

MASTER OF SCIENCE IN BIOSCIENCE ENGINEERING: CELL AND GENE BIOTECHNOLOGY

MAJORS: BIOMEDICAL BIOTECHNOLOGY • PLANT BIOTECHNOLOGY • INDUSTRIAL BIOTECHNOLOGY • COMPUTATIONAL BIOLOGY
120 CREDITS – LANGUAGE OF INSTRUCTION: ENGLISH – DIPLOMA: MASTER OF SCIENCE

CONTENT

The objective of the programme Master of Science in Bioscience Engineering: cell and gene biotechnology is to train scientists to become responsible and professional bioscience engineers who can work in multidisciplinary teams and who are equipped with creative concept problem-solving skills, a firm basis for an engineering way of thinking in cell- and gene biotechnology and knowledge of tools and methods in molecular biology, bio-informatics 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. Bioscience engineers in cell and gene biotechnology are capable of directing biological processes at the DNA, protein, organism or ecosystem level and use their engineering mind-set 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 basis of the programme is driven by acquiring in-depth fundamental and practical knowledge regarding the biological, biochemical and molecular aspects of humans, animals, plants and microorganisms, including their applications to solve complex problems. This is further complemented by technological, process and engineering-oriented courses, which enable (industrial) upscaling (e.g. through cell and tissue cultures, bioreactors or mass cultivation) and subsequently harvesting, purification and formulation into economically viable products, taking into account ecological and ethical aspects. To this end, also management skills are imparted. Based on biological data sciences a quantitative approach to the fundamental and technological aspects of the training is central. Thanks to the solid and multidisciplinary training, every bioscience engineer in cell and gene biotechnology will, upon graduation, be 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.

Due to the explosive growth of biotechnology, there is high variety of employment possibilities in the pharmaceutical, nutraceutical, agricultural and food and feed sectors. To address this increasing demand for academics with a more specialised background, the basic bio-engineering cell and gene biotechnology training programme is complemented with an elective major in the master's programme.

Each major comprises a fixed package of electives in a certain domain, namely:

- Biomedical biotechnology
- Plant biotechnology
- Industrial biotechnology
- Computational biology

> Internationalisation

The Faculty of Bioscience Engineering is highly internationally oriented. You will come into contact with students and cultures from all over the world. Moreover, there are various ways in which you can gain experience abroad. For example, you can take part in an exchange programme during the master's education. An internship abroad is also one of the possibilities. In addition, you can also go abroad for a period of time as part of your master's thesis. For programme-specific information, please visit www.ugent.be/bw/nl/voor-studenten/buitenland (Dutch only).

JOB MARKET

The educational programme of Master of Science in Bioscience Engineering: cell and gene biotechnology is a good preparation for a managerial career in research and product development. 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 the labour market in industry, the bioscience engineer in cell and gene biotechnology also frequently works in research and/or education at universities, research institutes, government institutes and the R&D departments of big companies.

On the website www.bioingenieursaanheterk.be (Dutch only) very different alumni profiles can be consulted.

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

Rechtstreeks:

- Ba bio-ingenieurswetenschappen
- BSc Molecular Biotechnology (GUGC Korea)

Ben je in het bezit van een nauw verwant academisch bachelor-diploma (bv. biologie, biochemie en biotechnologie, biomedische wetenschappen, biowetenschappen, chemie, ingenieurswetenschappen, (bio-)industriële wetenschappen, farmaceutische wetenschappen ...), dan kun je vrijstellingen aanvragen binnen de opleiding Bachelor in de bio-ingenieurswetenschappen, die rechtstreeks toegang verleent tot deze masteropleiding. Alle informatie: www.ugent.be/bw/start-een-master

PRAKTISCHE INFORMATIE

Studieprogramma:

<https://studiegids.ugent.be>

> faculteiten > opleidingstypes > ga naar de opleiding van je keuze

Alternatieve trajecten - doorstroomprogramma's

Ben je in het bezit van een diploma industrieel ingenieur: biochemie, chemie, milieukunde, land- en tuinbouwkunde of voedingsindustrie, dan kan je – na toelating op basis van dossieronderzoek – onmiddellijk starten in de betreffende masteropleiding (horizontale instroom).

Je volgt dan een geïndividualiseerd traject van minstens 120 sp.

De trajectbegeleider is je contactpersoon.

Meer info: www.ugent.be/bw/start-een-master

Infomomenten

Masterbeurs

www.ugent.be/masterbeurs

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.

LANGUAGE

More information regarding the required knowledge of English: www.ugent.be/specificalanguage

PRACTICAL INFORMATION

Study programme:

www.ugent.be/coursecatalogue

> by Faculty > Programme types > select your programme

Application deadline for international degree students

for students who need a visa: 1st of March

for students who do not need a visa: 1st of June

www.ugent.be/deadline

Enrolling institution

Ghent University

Tuition fee

More information is to be found on:

www.ugent.be/tuitionfee

Trajectbegeleiding/Learning path counsellor

Mevr. Isabelle Vantornhout

studietraject.coupure.bw@ugent.be - www.ugent.be/bw

Meer info

Afdeling Studieadvies – Campus Ufo, Ufo,
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