MCI®
INNSBRUCK | AUSTRIA

MASTER

Biotechnology

Full-time | English
Double Degree Options | Connected Programs

Specializations: Pharmaceutical Biotechnology I Ecobiotech

Premium accredited

AACSB ACCREDITED

FIBAA PREMIUM

FIBAA PREMIUM

FIBAA ADVANCED

Jointly creating a European University

Ulysseus

Biotechnology

English | Full-time

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Preface

AN OUTSTANDING MASTER'S PROGRAM FOR AMBITIOUS STUDENTS OF BIOTECHNOLOGY

Biotechnology constitutes one of the key disciplines of the 21st century, with enormous potential for growth and professional development. This potential stems from progress in biomedical research, which has led to the development of new diagnostic and therapeutic procedures. At the same time, the chemical industry is increasingly adopting biotechnological processes to reduce its environmental footprint and enhance the efficiency of its methods. Alongside the pharmaceutical, chemical, and food industries, which utilize biotechnological processes to varying degrees, a dedicated biotechnology-based industry has emerged. This sector generates added value primarily through the application of biotechnological principles.

The Master's program in Biotechnology is designed to impart the knowledge, methodological skills, and problem-solving competencies necessary to address a wide range of scientific and engineering challenges.

With first-class faculty drawn from the worlds of science, engineering, and business, a strong industry orientation, and a limited number of places, the program ensures excellent study conditions and robust student support. This approach aligns with MCI's motto, "Mentoring the Motivated," and offers students attractive prospects for the future. As a technical university program situated at the intersection of business and management, the Master's program meets the highest international standards.

Mentoring the Motivated

MCI Rector
PROF. DR. ANDREAS ALTMANN

Prof. Dr. Christoph Griesbeck
DIRECTOR OF STUDIES

Study Overview

PROGRAM	Master program Biotechnology
ACADEMIC DEGREE	Master of Science in Engineering	M.Sc.	MSc * *Use of the academic degree in combination with the brand 'MCI' approved*
DURATION	4 semesters incl. Master thesis and final exam
MAIN FOCUS	Practical relevance, international orientation, collaboration with trade and industry
TIME MODEL	Full-time: From Monday to Friday during the day
SPECIALIZATIONS	Pharmaceutical Biotechnology & Ecobiotech
STRUCTURE	1. Semester: Core Curriculum 2. - 3. Semester: Core Curriculum with Specialization 4. Semester: Master Thesis and Final Exam
LANGUAGES	English
TUITION	Per Semester: € 363.36 for students from EU & EEA countries + membership fee to the Austrian Students' Union (ÖH) Per Semester: € 7,000 for students from third countries + membership fee to the Austrians Students' Union (ÖH) Details for students from third countries: www.mci.edu/admission
SCHOLARSHIPS & GRANTS	Overview of sources of financial support available at www.mci.edu/scholarships
ADMISSION REQUIREMENTS	Graduates with a bachelor degree or Diploma
APPLICATION	Online at www.mci.edu/application. Please consider the indicated deadlines.
SELECTION PROCESS	Online Application: CV & letter of motivation Online admission interview

Career Prospects

In biotechnology, principles and structures of the natural world are applied to technical processes and products. Graduates of the Master program in Biotechnology work at the interface between natural science and engineering. On the one hand, they are able to apply methods used in biochemistry, molecular biology and genetic engineering. On the other hand, they also have solid skills intechnical engineering and biodata science. They have the competence to employ cell culture techniques, operate bioreactors and develop biotechnological processes. Further tasks may involve the transfer of procedures tested in the laboratory to full-scale engineering operations. In addition, they may be responsible for the design and supervision of bioprocess engineering facilities.

Students with a relevant background like biotechnology or biology acquire the knowledge and skills needed to understand, work with and optimize biotechnological processes, from the genetic foundations to the final product. Thanks to the breadth of their interdisciplinary training, graduates have a large variety of career options, with a focus on the following
fields:

- Biomedical research and development
- Pharmaceutical industry and diagnostics
- Environmental technology industry
- Chemical industry
- Agriculture, food, and feed industry
- Biotechnological equipment and plant engineering
- Measurement, testing, and analysis
- Public infrastructure, associations, and advocacy groups
- International cooperation and organizations
- Consulting, freelance professions

"The Master's degree program in Biotechnology at MCI equipped me with essential theoretical knowledge and practical skills, while also enabling me to make valuable contacts and gain insights into industry practices.
The combination of hands-on experience and expert guidance has been instrumental in shaping my career and supporting my current role as a PhD student in biotechnology."

