 years). Mandatory courses (80 credit points (CP)) are identical for both fields of specialization. In order to assure high quality of teaching especially in the labs, an equal number of students in the two areas of specialization (40 CP each) is necessary. This equal number will be achieved by distributing the students randomly to the two areas of specialization. The board of examiners is responsible for the distribution. The chance to be selected for one area of specialization is 50%. There is the possibility to change with another student from the other area on a bilateral agreement.

So please be aware, that you will be studying either industrial biotechnology or pharmaceutical biotechnology as an area of specialization.

Forms of Assessment
- credit points (ECTS)
- oral and / or written exams at the end of each semester
- Master’s thesis and oral presentation / examination

Required Entry Qualification Profile

Academic / Other Requirements
Diploma or Bachelor’s Degree in *(bio-) Chemistry, Biology, Biotechnology, (Biochemical) Engineering,* or Pharmacy (Staatsexamen).

Language Requirements
TOEFL iBT (at least 90/120), CBT (235/300), PBT (580 / 677), IELTS (at least band 6.5), or UNIcert-II (writing and speaking) for applicants whose native language is not English

Application procedure
German applicants please use the online portal for your application [https://loewenportal.uni-halle.de/portal/Bewerbung.html](https://loewenportal.uni-halle.de/portal/Bewerbung.html)

- select "Master (konsekutiv) on page "Angestrebter Studienabschluß"
- select "Pharmaceutical and Industrial Biotechnology. MA120"
**International applicants**, please use the online portal for your application

http://www.uni-assist.de

!!! APPLICATION FEE for applications via UNI-ASSIST !!!

- Payment has to be made according to the regulations on the UNI-ASSIST homepage.

Please make sure that your application is complete and an email address is given! As our correspondence will mainly managed by email, you are advised to check your mailbox regularly to receive further information.

You will get a confirmation as soon as your application has been received. Now, you have to pass a selection procedure. After the respective deadline, you’ll get informed about the status of admission.

*For any questions regarding application and admission please contact*

Martin Luther University Halle-Wittenberg
Matriculation office, Mrs. Gaudig
06099 Halle (Saale)
Germany

e-mail: kati.gaudig@verwaltung.uni-halle.de
phone: +49-345-55 21 314

Note: Indian students should not apply through any consultant company! Application at MLU is possible directly without creating any further costs!

**Application Deadline**

*For international students*
March 31st

*For German students*
July 15th
for winter term admission (starting Oct., 1st).
(please get these dates confirmed from our website!)

**Relevant Additional Information**

<table>
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<tr>
<th>Application fee</th>
<th>For international applicants see UNI-ASSIST <a href="http://www.uni-assist.de">http://www.uni-assist.de</a></th>
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</thead>
<tbody>
<tr>
<td>Tuition fee</td>
<td>None</td>
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<tr>
<td>Fee for lab course consumables</td>
<td>500,- € (250,- € per year are requested to cover expenses of lab courses, To be payed in January both, in the first and the third semester)</td>
</tr>
<tr>
<td>Enrolment fee</td>
<td>192,50 € (winter term 2016/2017) per semester. Updated information can be accessed here: <a href="http://immaamt.verwaltung.uni-halle.de/studium/semesterbeitrag">http://immaamt.verwaltung.uni-halle.de/studium/semesterbeitrag</a> /</td>
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**Cost of Living**

About 650 €/month (including rent, health insurance, semester fee and semester ticket, living expenses)

Non-EU students will have to provide evidence to the German Embassy in your home country or to the alien registration authority as to how you intend to finance your stay. Usually you will have to deposit the money for the first twelve months on a blocked account.

**Health insurance**

Is compulsory in Germany! If you come from outside of Europe, please do not bring health insurance cover with you! You will sign it here after your arrival for about 75 €/month.

**Accommodation**

- Single apartments in student’s hostels at or near the campus offered by STUDENTENWERK (Student’s Services)
- Single/double apartments near the campus from a private provider

All apartments are furnished. The price is at about 200 €/month. Reservation is necessary! Please contact wpvhalle@studentenwerk-halle.de.

**Arrival Support**

Guidance before and after your arrival in Halle offered by contact students

**Scholarship**

Martin Luther University does not offer any scholarships. Please contact German Embassy in your country or DAAD (http://www.daad.de) where you will find a scholarship database. Make sure to apply for scholarship before you enter Germany.

**Language courses**

We deeply recommend an intensive German language course before you start the Master’s program. So it will be easier to manage your daily life in Germany. Please contact Goethe Institute in your home country or the Institute for German Language and Culture at our University (http://www.sprache.uni-halle.de). During your studies we organize further language classes which have to be paid by yourselves!

