

# MASTER OF SCIENCE IN BIOMEDICAL SCIENCES

MAJORS: NUTRITION AND METABOLISM - CANCER - SYSTEMS BIOLOGY - IMMUNITY AND INFECTION - MEDICAL GENETICS - MEDICAL RADIATION SCIENCES  
- TISSUE ENGINEERING AND REGENERATIVE MEDICINE - NEUROSCIENCES

120 ECTS CREDITS - LANGUAGE: ENGLISH

## WHAT

A Master in Biomedical Sciences has the expertise to contribute to translational research in human biology addressing current medical questions on an international level. You will have the know-how to critically and creatively develop new insights related to human health, bridging the gap between the 'pure' sciences and clinical practice. The Master's programme amounts to 120 credits and consists of specialized biomedical topics, course units that prepare for a research proposal, a Master's dissertation and the professional life. You will have 31 credits to spend on elective courses from a proposed list (10 in the first year, 21 in the second year). With its strong focus on research our programme trains students to conduct, lead and/or coordinate independent biomedical research.

## STRUCTURE

The students can choose between eight majors that complement the general courses. Each major focusses on a current, ever-evolving (sub)field of biomedical sciences. You will be assigned one major that is in close accordance with your research proposal and the subject of your Master dissertation. Each major has complementary courses and an internship in their subfield. They start from fundamental research and lead to clinical applications and insights, the so-called translational research.

- The major **Nutrition and Metabolism** deals with the methods of nutrition research and the relation between nutrition, metabolism and pathology: diabetes, obesity, hypertension, atherosclerosis etc. The major has a direct link with medical laboratory diagnostics and its underlying validation systems.
- The major **Neurosciences** focuses on research of the brain and its diseases and dysfunctions, such as epilepsy. You will deal with medical imaging of the brain, the neurophysiological principles of brain activity, diseases of the nervous system (origins and treatment), neurogenetics, experimental behavioral sciences and cognitive and mental functions research.
- The major **Tissue Engineering and Regenerative Medicine** is an interdisciplinary field of biomedical research combining life sciences, engineering and materials sciences to stimulate the maintenance, repair and replacement of diseased and damaged tissues. The major provides in-depth training in this subfield of biomedical sciences, including cell death, stem cell biology, biomaterials, and tissue/organ engineering.
- The major **Medical Radiation Sciences** can be considered as preparation for an advanced programme in Medical Radiation Physics with a focus on patient radiation protection in medical diagnostics and therapy.

The most recent insights in radiation biology, radiation dosimetry and radiochemistry will be studied as well as the technological innovations in radiation sciences.

- The major **Medical Genetics** provides deeper insights into the newest developments in human medical genetics including the mono- and polygenetic basis of inherited disorders, developmental genetics and cancer genetics. Further focus goes to state-of-the art sequencing technology, data processing and analysis both in clinical and research settings, and emerging functional genomics technology.
- The major **Immunity and Infection studies** the normal functioning of human immunity on cellular and molecular level. A large number of current topics are dealt with: immunopathologies, infection diseases, molecular pathogenesis of viruses and bacteria, the development of therapeutic vaccines and immunomodulators.
- The major **System Biology** studies the functional system as a whole. The objects of study are the complex interactions that occur at the molecular level within a human being, a model organism, or a cell. Attention is paid to changes that cause such a system to transition from health to disease, and to quantify the impact of these changes by analyzing their disruptive effects on the underlying molecular mechanisms. The major strongly relies on the key technological developments that have pushed molecular biology forward in the last decade, specifically regarding advanced high throughput techniques and bioinformatics.
- The major **Cancer** studies the biological (genetics, proliferation and survival, communication and metastasis) and clinical aspects of cancer. Biological and clinical knowledge is combined into personalized medicine

In the two-year Master's programme you have the opportunity to take course units (1st master - 1st term) or to perform a part of your Master's dissertation (2nd master - 1st and 2nd term) at one of our international partner universities. Since the Master's programme in Biomedical Sciences is entirely English-taught, (part of) the programme can be taken up by international exchange students. If you want to combine your Master's degree with a Teacher's degree, then there is the option of taking a Master's Programme in Teaching (in Dutch: 'Educatieve master') instead of the above described master. The Master's Programme in Teaching is not a part of the Master in Biomedical sciences, it is a separate degree. The Master's Programme in Teaching is a Dutch-taught programme. More information can be found on [www.ugent.be/educatievemaster](http://www.ugent.be/educatievemaster).

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## LABOUR MARKET

Research in the field of biomedical sciences will remain highly important due to its major social relevance for healthcare. A biomedical researcher contributes to the understanding of disease mechanisms and improves molecular diagnostic techniques of clinical treatments. Personalized medicine will gradually gain importance, so the professional future in biomedical research looks promising. If you are looking for a job as a biomedical researcher, you have different options. You can opt for an academic research environment by starting a PhD at a university, working in research-oriented companies or in a university hospital. There are also job opportunities in pharmaceutical or biotechnology companies, or in government-run research institutions. Finally, jobs in such sectors as public health, environment, food industry and bio-informatics are also an option for Masters in Biomedical Sciences.

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## TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

### 1 Rechtstreeks:

- Bachelor in de biomedische wetenschappen

### 2 Na het met succes voltooien van een voorbereidingsprogramma:

#### 45 SP

- Bachelor in de biochemie en de biotechnologie

#### 49 SP

- Bachelor in de diergeneeskunde

#### 59 SP

- Bachelor in de bio-ingenieurswetenschappen, afstudeerrichting: cel- en genbiotechnologie

#### 62 SP

- Bachelor in de geneeskunde

### 3 Na het met succes voltooien van een schakelprogramma:

#### aantal studiepunten te bepalen door de faculteit

- Bachelor in de biomedische laboratoriumtechnologie

## Information sessions

### Graduation Fair

[afstudeerbeurs.gent/en/students/further-studies](https://afstudeerbeurs.gent/en/students/further-studies)

### Enrolling institution

Information on enrolment at Ghent University.

### Application Deadline (for International degree students)

For students who **need a visa**: before 1st of April

For students who **do not need a visa**: before 1st of June

[Read more](#)

### Tuition fee

More information is to be found on: [www.ugent.be/tuitionfee](https://www.ugent.be/tuitionfee)

## Contact

[biomed@ugent.be](mailto:biomed@ugent.be)

## Learning path counsellor

Evelien Van Waes – Lynn Opdebeeck

T 09 332 53 69 of 09 332 11 04

[traject.ge@ugent.be](mailto:traject.ge@ugent.be)

[www.ugent.be/ge](https://www.ugent.be/ge) > [monitoraat](#)

## Contact (for international degree students)

[biomed@ugent.be](mailto:biomed@ugent.be)

## ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

An academic diploma of Bachelor (or Master) in Biomedical Sciences or an equivalent to this.

Information on admission requirements and the administrative procedure for admission on the basis of a diploma obtained abroad, can be found on the following page: [www.ugent.be/prospect/en/administration/enrolment-or-registration](https://www.ugent.be/prospect/en/administration/enrolment-or-registration).

## LANGUAGE REQUIREMENTS

Language requirements Dutch: no language requirements  
English: CEFR level B2

The language requirements for this study programme can be found on: [www.ugent.be/languagerequirements](https://www.ugent.be/languagerequirements)

## PRACTICAL INFORMATION

### Study programme

[studiekiezer.ugent.be/master-in-biomedical-sciences-en/programma](https://studiekiezer.ugent.be/master-in-biomedical-sciences-en/programma)