SELINA HALLER, MSC.
MCI Biotechnology Almuna

Program & goals

Graduate engineers from the Master program in Biotechnology are able to make use of a broad knowledge base in bioscience and process engineering to shape and work with the complete range of biotechnological processes from their genetic foundations to the final product. They are equipped to work in the field of biotechnological plant engineering and related process development.
A basic competence in bioscience also enables them to specialize in various areas of biomedicine.

The Master program combines various methodological modules – such as molecular biotechnology, bioprocess engineering, biotechnological separation processes, bioanalytics and bioinformatics – with applications-oriented modules covering the whole field of biotechnology, such as food biotechnology and industrial biotechnology.

The program is also designed to take account of the growing interest shown in trade and industry in graduates with the ability to fulfill overarching functions like quality, project and process management, including the relevant key competences (working methods, social competence, team working skills, etc). In addition to solving technical problems, graduates are also in a position to evaluate the economic impacts of the decisions taken. Thanks to project-based learning, industry visits, practicals and laboratory work, the study program also has a strong focus on practical relevance.

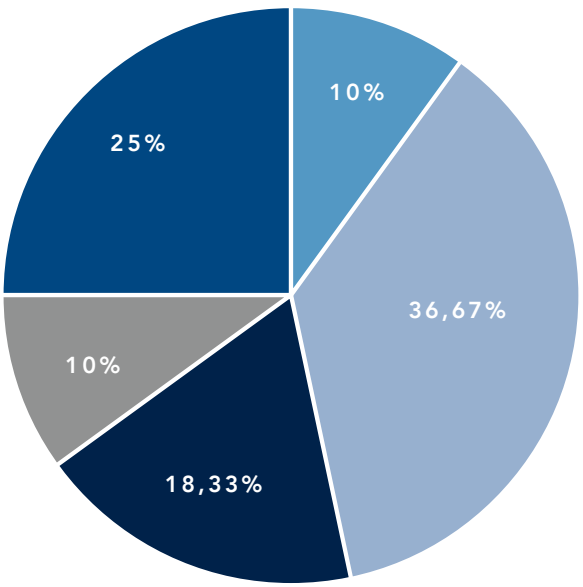
SPECIALIZATIONS:

Specialization Pharmaceutical Biotechnology

The specialization Pharmaceutical Biotechnology focuses on the development, production and analysis of biopharmaceutical products such as antibiotics, vaccines, enzymes and therapeutic antibodies, which make a significant contribution to healthcare. The cooperation with leading biopharmaceutical companies worldwide through first-class experts and industry excursions provides state-of-the-art knowledge in topics such as drug development, upstream and downstream processing, bioanalytics and molecular diagnostics.

Specialization Ecobiotech

The Ecobiotech field of study deals with ecological and sustainable applications of biotechnology. These include topics such as environmental biotechnology, biological soil remediation and water purification, green chemistry and sustainable bio-based production processes as well as biorefineries. As a result, graduates of the degree program can apply dedicated biotechnological methods to environmental technology and industrial production and thus contribute to the ecological transformation of the economy.