**Job Opportunities**

Assistant jobs (research, measurements) can be offered by lecturers after the first (passed!) semester.

**About Halle and the University**

100 km to the south of Berlin, Halle is a center of science, culture, and industry in the eastern part of Germany. Our city is located about 20 km from Leipzig-Halle Airport. Martin-Luther-University, founded in 1502, is one of the oldest German universities. More than 19,000 students are matriculated at 9 faculties. Our university offers excellent up to date equipment and libraries in order to teach all essentials for your professional career – further a wide range of leisure facilities (sports center, students clubs etc.)

**Important files (to be downloaded from our web sites)**

- General regulations for study courses at MLU: ABSiPOBM (in german only)
- Study course specific regulations for: Studien- und Prüfungsordnung (in german only)
- Curriculum (detailed)
- Detailed description of modules

**Contact Person / Address**

- Martin-Luther-Universität Halle-Wittenberg
  06099 Halle (Saale)
  Germany

  Admission affairs // International Students Office: Mrs. Ina Hieronymus
  e-mail: kati.gaudig@verwaltung.uni-halle.de
  Tel: +49-345-55 21 314
  URL: http://aaa.verwaltung.uni-halle.de/
### Overview on Study program

#### Compulsory modules

<table>
<thead>
<tr>
<th>Module</th>
<th>Credit points</th>
<th>Final examination</th>
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<tbody>
<tr>
<td><strong>1st semester (winter term)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-Both: Introduction to Pharmaceutical and Industrial Biotechnology</td>
<td>5</td>
<td>1 written examination</td>
</tr>
<tr>
<td>C-Both: Construction of production organisms - Hosts and vectors</td>
<td>10</td>
<td>1 written examination</td>
</tr>
<tr>
<td>D-Both: Introduction to Bioprocess Technology (Upstream Processing)</td>
<td>10</td>
<td>1 written examination</td>
</tr>
<tr>
<td><strong>2nd semester (summer term)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-Both: Optimization of Bioprocesses</td>
<td>5</td>
<td>1 written examination</td>
</tr>
<tr>
<td>G-Both: Purification of Products from Biotechnological Processes (Downstream Processing)</td>
<td>10</td>
<td>1 written examination</td>
</tr>
<tr>
<td>H-Both: Analytical Methods</td>
<td>10</td>
<td>1 written examination</td>
</tr>
<tr>
<td><strong>3rd semester (winter term)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P-Both: Project work</td>
<td>5</td>
<td>written report, oral presentation/ examination</td>
</tr>
<tr>
<td><strong>4th semester (summer term)</strong></td>
<td></td>
<td></td>
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<tr>
<td>M-Both: Master Thesis</td>
<td>30</td>
<td>written Master thesis, oral presentation/ examination</td>
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#### Compulsory optional subject

**Specialization (one specialization has to be chosen)**

**Specialization “Pharmaceutical biotechnology” (all modules compulsory)**

| **1st semester (winter term)** | | |
| B-PhBT: Drug target identification and validation | 10 | 1 written examination |
| **2nd semester (summer term)** | | |
| F-PhBT: Legal and economical aspects of pharmaceutical biotechnology | 5 | 1 written examination |
| **3rd semester (winter term)** | | |
| I-PhBT: Technological and Clinical Aspects of Biopharmaceutics | 10 | 1 written examination |
| K-PhBT: Biopharmaceuticals | 5 | 1 written examination |
| L-PhBT: Biopharmaceuticals in Regenerative Medicine | 10 | 1 written examination |

**Specialization “Industrial biotechnology” (all modules compulsory)**

<p>| <strong>1st semester (winter term)</strong> | | |
| B-InBT: Introduction to Chemical Biotechnology | 10 | 1 written examination |
| <strong>2nd semester (summer term)</strong> | | |
| F-InBT: Agro- and Economical Aspects of biotechnology | 5 | 1 written examination |
| <strong>3rd semester (winter term)</strong> | | |</p>
<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
<th>Exam Type</th>
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<tbody>
<tr>
<td>I-InBT: Pretreatment and Thermochemical Processes</td>
<td>10</td>
<td>1 written examination</td>
</tr>
<tr>
<td>K-InBT: Systems- and Synthetic Biology</td>
<td>5</td>
<td>1 written examination</td>
</tr>
<tr>
<td>L-InBT: Applied Biocatalysis</td>
<td>10</td>
<td>1 written examination</td>
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