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 specialised 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 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 can choose from eight majors that complement the general course units. Each major focuses 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 your Master's dissertation topic. Each major contains complementary course units and a 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. 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 **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 studies** major 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 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 **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/educatievemaster.

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. Personalised 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 at a university hospital. There are also job opportunities at pharmaceutical or biotechnology companies, or at government-run research institutions. Finally, jobs in such sectors as public health, environment, food industry and bio-informatics are also an option for our graduates.

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FACULTY OF MEDICINE AND HEALTH SCIENCES

2024-25

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

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.

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

PRACTICAL INFORMATION

Study programme
studiekiezer.ugent.be/master-in-biomedical-sciences-en/programma

Information sessions
Graduation Fair
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

Contact
biomed@ugent.be

Learning path counsellor
Amy De Blende - Lynn Opdebeeck
T 09 332 53 69 of T 09 332 11 04
traject.ge@ugent.be
www.ugent.be/ge > monitoraat

Contact (for international degree students)
biomed@ugent.be