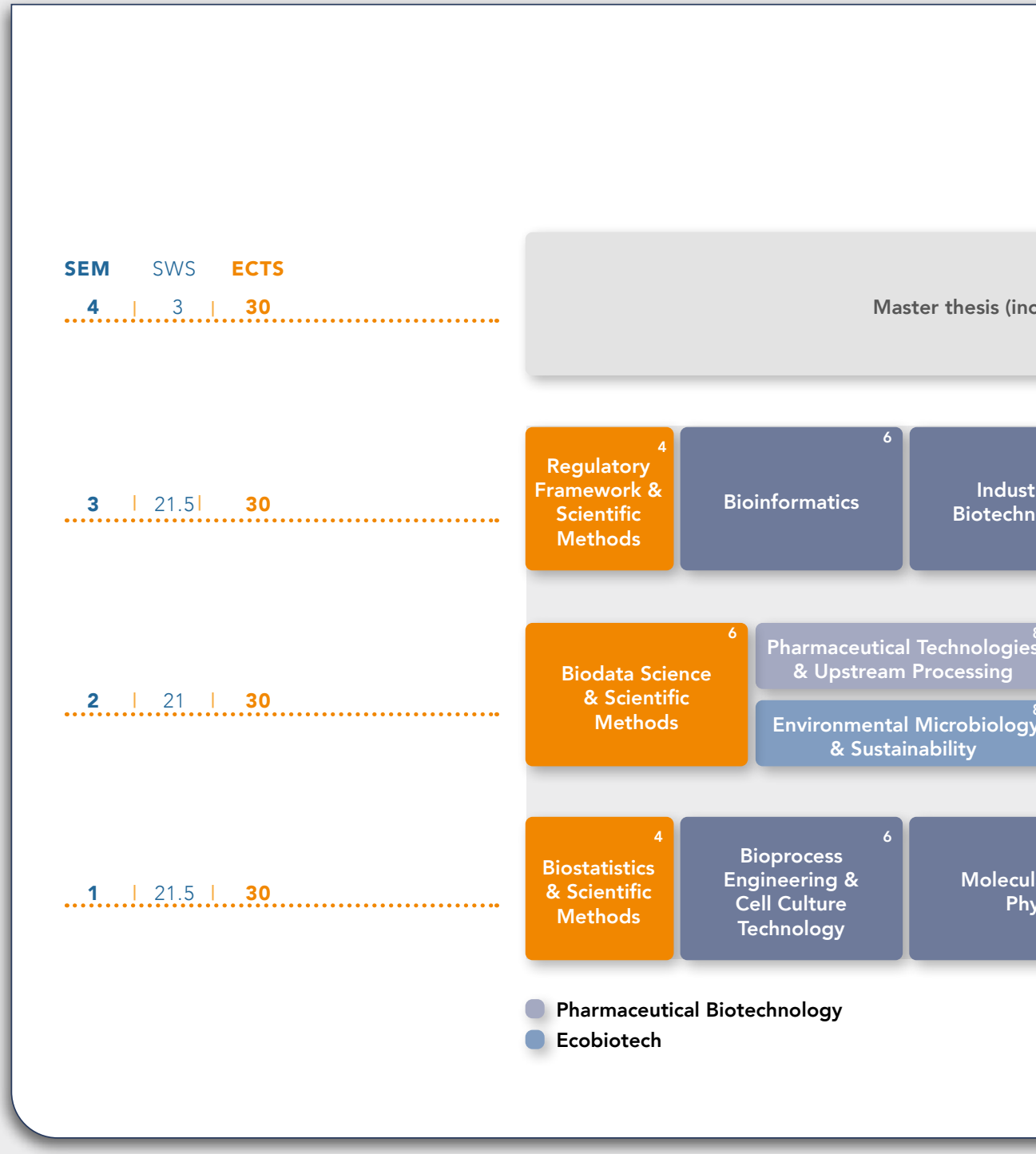


THE MODULES AT A GLANCE

Core modules in Biotechnology	25%	(30 ECTS)
Project Biotechnology	10%	(12 ECTS)
Specialization - Pharmaceutical Biotechnology - Ecobiotech	18,33%	(22 ECTS)
Scientific Methods and Master Thesis	36,67%	(44 ECTS)
General Management	10%	(12 ECTS)
TOTAL 100%		(120 ECTS)

