MASTER OF SCIENCE IN BIOSCIENCE ENGINEERING: CELL AND GENE BIOTECHNOLOGY

MAJORS: MA CEGB 00 RED - MA CEGB 00 COMPBIOL - MA CEGB 00 WHITE - MA CEGB 00 GREEN

120 ECTS CREDITS - LANGUAGE: ENGLISH

FACULTY OF BIOSCIENCE ENGINEERING

2022-23

WHAT

Our programme's objective is to train scientists into becoming responsible and professional bioengineers, at once able to work in multidisciplinary teams and equipped with creative concept problem-solving skills, a solid basis for an engineering mindset in cell- and gene biotechnology and knowledge of tools and methods in molecular biology, bioinformatics and biotechnology of humans, animals, plants and micro-organisms and their applications. The emphasis is on the exploitation of the living cell, industrial applications of genetic modification and molecular diagnostics. Bioengineers specialised in cell and gene biotechnology are capable of directing biological processes at DNA, protein, organism or ecosystem level and of using their engineering mindset to put that knowledge into practice for industry and society. The professional field is very broad and includes the production, analysis and application of enhanced biological processes, organisms, or systems to manufacture products intended to improve the quality of human life.

STRUCTURE

The foundation of the curriculum is an in-depth fundamental and practical knowledge regarding the biological, biochemical and molecular aspects of humans, animals, plants and microorganisms, including its applications to solve complex problems. This is further complemented by technological, process and engineering-oriented course units, which enable the (industrial) upscaling (e.g. through cell and tissue cultures, bioreactors or mass cultivation) and subsequent harvesting, purification and formulation into economically viable products, taking into account ecological and ethical aspects. To this end, the curriculum also contains management skills. A quantitative approach to the fundamental and technological aspects based on biological data sciences takes centre stage. Our solid and multidisciplinary training makes for Cell and Gene Biotechnology graduates who are proficient in the biotechnology and bioscience engineering of animals, plants, the human body and micro-organisms to solve scientific and societal challenges in multidisciplinary teams.
The explosive growth of biotechnology has on the one hand resulted in a high variety of employment possibilities in the pharmaceutical, nutraceutical, agricultural, and food and feed sectors, and to an increasing demand for specialised academics on the other. Our study programme addresses this need by giving future bioengineers with a specialisation in cell and gene biotechnology a broad basic training (general courses), complemented with a specialisation by means of an elective major. Each major consists of a fixed set of electives in a specific discipline:

- Biomedical Biotechnology
- Plant Biotechnology
- Industrial Biotechnology

Additionally, students have the possibility to further expand their skillset and attitudes in a broader context by means of elective course units.
The Faculty of Bioscience Engineering is highly international. As such it is a hub for coming into contact with students and cultures from all over the world. Additionally, there are several ways to gain experience abroad: you can e.g. participate in an exchange programme during the Master's programme. A work placement abroad is also one of the possibilities. In addition, you can go abroad for a period of time as part of your Master's dissertation. For programme-specific information, please visit https://www.ugent.be/bw/nl/voor-studenten/buitenland (Dutch only).

LABOUR MARKET

The Master of Science in Bioscience Engineering: Cell and Gene Biotechnology programme offers a solid preparation for a managerial career in research and product development. Possible application areas are industrial fermentation processes, environmental remediation, food, fine chemicals, human health, plant cultivation, animal husbandry, pharmaceutical and biotechnological industry, which also reflect possible professional profiles. In addition to different sectors of industry, a bioengineer specialised in cell and gene biotechnology also frequently finds employment in the research and/or education sector at universities, research institutes, government institutes and the R&D departments of big companies.
Find out where our graduates work (Dutch only) and take a look at our alumni's highly diverse profiles.

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

1 **Rechtstreeks:**
- Bachelor in de bio-ingenieurswetenschappen
- Bachelor of Molecular Biotechnology

Additional Information on Admission (Flemish Degree)

There are no preparatory courses organized that give access to the Master's programmes of Bioscience Engineering.
Students who have obtained an academic bachelor's degree in a closely related field of study (eg. Biology, Biochemistry and Biotechnology, Biomedical Sciences, Bioscience Engineering Technology, Chemistry, Engineering, Engineering Technology, Bioindustrial Sciences, Pharmaceutical Sciences, ...) can submit a request for exemptions in the *Bachelor of Science in de bio-ingenieurswetenschappen* which gives immediate admission to the master's programme.
For further information, please visit: http://www.ugent.be/bw/en/for-students/flexible-

ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

Students who wish to enrol for the Master of Science in Bioscience Engineering: Cell and Gene Biotechnology can enter the programme if they hold the following diploma: an academic diploma of Bachelor (or Master) of Science in Engineering (university level, minimum three years), with the main subject in Bio(science) Engineering or an equivalent to this. Admission can only be granted after an individual application procedure. The Study Programme Committee will make the final decision whether to accept the application or not.

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-of-science-in-bioscience-engineering-cell-and-gene-biotechnology-IMCEGB-en/programma

Information sessions
Graduation Fair
afstudeerbeurs.gent/en/students/further-studies

Open Days
25 April 2023 19u00 - 21u00 - Campus Coupure (E-blok, Agora), Coupure Links 653, 9000 Gent

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
Learning path counsellor
Mevr. Isabelle Vantornhout
studietraject.coupure.bw@UGent.be