

Master in MEDICAL BIOTECHNOLOGY (MeBi)

1. Who we are:

The UNIVERSITY OF PERUGIA and the DEPARTMENT OF MEDICINE

The University of Perugia, founded in 1308, is one of the oldest universities in Italy and one of the most accredited, offering a wide variety of courses in all fields of education. Our goal is to provide students with the finest quality degree programs and academic opportunities within a stimulating multicultural environment, along with the opportunity to enjoy an excellent lifestyle and foster their personal and academic growth while studying at the highest level.

The School of Medicine origins can be placed in the second half of the 13th century. It had its official consecration as *Facultas medicinae, philosophiae et artium* with Clements the 5th's papal bull on September 8th 1308 which officially established the Studium Generale in the city of Perugia. Among its eminent doctors, Gentile Gentili da Foligno (born in the second half of the 13th century and died in 1348), famous for his medical writings, including the *Commento al Canone di Avicenna*, Mattiolo Mattioli Perugino (died 1480), author of the famous *Tractatus Artis Memorativae*, Alessandro Pascoli (1669-1757), Professor of Anatomy, Annibale Mariotti (1738-1801), scholar of G.B. Morgagni, Raffaello Silvestrini (1868-1959), Professor of Medicine, deserve to be mentioned. The Department of Medicine bears the heritage of the long history of the Medical School of Perugia. In detail, the clinical disciplines belonging to the Department are connected through the internistic, specialistic and pharmacological competences in a rich and integrated multidisciplinary system. This system is instrumental to the present needs of health care, scientific research, prevention and training activities of modern clinical and molecular medicine. Several groups already own and/or are refining outstanding biotechnological competences that will be made available to the students of the MeBi Master.

2. The course

1ST LEVEL VOCATIONAL MASTER IN MEDICAL BIOTECNOLOGY (MeBi)

In this historical phase in which medicine is strongly shifting towards molecular diagnostics and therapeutics, a constant updating of professional figures who possess "Medical Biotechnology" skills is required. Training in the field of medical biotechnology requires the acquisition of knowledge on molecular diagnostics, targeted therapies, gene and cellular therapies, and techniques necessary to the determination of all relevant diagnostic, prognostic and effectiveness biomarkers.

The Master in Medical Biotechnology (MeBi) is a First Level Master and can be attended by holders of First Level university degrees (3 years = Bachelor) in Biotechnology and Biology and by holders of Second Level Master Degrees in Medicine, Pharmacy and Pharmaceutical Chemistry and Technologies.

The Master in Medical Biotechnology (MeBi) is structured so that students can acquire theoretical knowledge and practical skills within the entire panorama of medical biotechnology. It foresees the understanding of the molecular bases of human diseases, with insights into the most important areas (genetics, infectious diseases, immunology, endocrinology, onco-hematology, neurology), and the learning either of the most important biotechnological applications for prevention, diagnosis, prognostic stratification, therapy of different diseases, or of the paths involved in the development of diagnostic instruments and biotechnological drugs, including an overview on bioinformatics.

The Master in Medical Biotechnology (MeBi) will train professionals in the medical biotechnology sector who can be employed in the fields of production (Pharmaceutical companies, industries, biotech companies, private research laboratories), academia (Universities and other public research organizations), analyses (Public and private diagnostic laboratories) and regulation (Institutions responsible for drawing up technical regulations or quality certifications).

The Master in Medical Biotechnology (MeBi) aims at enhancing and broadening knowledge and skills in molecular medicine and in the derived diagnostic and therapeutic applications, with a properly balanced mixture of classroom lectures, lab and practical activities, individual and group learning, and internships.

The course will focus on the study of topics related to:

- Disease processes in the areas of genetics, infectious diseases, immunology, endocrinology, onco-hematology, neurology
- Role of microbiota in health and disease
- Molecular and cellular biotechnologies
- Advanced molecular diagnostic systems
- Molecular and cellular therapies of major human diseases
- Bioinformatics and systems biology

Through the acquired knowledge and the performed activities, the students will develop the following skills (Know-how):

- Be able to use the major molecular and cellular biotech methods either in the experimental setting or in the clinical one
- Be able to work on the deepening of cellular and molecular pathogenetic mechanisms of human diseases
- Be able to run a microbiology lab
- Be able to design and apply in collaboration with medical doctors novel preventive, diagnostic and therapeutic strategies for human diseases
- Be able to design novel diagnostic instruments, biopharmaceuticals and vaccines
- Be able to design and interpret bioinformatic analyses and support bioinformatics in the design of novel softwares

The MeBi Master's degree is a full-time one year program (60 EUC = European University Credits = 1,500 hours), fully taught in English, recognized by the Italian and European educational system.