ECTS = European Credit Transfer System

Curriculum



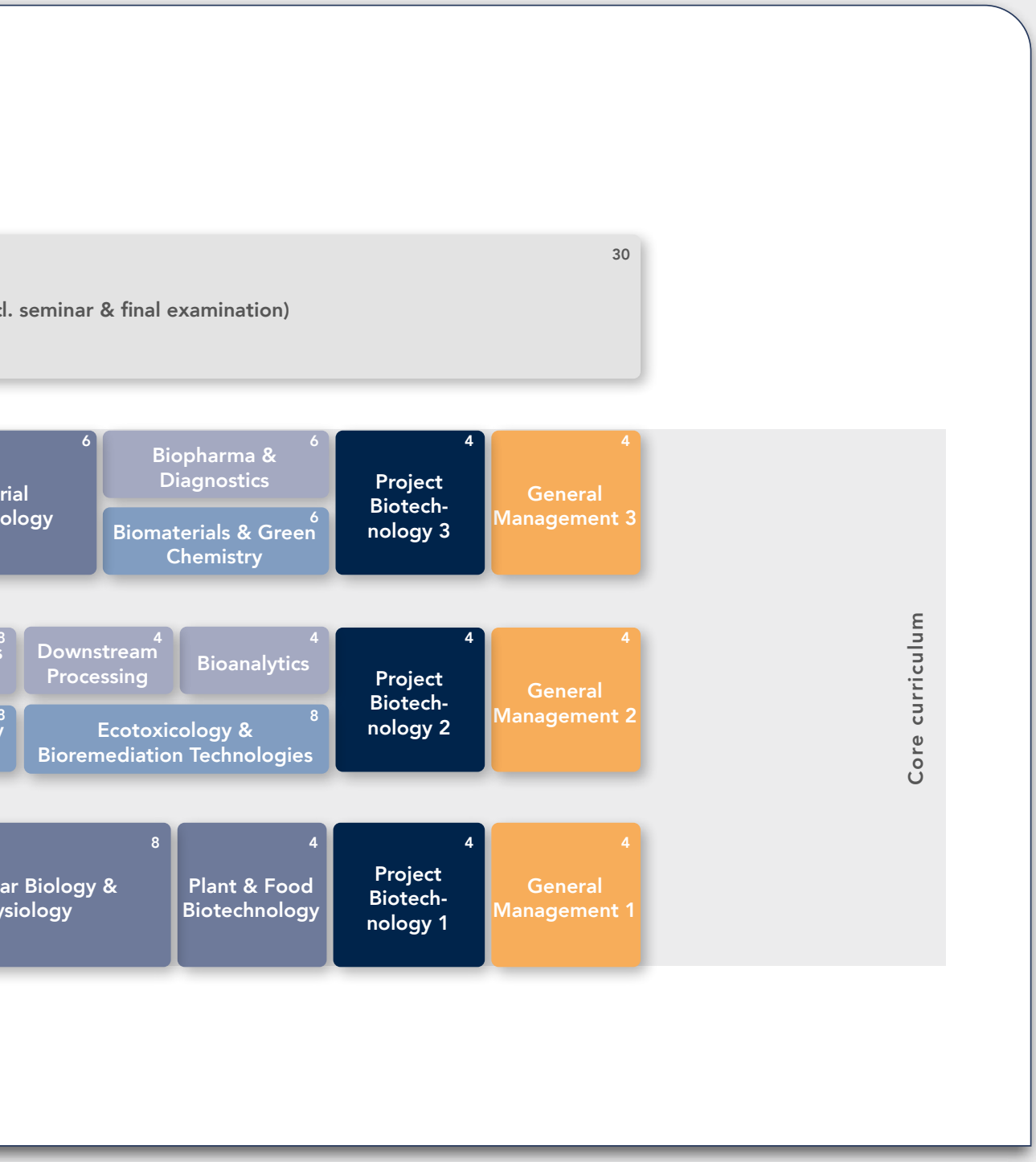
www.mci.edu

The program offers a highly attractive curriculum that steadily develops core competencies over the course of four semesters.

Semesters 1 & 2: Core curriculum

Semester 2 & 3: Core curriculum & specializations

Semesters 4: Master's Thesis, Final Exam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6
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6
Biopharma & Diagnostics
6
Biomaterials & Green Chemistry
4
Project Biotech-nology 3
4
General Management 3
4
Downstream Processing
4
Bioanalytics
8
Ecotoxicology & Bioremediation Technologies
4
Project Biotech-nology 2
4
General Management 2
8
ar Biology &
ysiology
4
Plant & Food Biotechnology
4
Project Biotech-nology 1
4
General Management 1
Core curriculum

Curriculum

BIOTECHNOLOGY	Semester Credit Units | **ECTS-Credits** 1	2	3	4
Bioprocess Engineering & Cell Culture Technology	4 | **6**			
Molecular Biology & Physiology	6 | **8**			
Plant & Food Biotechnology	3 | **4**			
Industrial Biotechnology			4 | **6**	
Bioinformatics			4 | **6**	
PROJECTS				
Project Biotechnology I	3 | **4**			
Project Biotechnology II		3 | **4**		
Project Biotechnology III			3 | **4**	
SCIENTIFIC METHODS				
Biostatistics & Scientific Methods	3 | **4**			
Biodata Science & Scientific Methods		5 | **6**		
Regulatory Framework & Scientific Methods			4 | **4**	
Master's Thesis				3 | **30**
SPECIALIZATION PHARMACEUTICAL BIOTECHNOLOGY:				
Pharmaceutical Technologies & Upstream Processing		5 | **8**		
Downstream Processing		3 | **4**		
Bioanalytics		3 | **4**		
Biopharma & Diagnostics			4 | **6**	
SPECIALIZATION ECOBIOTECH:				
Environmental Microbiology & Sustainability		5 | **8**		
Ecotoxicology & Bioremediation Technologies		6 | **8**		
Biomaterials & Green Chemistry			4 | **6**	
GENERAL MANAGEMENT				
General Management 1	2,5 | **4**			
General Management 2		2 | **4**		
General Management 3			2.5 | **4**	
SEMESTER CREDIT UNITS | **ECTS-CREDITS**	21.5 | **30**	21 | **30**	21.5 | **30**	3 | **30**


