MASTER IN BIOCHEMISTRY AND BIOTECHNOLOGY

MAJORS: BIO-INFORMATICS AND SYSTEM BIOLOGY • BIOCHEMISTRY AND STRUCTURAL BIOLOGY • BIOMEDICAL BIOTECHNOLOGY • MICROBIAL BIOTECHNOLOGY • PLANT BIOTECHNOLOGY
MINORS: RESEARCH • EDUCATION • ECONOMICS AND BUSINESS ADMINISTRATION • INTERDISCIPLINARY COMBINATION

120 ECTS CREDITS – LANGUAGE: ENGLISH – DEGREE: MASTER OF SCIENCE

An equivalent programme taught in Dutch is available.

COURSE CONTENT

The Master in Biochemistry and Biotechnology offers scientists not only a thorough knowledge of biochemistry, molecular biology, genetics, cell biology and physiology but also the ability to use biochemical and biotechnological techniques in a creative and inventive manner on plants, animals or humans. The students are also initiated in the interesting world of bioinformatics.

The training in biochemistry and biotechnology also has a social dimension: to apply research and knowledge in favour of humanity and society. This social involvement is reflected in research on the origin and treatment of all kinds of illnesses (such as cancer, chronic inflammation and metabolic diseases), research on the improvement of plants (sustainable food production, production of food with improved nutritional quality, production of bio-fuels) and research on the use of micro-organisms in certain chemical processes (detoxification of contaminants).

There is a close interaction between education and research in the biochemistry and biotechnology programme, based on a strong and world-famous research tradition of the three departments involved.

COURSE STRUCTURE

The master's programme of biochemistry and biotechnology offers courses in English and Dutch. It is possible to choose a complete curriculum of English courses.
The two-year master's programme (120 credits) consists of four modules of 30 credits each:

- common general courses (general, broadening),
- major course package (specialising),
- minor course package (broadening),
- master's dissertation (practical training).

The master's programme offers five specialising majors:

- the major Bio-informatics and System Biology is based on the recent need for bio-computing and computational biology for the processing of the vast amount of data generated from the biological information flow on different levels (genome, transcriptome, proteome, interactome, signalosome);
- the major Biochemistry and Structural Biology focuses on the determination of protein structures and the study of the functioning of molecular 'machines';
- the major Biomedical Biotechnology studies the relation between basic cell biological processes and pathological processes (inflammation, cancer, metabolic illnesses) and pays also attention to biomedical applications such as the development of new vaccines and new therapies;
- the major Microbial Biotechnology studies microbial diversity and functionality and applies the fundamental knowledge of the molecular genetics of micro-organisms such as bacteria, yeast, moulds and viruses in a broad variety of biotechno-logical applications;
- the major Plant Biotechnology aims at the development of biotechnological applications of plants in agriculture (e.g. disease resistance or drought tolerance), production of bio fuels and the biosynthesis of products with medical appli-cations.

The major is supported by a training period (6 credits) in the first master and a master dissertation (30 credits) in the second master.

The master's programme offers four broadening minors:

- The minor Research offers the students an extra speciality, chosen from the remaining majors and offers an extra training period (this minor is particularly interesting for English speaking students);
- The minor Education offers a part of the secondary teacher training;
- The minor Economics and Business Administration offers an introduction to different aspects of business life;
- The minor Interdisciplinary Combination permits to combine a major with a coherent package of courses from a different field (informatics, chemistry, engineering sciences ...).

In the second year, a research project (master's dissertation) of 30 credits is scheduled. The master's dissertation is a requirement for every student to obtain a master's degree. The master's dissertation is an original piece of research work. It aims to develop and strengthen the research capacity skills of the students. The student selects a topic and is given guidance by a supervisor. The master's dissertation consists of a literature review part, practical research and an original analysis of the topic.

CAREER PERSPECTIVES

A very large number of the current graduates in biochemistry and biotechnology (between 40-60% in the past five years) starts doctoral studies; most of them graduate successfully. Ghent University has a strong research tradition in the domain of biochemistry and biotechnology, which leads to highly qualified PhDs in an internationally competitive research environment. Later, these doctors find their way to national and international universities, research institutions and a growing number of young biotechnological companies.

The use of biochemical and biotechnological methods and production strategies increases in health care, the environmental sector, the food industry, the agricultural industry, the chemical industry. This implies that there is and will be a demand for academically educated, but also practically trained biochemists and biotechnologists. Given the broad scientific basic education, the combination of chemistry and biology, the practical and research-oriented aspects of the study programme, the biochemist and the biotechnologist are well trained for the job market.

The fields of employment are scientific research at universities, research centers, R&D in companies, pharmaceutical industry, cosmetics companies, laboratories for medical analysis, food industry, fermentation industry, agricultural industry, petrochemical industry, chemical industry, biotechnological companies, companies in environmental technology, public services for water treatment, the environmental sector.

Finally, graduates in biochemistry and biotechnology often end up in education, both at the level of the secondary schools (for masters) and at the level of the colleges of higher education (for doctors).

FACULTY OF SCIENCES

2018–19

WE05

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

Rechtstreeks:
- Ba biochemie en biotechnologie
- Ma biochemie
- Ma industriële wetenschappen: biochemie

Via schakelprogramma: (90 studiepunten)
- Ba agro- en biotechnologie, afstudeerrichting biotechnologie
- Ba biomedische laboratoriumtechnologie
- (professionele) Ba chemie, afstudeerrichtingen:
  - biochemie
  - milieuzorg
  - chemie

  opleiding(en) oude structuur:
  - gegradueerde chemie
  - gegradueerde medische laboratoriumtechnologie
  - gegradueerde farmaceutische en biologische technieken

Via voorbereidingsprogramma: (60 studiepunten)
- Ba biologie
- Ba chemie
- Ba bio-ingenieurswetenschappen
- Ba biomedische wetenschappen
- Ba farmaceutische wetenschappen
- Ba diergeneeskunde
- