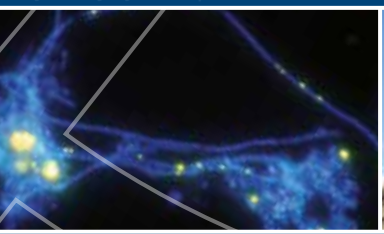
Full-time | English

Connected Program Option

master.




MCI®

Biotechnology

Premium accredited

Member of

Ulysseus EUROPEAN UNIVERSITY

CONTENTS

Preface

Biotechnology constitutes one of the key disciplines of the 21st century, with enormous potential for growth and professional development. On the one hand this is due to progress made in biomedical research, leading to the development of new diagnostic and therapeutic procedures. At the same time the chemical industry is showing a growing interest in biotechnological processes to reduce its environmental footprint and increase the efficiency of the methods employed. In addition to the pharmaceutical, chemical and food industries, which make use of biotechnological processes in varying degrees, there is now a biotechnology-based industry in its own right, in which added value is generated primarily with the help of biotechnological principles.

The Master program in Biotechnology is designed to communicate the knowledge, methodological skills and problem-solving competence needed to tackle a very wide range of scientific and engineering problems.

First-class faculty from the worlds of science, engineering and business, a strong industry orientation and the limited number of places guarantee excellent conditions for study and student support in keeping with the MCI's motto "Mentoring the Motivated" plus attractive prospects for the future. As a technical university program positioned at the interface with business and management, the Master program satisfies the highest international standards.

FH-Prof. Dr. Christoph Griesbeck
Director of Studies

Prof. Dr. Andreas Altmann
Rector

Overview

TITLE	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 exams
MAIN FOCUS	Practical relevance, international orientation, collaboration with trade and industry
TIME MODEL	Full-time: From Monday to Friday during the day
ACADEMIC YEAR	Winter semester: beginning of October – end of January Summer semester: beginning of March – end of June
STRUCTURE	1. – 3. semester: Core curriculum 4th semester: Master thesis and final exams
LANGUAGES	English (plus a wide range of foreign languages taught)
TUITION	For students from EU & EEA countries: EUR 363 / semester Plus membership fee to the Austrian Student 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
APPLICATIONS	Online at www.mci.edu/application. Please consider the indicated deadlines.
SELECTION PROCESS	Online application: CV & 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 in technical engineering and biodata science. They have the competence to employ cell culture techniques, operate bioreactors and develop biotechnological processes. Further tasks may involve the transference 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
- Chemical industry
- Agriculture, fertilizer & fodder industries
- Apparatus & plant engineering for biotechnological applications
- Measuring, testing and analysis
- Environmental engineering
- Public infrastructure, associations and interest groups
- International co-operation and organizations
- Consulting, free-lancing

Program & goals

Graduate engineers from the Master program in Biotechnology are able to make integrated 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.

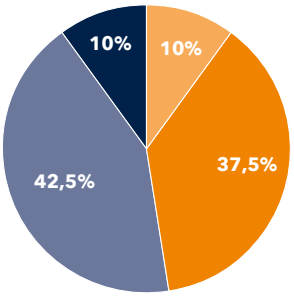
With its focus on industrial and pharmaceutical biotechnology, the study program is designed to enable graduates to convert laboratory results in the field of bioscience into full-scale industrial processes.

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, including pharmaceutical biotechnology, 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.

THE MODULES AT A GLANCE

Biotechnology	42,5 %	(51 ECTS)
Current industry projects	10 %	(12 ECTS)
Scientific methods and Master thesis	37,5 %	(45 ECTS)
General management	10 %	(12 ECTS)
TOTAL	100 %	(120 ECTS)



ECTS = European Credit Transfer System

Tuition

Students from EU & EEA countries are required to pay a tuition fee of currently EUR 363 per semester plus membership fee to the Austrian Student Union. Details & information for students from third countries can be found at www.mci.edu/admission.