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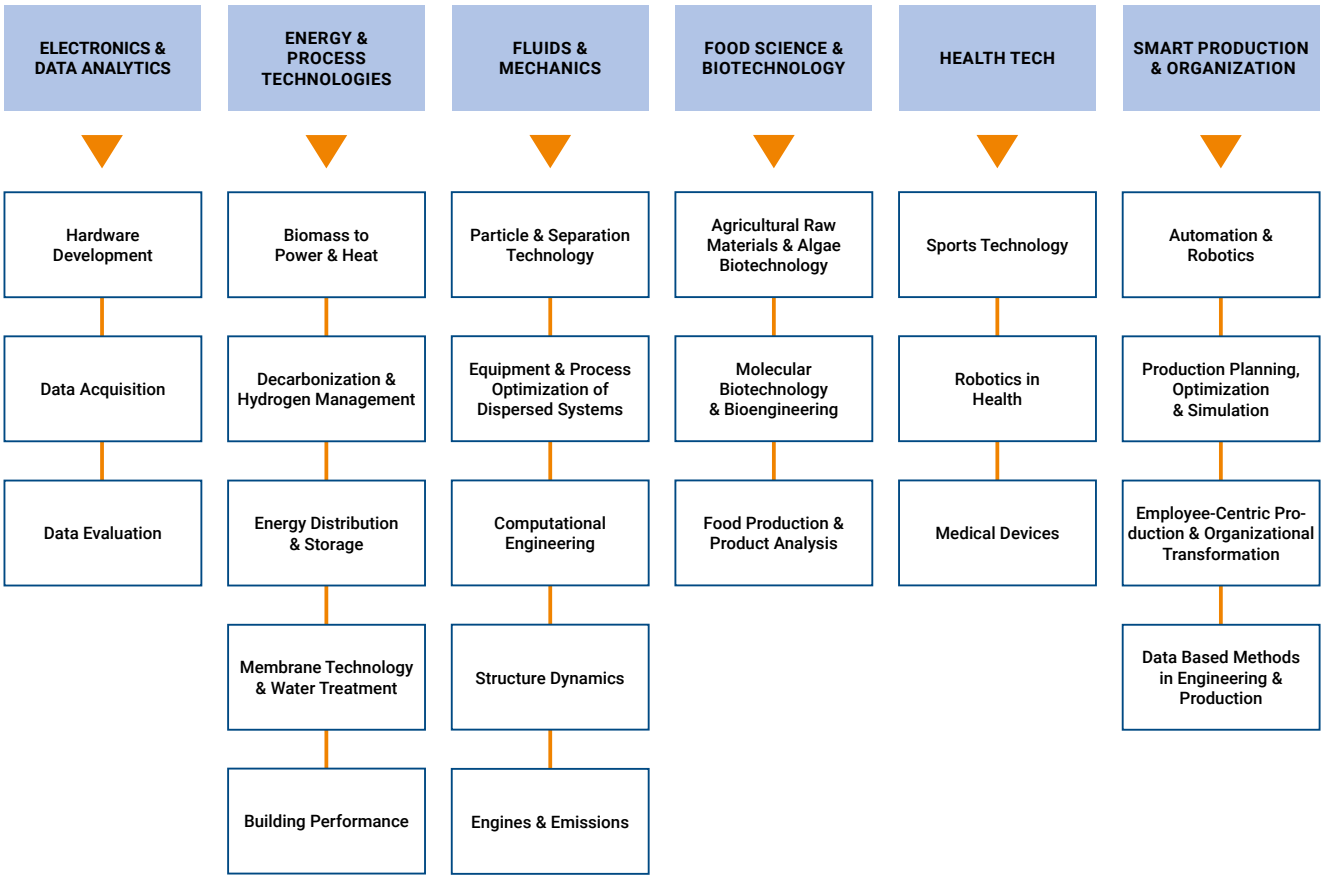
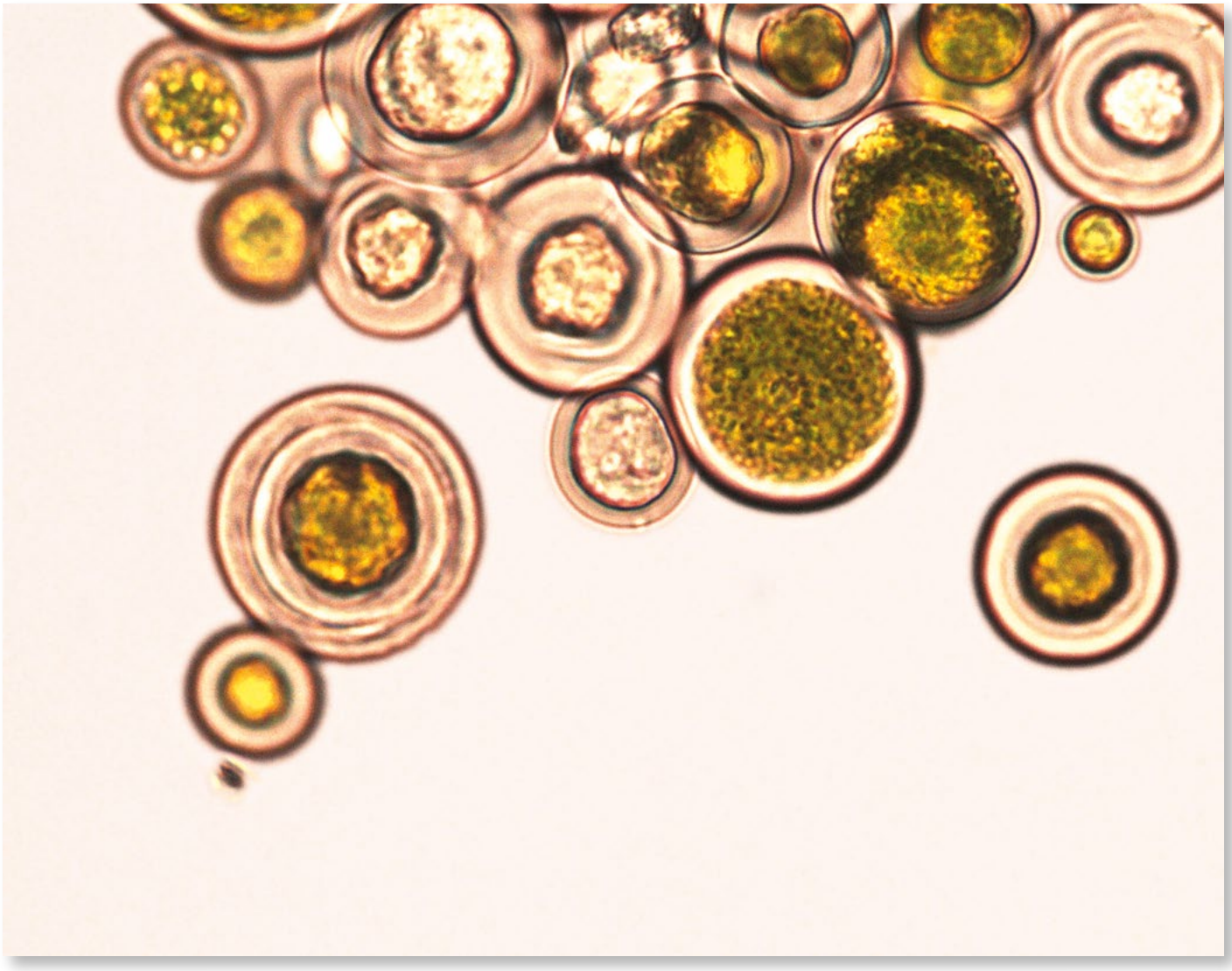
Research & development