MODULES	TEACHING	INDIVIDUAL STUDY	EUC
Inflammation and inflammatory diseases	40	60	4
Inflammation and immune system	10	15	1
Inflammatory diseases	10	15	1
Therapy of inflammation	20	30	2
Endocrinology	50	75	5
Molecular endocrinology	20	30	2
Cracking the code for thyroid hormone signaling	10	15	1
Autoimmune endocrine disorders	20	30	2
Oncology	50	75	5
Oncogenes and transformation	20	30	2
Cancer-related inflammation	10	15	1
Novel therapeutic approaches to cancer	20	30	2
Pharmacology and Therapeutics	60	90	6
Molecular pharmacology	20	30	2
Biotechnological drugs	20	30	2
Development of a new drug: From target validation to clinical trials (I)	10	15	1
Development of a new drug: From target validation to clinical trials (II)	10	15	1
Molecular pathology of human diseases	50	75	5
Impact of molecular pathology on traditional pathology diagnostics (I)	10	15	1
Impact of molecular pathology on traditional pathology diagnostics (II)	10	15	1
Molecular pathology of hematologic diseases	10	15	1
The Cancer Genome Atlas project and its impact on tumor diagnosis, prognostic stratification and treatment	20	30	2
Impact of genetic and epigenetic mechanisms in human diseases	50	75	5
Overview on genetic diseases	20	30	2
Role of epigenetic disorders on development of human diseases	20	30	2
Genetic variation in inflammation and immunology	10	15	1
Microbes and human health	50	75	5
Molecular diagnostics in microbiology	20	30	2
Gut microbiota and human diseases	10	15	1
Infectious diseases	20	30	2
Neurology	60	90	6
Neuropathology	20	30	2
Molecular neurology	20	30	2
Neurodegenerative disorders	10	15	1
Genome-wide association studies in psychiatry	10	15	1
Haematology	60	90	6
Molecular Haematology	20	30	2
Novel therapeutic approaches to haematologic malignancies (I)	10	15	1
Novel therapeutic approaches to haematologic malignancies (II)	10	15	1
Biotechnological applications to hemostasis and thrombosis	20	30	2
Bioinformatics	60	90	6
Medical statistics	20	30	2
Bioinformatics	20	30	2
Systems biology	20	30	2

Lessons will be held by professors from the University of Perugia and invited external professors, researchers or specialized staff (other Italian and foreign Universities and Research Centers). Supplementary individual stage activities (100 hours = 4 EUC) will be planned in laboratories of the Medical School in Perugia.

Intermediate and final exams, mostly written, will assess the performance and achievements of participants.

The participation of renowned lecturers from different Universities and Institutions (Research centers) offers a high-profile educational value of this Master.

Moreover, the opportunity to join practical activities and to undertake an internship in research facilities will ensure comprehensive training for a professional operator in medical biotechnology.

Those students completing the MeBi Master and who wish to continue their studies at the University of Perugia, can directly access the second year of a programmed Master Degree (two year program – 120 EUC).

The Master will be held in the period **January 2017 – December 2017**.

For scientific info please contact: carlo.riccardi@unipg.it

For administrative info please contact: cinzia.rampini@unipg.it

3. How to enroll:

The maximum number of students who can be admitted is established at **50** and the minimum at **20**.

The tuition fee is set at **3,000 €**(+ 76€ administrative fees).

Before the enrollment an application form, enclosed with all the required documents, has to be completed, scanned as .pdf files and sent to: carlo.riccardi@unipg.it

Deadline for the application : September 30th 2016

Requirements

Requirements for enrolment in the MeBi Master Program:

1. A BSc degree (or equivalent)
2. A Grade Point Average (GPA) for this BSc of at least 70% of the maximum grade
3. A Master Degree in Medicine, Pharmacy or Pharmaceutical Chemistry and Technologies
4. Fluency in English, both written and spoken

Relevant BSc degrees

Applicants for the Master in MeBi must have a relevant BSc degree in biotechnology or biology.

Documents to be submitted

1. *A completed application form (see the application form file below).*
2. *Bachelor degree (or equivalent) or admitted Master degree in Italian or English (with a certified Italian translation). Students in the final year of their Bachelor may also apply for admission prior to graduation. The Master's Committee can tentatively admit students based on a transcript of their academic record and the expected date of graduation. Once admitted, the holders of foreign degrees must have their degree recognized by the Italian competent Authorities. To enroll as a student a certified copy of the degree must be submitted before December 1.*
3. *Transcript of academic records (list of subjects and marks obtained during the Bachelor or Master Degree) in Italian or English (with a certified Italian translation). Once admitted, the holders of foreign degrees must have their degree recognized by the Italian competent Authorities.*
4. *English language proficiency test results*
5. *A Curriculum Vitae or brief personal history*
6. *A statement of motivation explaining why you wish to enroll in this Master course and its relevance for your future career / employment opportunities (one page maximum).*
7. *A letter of support written by one professors or present supervisor/employer.*

All documents must be submitted as **PDF files**.

A Master's committee will check the applications. Only complete applications will be submitted to the Master's Committee. You will receive a registration letter (by email). An applicant who does not meet the admission requirements and is rejected by the Master's Committee will receive notification as soon as possible. For those who will pass the Committee evaluation, instructions for final registration will be sent by email, including the bank code for tuition payment.

Please note that the application becomes property of the University of Perugia after you send it. No original official documents must be sent. You will be required to submit a certified copy of your diploma and list of subjects/marks before you can be enrolled as a student.

4. General Information for International Students

For international student general information about facilities and services:

<http://www.unipg.it/en/international-students/general-information>

in particular;

For accommodation:

<http://www.unipg.it/en/international-students/general-information/accommodation>

For meals:

<http://www.unipg.it/en/international-students/general-information/meals>

In addition to the many services and facilities available to all of our students, we offer specialized support services to International students, providing useful information about University courses, visas, health insurance services, enrolling procedures and everything students may need in order to enjoy their stay with us and benefit from an inspiring and supportive learning environment.

For enquiries, please feel free to contact us at: area.relint@unipg.it