To ensure that accepted students take up their places and do not break off their studies without good cause, a deposit in the amount of the student fees is charged, which subsequently goes towards tuition fees for the second semester. Students are also responsible for paying the required course materials distributed by MCI.

Faculty

With a mixed faculty comprising the MCI's own teachers, managers from trade and industry, international visiting lecturers, and recognized experts from the worlds of research, consulting and the liberal professions, the MCI offers an enriching combination of theory and practice that creates added value for students and enables them to put their new-found knowledge to the test, while the latest findings in theory and practice are integrated in the program with synergistic benefits.

The high educational standard and close mentoring of students ensure that they receive a training with a strong practical orientation in an efficient program which can be completed within the prescribed period. The combination of theory and practice is the key to an innovative teaching and learning experience.

Degree

On completion of the program, students are awarded the degree of a Master of Science in Engineering, in short Master of Science or M.Sc. or MSc, and receive the relevant academic documentation (Final Certificate, Diploma, International Diploma Supplement etc.). Use of the academic degree in combination with the brand 'MCI' is officially approved. Example: MSc (MCI).

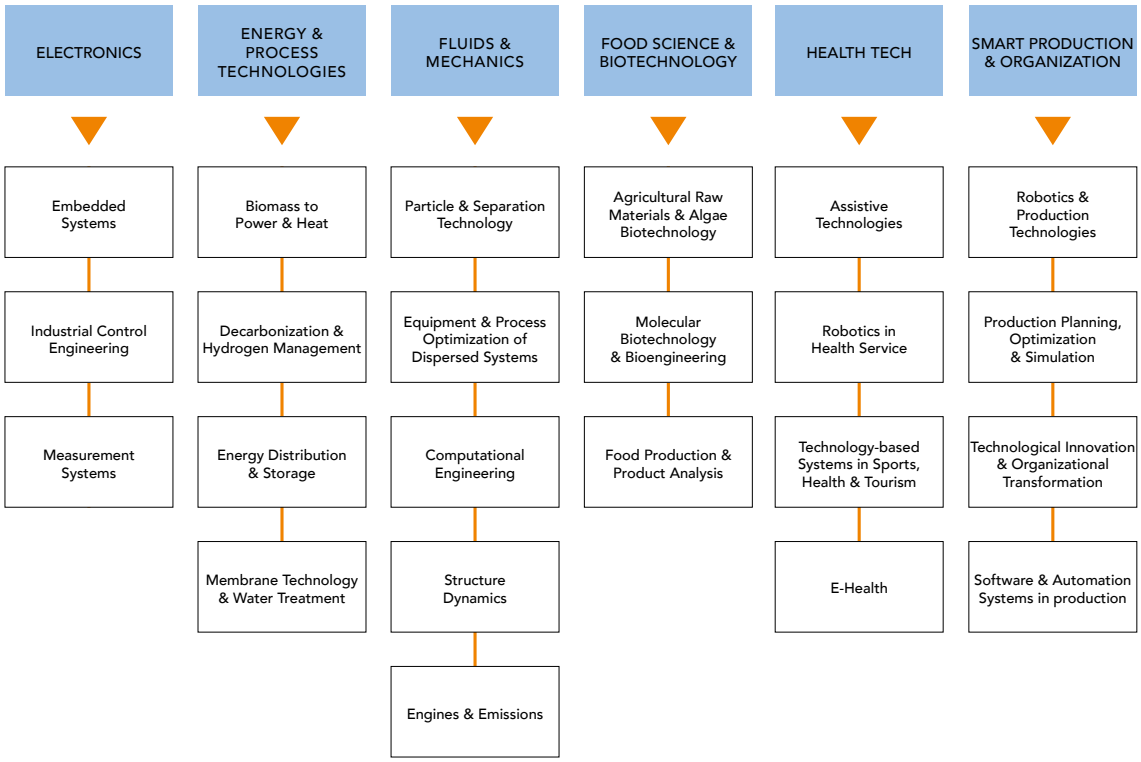
The Master degree is a recognized qualification for enrollment in a relevant doctoral program and for a career as a civil engineer.