TECHNOLOGY & LIFE SCIENCES: RESEARCH & ENGINEERING AREAS





Food science & biotechnology

Innovations from the fields of food technology, biotechnology, functional & convenience foods and bioengineering will have a decisive impact on future viability. The growing demand in this area offers the opportunity to expand research activities in a targeted manner. The central topic here is the solution of current questions that arise along the value chain, from the production of plant raw materials and algae to technological utilization and product characterization. Novel approaches from engineering and natural sciences are used.

AGRICULTURAL RAW MATERIALS & ALGAE BIOTECHNOLOGY

Social awareness of agricultural production methods is increasing. The focus is on approaches that combine traditional agriculture with changing consumer demands. Microalgae are gaining increasing interest as producers of proteins and fatty acids. Together with their diverse secondary metabolites, they offer great potential for applications in the life science sector.

MOLECULAR BIOTECHNOLOGY & BIOENGINEERING

For the use of biotechnological processes, both the molecular recording of the individual reactions, their endogenous optimization, cultivation and the influence of exogenous factors such as light are of importance. In this research field, molecular biological methods are combined with novel technologies to better understand and optimize biological processes.

FOOD PRODUCTION & PRODUCT ANALYSIS

In food production, the potential and challenges of new production technologies, such as 3D food printing, are considered. The description of the food in terms of its functions is a valuable tool in product development and quality control. The focus of the research activities is the characterization of texture, rheology and ingredients.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Cooperations with the Master of Biotechnology

SANDOZ
MCI has a study collaboration with Sandoz, a global leader in generics and biosimilars as part of the Biotechnology master's program. This collaboration allows students to complete both - internships as well as their Master thesis at the company. This allows them to gain crucial industry experience during semester breaks.

NOVARTIS
Novartis, a leading multinational pharmaceutical company, has also established cooperation with the Biotechnology master's program. This study collaboration allows students to complete internships at the company, as well as write their Master thesis there. Through this they gain invaluable knowledge and experience and begin their integration into the industry.

ROCHE
There is a wide-ranging study cooperation between the world's largest biotech company Roche and the Biotechnology master's program. In addition to further training, teaching appointments, and thesis supervision, this includes the opportunity for selected students to be offered employment contracts already during their studies by Roche in order to gain important practical experience
in the industry during semester breaks.

