

# 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 fundamental or applied sciences and clinical practice. The Master's programme amounts to 120 credits and consists of specialised biomedical topics, course units for learning to write and defend a research proposal, performing independent research in your master thesis and preparing you for professional life. You will have 31 credits to spend on elective course units 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 co-ordinate independent biomedical research.

## STRUCTURE

The students must choose one from eight majors that complement the general course units. Each major focuses on a current, ever-evolving (sub)field of biomedical sciences. After you are assigned to a major, you can choose a research proposal/Master's dissertation topic that is embedded in this major. Each major contains complementary course units and provides work placement in their subfield. They start from fundamental research and lead to clinical applications and insights, the so-called translational research.

- The **Nutrition and Metabolism** major 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 **Neurosciences** major focuses on research of the brain and its diseases and dysfunctions, such as epilepsy, parkinson's disease, dementia,... You will deal with medical imaging of the brain, the neurophysiological principles of brain activity, the cause and treatment of neurological diseases, neurogenetics, techniques for neurobiological and behavioral research,...
- The **Tissue Engineering and Regenerative Medicine** major 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 an in-depth training in this subfield of biomedical sciences, including cell death, stem cell biology, biomaterials and tissue/organ engineering.

- The **Medical Radiation Sciences** major 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 **Medical Genetics** major 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 **Immunity and Infection** major 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 **System Biology** major connects to the other majors because the system: a human being, a model organism, or a cell is studied as a whole with respect to the complex interactions that occur at the molecular level. 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 is strongly technology driven, specifically regarding advanced high throughput molecular biology techniques and bioinformatics.
- The **Cancer** major studies the biological (genetics, proliferation and survival, communication and metastasis) and clinical aspects of cancer. Biological and clinical knowledge is combined into personalised 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

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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 in Biomedical Sciences 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, however, is a Dutch-taught programme. For more information go to [www.ugent.be/educatievemaister](http://www.ugent.be/educatievemaister).

## LABOUR MARKET

The professional field is very broad and includes biomedical R&D in industry, universities and hospitals; teaching at high schools and universities; biomedical consulting for clinicians, industry and government.

Want to know what our graduates actually do as a job? Read our [careerguide](#) (in Dutch)!

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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

## PRACTICAL INFORMATION

### Study programme

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

### Information sessions

#### EVOLV

[evolv.ugent/en/students/further-studies](https://evolv.ugent/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

Curriculum manager

Katrien Van Holle

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

### Learning path counsellor

Lynn Opdebeeck - An Van Steenberghe

T 09 332 53 69 of T 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)