Curriculum

Modules / Courses	Semester Credit Units | **ECTS-Credits**			
BIOTECHNOLOGY	1	2	3	4
Bioprocess Engineering & Cell Culture Technology	4 | **6**			
Molecular Biology & Physiology	6 | **8**			
Plant & Food Biotechnology	3 | **4**			
Upstream Processing & Pharmaceutical Technology		5 | **8**		
Downstream Processing		3 | **4**		
Bioanalytics		3 | **4**		
Industrial Biotechnology			4 | **6**	
Bioinformatics			4 | **6**	
Biopharma & Diagnostics			3 | **5**	
PROJECTS	1	2	3	4
Project Biotechnology I	3 | **4**			
Project Biotechnology II		3 | **4**		
Project Biotechnology III			3 | **4**	
SCIENTIFIC METHODS	1	2	3	4
Biostatistics & Scientific Methods	3 | **4**			
Biodata Science & Scientific Methods		5 | **6**		
Regulatory Framework & Scientific Methods			5 | **5**	
Master's Thesis				3 | **30**
GENERAL MANAGEMENT	1	2	3	4
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**

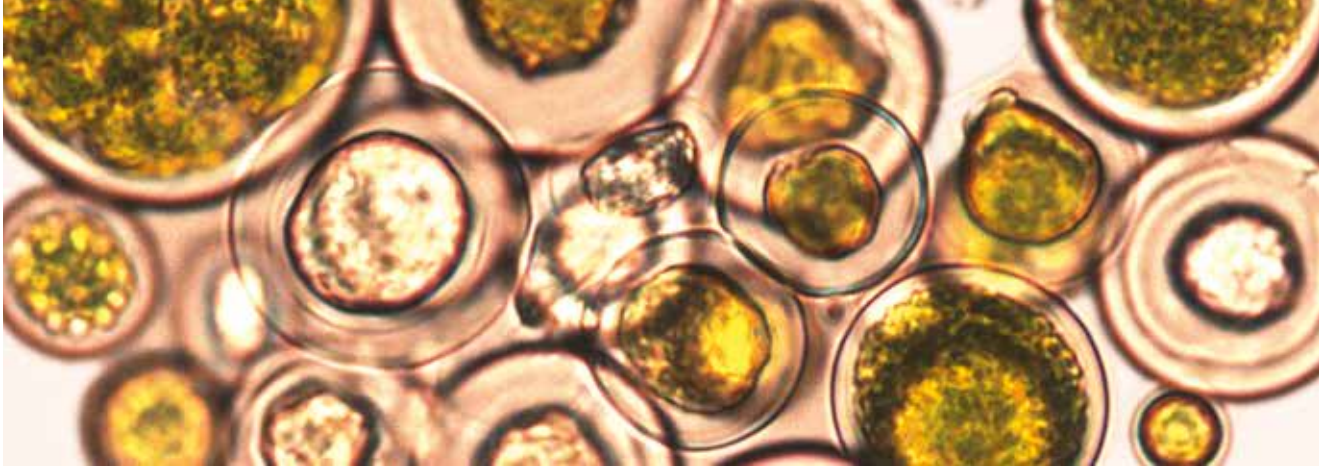
Research & development

TECHNOLOGY & LIFE SCIENCES: RESEARCH & ENGINEERING AREAS



RESEARCH PROJECTS IN THE STUDY PROGRAM BIOTECHNOLOGY

The innovations in molecular biology that triggered the revolution in modern biology and enabled the establishment of the field of biotechnology will critically determine everyday life in the 21st century. For the positive use of these technologies, a research focus at the MCI in algal biotechnology applies the range of biotechnological methods to identify, as of yet, unknown substances from this often poorly researched group of photosynthetic organisms for applications in medicine, chemistry or food technology. Microalgae have also the potential to serve as ideal organisms for the transgenic production of complex molecules.