BIOTECHNET
Biotechnet is a research competence network between Swiss universities of applied sciences and the EMPA (Swiss Federal Laboratories for Materials Science and Technology) for innovation in biotechnology. Its range includes highly specialized services for research and development, and consultancy for bio-processes and product development for companies and interested institutions. MCI is co-organizer of the annual biotechnet summer school for MCI students

LEOPOLD FRANZENS UNIVERSITY INNSBRUCK (LFU)
The Biotechnology master's program offers the option of co-enrollment in electives at the Faculty of Biology of
the University of Innsbruck, in the fields of microbiology, zoology, and molecular, cell and developmental biology.
Students thus have the opportunity for individual further specialization in their fields of interest and can thereby expand their portfolios.

MEDICAL UNIVERSITY INNSBRUCK
Under the title „Connected Programs – Molecular Medicine / Biotechnology" the MCI and the Medical University of Innsbruck provide the opportunity for earning a double degree at master's level. This double degree program aims at expanding and complementin theoretical and practical knowledge in the field of molecular biosciences and providing comprehensive expertise on how to implement this knowledge in the form of new products and services.

Double Degrees:

UNIVERSITY OF GENOA
Medical-Pharmaceutical Biotechnology

UNIVERSITY OF PADUA
International Biopharma

In both double degree programs, students spend one year at MCI and the second year at the respective partner university. Students obtain a degree from each University upon graduation.

Further information
The MCI team is always happy to assist with regard to applications. Advice on all aspects of study at the MCI, including applications and our attractive student services, is available to personal callers or by phone. For an appointment, please mail to office@mci.edu or call +43 512 2070-0 .

With a program of sample lectures, study program presentations, project presentations and laboratory visits, the MCI Open House is an ideal source of guidance in selecting the right study program. For the dates, please go to www.mci.edu/openhouse

The Facebook site of MCI serves as a platform for exchange with other (potential) students.

For information on current projects and the latest news from the various study programs, go to "Department News" on the webpage of the program concerned.

Admission Requirements

The requirements for admission to the Master's degree program in Biotechnology include a relevant Bachelor's degree or an equivalent post-secondary education.

The Master's degree program is designed as a follow-up to the Bachelor's degree program in Biotechnology & Food Engineering or related studies at the Bachelor's level. Graduates of programs with a curriculum including a minimum number of relevant classes may also be admitted. This applies, in particular, to graduates of biology, pharmacy, and biochemistry courses. The relevance of courses is assessed by the respective head of department and studies, who also decides whether a degree can be recognized.

Admission Procedure

In just two steps to your desired study program at MCI:

Step 1 | Online application: CV & motivation

A complete online application consists of a CV, a letter of motivation, information on educational background, qualifications, professional career, social achievements and academic as well as professional goals. We would like to know why you are applying to study at MCI.

You may apply for more than one degree program at the same time, provided you can conclusively explain your respective motivations in your letter of motivation.

Step 2 | Online admission interview

In the second step, all applicants will be invited to an online admission interview.

In this interview, we want to get to know you. We are particularly interested in your motivation to study at MCI as well as your professional and personal goals you want to achieve with the help of your studies.

Within three weeks after the admission interview, we will inform you about the admission decision.

Faculty

With a balanced mix of MCI faculty, business leaders, international guest lecturers, and recognized experts from academia, consulting, and the liberal professions we ensure a synergistic combination of theory & practice, enabling direct testing of acquired knowledge and therefore create added value for students. This way, the latest scientific and practical findings are synergistically combined in the study program.

The high-level didactic approach to teaching and the close mentoring ensure a practice-oriented education and enable students to complete their studies within the specified period of time. The living connection of science & practical application offers opportunity and challenge for new forms of both teaching and learning.

Tuition

Students from EU & EEA countries must pay a tuition fee of currently 363.36 euros per semester plus a membership fee to the Austrian Student Union. Details and information for students from third countries are available at www.mci.edu/admission

Degree

Upon completion of the program, the graduate is awarded the academic degree of Master of Arts in Science – abbreviated to Master of Science or M.Sc. or MSc – and the degree is documented accordingly (degree certificate, Master's degree certificate, International Diploma Supplement, etc.). It is permitted to use the academic degree in conjunction with the suffix "MCI". Example: MSc (MCI).

Graduates could enroll directly in a university's research study program (PhD) with this degree.

Social Media

Check out our social media accounts to stay updated on news about the master's program in Biotechnology and the department of Biotechnology.

Going Global

The capacity to think and act internationally represents a strong competitive advantage. How seriously we take this requirement can be seen in the various options for our students to gain international experience. Depending on students' time and budgets, both full-time and part-time students can choose one of the following options to go global:

Students are invited to spend a semester at one of MCI's many partner universities. The credits obtained are transferred to the MCI.