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.

Admission

ADMISSION REQUIREMENTS

The Master program in Biotechnology is open to graduates of relevant Bachelor programs and graduates from other recognized and relevant post-secondary educational facilities.

This Master program is an ideal follow-on from such Bachelor programs as Biotechnology and Biotechnology & Food Engineering, particularly with the specialization in Food Technology. Admission will also be considered for graduates of study programs whose curricula offer an adequate degree of relevance, such as biology, pharmaceuticals and biochemistry.

Details: www.mci.edu/admission

ADMISSIONS PROCEDURE

The MCI operates an admissions process for all study programs. The dates are listed on the individual study program websites, and an overview of the dates for all the programs is available at www.mci.edu/deadlines.

Applications for a place on a study program must be submitted online by the stated deadline and accompanied by the necessary documents.

The places available, will be allocated on the basis of the following criteria:

- Online application: CV & motivation
  Particular attention is paid to education and certificates, general professional development and position (duties, responsibilities etc.) as well as academic and professional goals.

- Online admission interview
  The interview is conducted by a commission and gives applicants the opportunity to present themselves personally, to expand on information provided in the application materials and to explain their academic and professional goals.

Applicants are informed as soon as possible regarding their admission. Applicants who are not admitted due to the limited number of places are put on a waiting list and can – if they are still interested – be admitted if a place becomes available. The admission process is required each year.

Partnerships

ROCHE DIAGNOSTICS GMBH

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 the first full member of biotechnet outside Switzerland and 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 complementing 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.

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.

CONNECT WITH MCI 

Going global

The Master program has a strong international orientation, which is reflected in the composition of faculty and the student body, and in the curriculum and projects. There is a strong focus on acquiring an excellent command of English.

www.mci.edu/en/international

Location, campus & services

The MCI offers students an excellent infrastructure with attractive lecture rooms, computer labs, space for group work, and modern research facilities as well as conveniently located student accommodation and car parking, and excellent access by public transport. Students also enjoy a unique university setting, with mountains on the doorstep, unbeatable opportunities for sports and leisure activities, and three other countries – Germany, Switzerland and Italy – just around the corner.

LIBRARY

Thanks to an exemplary cooperation agreement signed with Innsbruck University, students have full access to the international scientific literature and professional library services with generous opening hours. In addition, the MCI has its own smaller reference libraries with a great selection of newspapers, magazines and journals. www.mci.edu/en/library

ACCOMMODATION

As an old university town, Innsbruck offers a wide range of accommodation in dormitories, studios, shared apartments etc.

www.mci.edu/en/accommodation

SPORTS & LEISURE

Innsbruck – at the heart of the Alps – is an outstanding tourism destination that has hosted the Winter Olympics twice and as such is the perfect place for year-round sports and leisure activities. The Innsbruck University Sports Institute (USI) is also open to MCI students and offers modern facilities for a wide range of sports and healthy exercise. www.mci.edu/en/sports

ALUMNI & FRIENDS

The MCI's alumni association is a dynamic platform for debate and personal contacts for all MCI graduates, students, faculty and partners. Panel discussions with first-rate international speakers are a stimulating source of motivation and ideas and an enjoyable way to share knowledge and experience. www.mci.edu/en/alumni

CAREER

In keeping with the MCI's motto 'mentoring the motivated', a Career Center with its own international network supports MCI graduates during their first steps and subsequent development in the business world and enables companies to choose their recruitment needs from a pool of excellence. The Career Center offers support and guidance for students and alumni, including internship placements and job opportunities, interview training, career coaching and industry recruitment events. www.mci.edu/en/career

LANGUAGE SKILLS

The MCI's international orientation is underscored by the wide range of foreign languages offered, with a focus on intercultural competence and communication skills in addition to language competence. Extra-curricular language courses are available in Arabic, Chinese, Japanese, and Russian among many others. Experienced language trainers with first-class didactic skills provide a varied and fun learning experience. www.mci.edu/en/languages

STUDENT LIFE

As a university town, Innsbruck is a young-at-heart city that offers MCI students creative interaction in a wide range of fields, and a variety of entertainment and social activities (arts, music, societies, churches, health, shopping, nightlife etc.).

www.mci.edu/en/studentlife

START UPS

Entrepreneurial thinking and working are taken seriously at the MCI. The MCI's faculty, students and graduates with the entrepreneurial spirit wishing to set up their own businesses or make commercial use of the results of their research benefit from the in-depth expertise and modern infrastructure.

www.mci.edu/en/startup

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Study at MCI

For full information, please visit our website at www.mci.edu. We are always happy to advise.

BACHELOR 6 semesters

	Language	Time Model
Management & Society		
Business Administration	GER ENG	ONLINE
Business & Management	GER ENG	FT PT
Management, Communication & IT	GER	FT
Management		
Media		
Management & Law	GER	FT
Nonprofit, Social & Health Care Management	GER	FT ONLINE
Health Management		
Nonprofit Management		
Social Management		
Social Work	GER	FT
Tourism Business Studies	GER	FT
	GER	
Technology & Life Sciences	GER	
Biotechnology & Food Engineering	GER	FT
Digital Business & Software Engineering	GER	ONLINE
Environmental, Process & Energy Engineering	GER	FT PT
Industrial Engineering & Management	GER	FT PT
Mechatronics	GER	FT
Electrical Engineering		
Mechanical Engineering		
Medical, Health and Sports Engineering	GER	FT
Medical Engineering		
Health and Sports Engineering		
Smart Building Technologies	GER	DUAL

MASTER 4 semesters

	Language	Time Model
Management & Society		
Corporate Governance & Finance	ENG	ONLINE
Entrepreneurship & Tourism	GER ENG	FT
Marketing Management		
Strategic Management		
European Health Economics & Management	ENG	FT
International Business & Law	ENG	FT
International Business & Management	ENG	FT PT
International Health & Social Management	ENG	FT
Management, Communication & IT	ENG	FT
Social Work, Social Policy & Management	GER	FT
Technology & Life Sciences		
Biotechnology	ENG	FT
Food Technology & Nutrition	GER	FT PT
Environmental, Process & Energy Engineering	GER ENG	FT PT
Chemical Engineering		
Energy Engineering		
Environmental Engineering		
Plant Engineering & Operations		
Industrial Engineering & Management	GER	PT
Mechatronics & Smart Technologies	GER ENG	FT PT
Electrical Engineering		
Mechanical Engineering		
Medical Technologies	ENG	FT

EXECUTIVE EDUCATION

Part-time advanced training for decision-makers

Executive PhD Program in Management ENG

Executive Master 4 semesters
Digital Business MBA GER ENG ONLINE
Digital Economy & Leadership MSc GER ONLINE
Digital Marketing & Analytics MSc GER ONLINE
Executive MBA ENG ONLINE
LL.M. Digital Business & Tech Law GER ONLINE
Management & Leadership MSc GER PT

Certificate Courses
Controlling & Management
Corporate Communications
Digital Business Analytics
Family Business
General Management
Human Resources Management
Innovation Management
Management, Psychology & Leadership
Marketing
Sales Management
Systemic Leadership Psychology

Management Seminars
Management
Leadership
Communication
Digital Skills

Leadership Trainings
Programs for universities
Corporate Programs

Technical Trainings
Automation & Control Engineering
Fundamentals of Process Engineering
In-house Energy Management
Workshop Computational Fluid Dynamics

International Sessions for Students
Summer School / Winter School

ENG = English, GER = German, FT = Full-time, PT = Part-time, ONLINE = Blended learning (online & attendance modules)

09 / 2020

www.mci.edu

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MCI®

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START-UPS & BETEILIGUNGEN I START-UPS & SUBSIDIARIES

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