Highly motivated students have the opportunity to foster their competitiveness in the international labor market by obtaining a Double Degree together with one of our selected partner universities. A Double Degree typically includes studying a whole year abroad.

For more details, please visit: www.mci.edu/international

Partner universities

ASIA

Israel I Ben-Gurion University of the Negev
Taiwan I National Cheng Kung University
Pusan National University, Korea

EUROPE

Switzerland I Zurich University of Applied Sciences ZHAW
Sweden I Umeå University
Portugal I Instituto Superior Técnico
Poland I Jagiellonian University
Italy I Università degli Studi di Padova
Italy I Università degli Studi di Genova
France I University of Côte d'Azur
France I SUP'Biotech
France I INSA Toulouse
Germany I Universität Münster
Germany I Hochschule Weihenstephan-Triesdorf
Belgium I University of Liège
Belgium I University of Antwerp

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What We Stand For

MCI is an Entrepreneurial School®. We enable motivated people to achieve outstanding performance, offer science based problem-solving competence and shape innovative know-how transfer in a strong international network.

Teaching & Continuing Education

Excellent performance in teaching and continuing education secures our position as one of the leading universities in the German-speaking world.

Research & Innovation

Our research & development is close to business, application- and solution-oriented. Continuous innovation is the basis of our strong market position and ensures our distinct competitiveness.

Internationality & Network

Through our focus on internationality, we generate know-how, reputation and added value for our students, corporate partners and stakeholders. Our exemplary service orientation and professional network management allow us to contribute significantly to global knowledge transfer and progress.

People & Culture

Our culture is based on mutual respect, the commitment of our employees, entrepreneurial action and responsibility towards society.

Brand & Mission

The MCI brand is internationally renowned and stands for performance, professionalism and competence. This distinctive corporate philosophy and mission requires powerful characteristics such as innovative thinking, flexibility, perseverance and enthusiasm – a "can-do approach" that enables us to see challenges as opportunities for creativity and innovation.

Location & Infrastructure

The unique location in the heart of the vibrant Alpine metropolis of Innsbruck and the high-quality MCI infrastructure create an attractive and stimulating environment offering a wide range of opportunities for a healthy study-life balance.

Accreditations

International accreditations – an important indicator of high standards and excellence – confirm the exemplary quality and acceptance of the Entrepreneurial School® and provide orientation in an increasingly confusing higher education environment.

The internationally operating accreditation agency FIBAA, based in Bonn and Zurich, has conducted the legally required university audit at MCI. The premium seals are impressive proof of first-class academic quality and confirm MCI clearly exceeds international standards.

The FIBAA quality seal "Excellence in Digital Education" particularly examines the criteria of digitalization strategy, staff qualification, technical equipment, didactic design, and quality assurance, which were rated outstanding at the Entrepreneurial School®.

AACSB ACCREDITED

MCI is one of only a few universities in the German-speaking world to hold accreditation from the prestigious AACSB Association to Advance Collegiate Schools of Business. AACSB stands for the highest quality in business education at all levels and helps support innovative, relevant business education worldwide.

Ulysseus
EUROPEAN UNIVERSITY

MCI is part of the European University Ulysseus, a cosmopolitan, innovative and people-oriented institution with an international reach that extends well beyond Europe's borders.

Alumni & Friends

The lively platform MCI Alumni & Friends promotes networking, professional careers, personal development and the positive reputation of its graduates. Thanks to continuous efforts, MCI Alumni & Friends now has over 15,000 members and continues to grow.

We are committed to our students and alumni beyond graduation and would like to offer them an academic home and attractive services in accordance with our motto "Mentoring the motivated". This includes quality events, the legendary MCI Summer Lounge, countless continuing education opportunities, symposia, scientific expertise, personal coaching, professional support for business start-ups, and much more.

We therefore cordially invite our alumni to actively network with each other and with the university and its stakeholders, to stand by each other in partnership and to play a powerful role in the dynamic development and international positioning of the MCI and the science, technology and business location.

Distinguished Guest Lecture Series

MCI | The Entrepreneurial School® is a regular platform for international encounters, intellectual exchange and future-oriented impulses, making this academic lecture series unique within the German-speaking area.

The lecture series is organized by the alumni club "MCI Alumni & Friends" and provides a friendly exchange of knowledge and experience. In the course of the academic year, we are honored by numerous "Distinguished Guests" on campus and digitally. (www.mci.edu/livetalk)

Participation is free of charge for members of "MCI Alumni & Friends" and invited guests.

MCI®
INNSBRUCK | AUSTRIA

MCI | DIE UNTERNEHMERISCHE HOCHSCHULE®
MCI | THE ENTREPRENEURIAL SCHOOL®
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START-UPS & BETEILIGUNGEN I START-UPS & SUBSIDIARIES

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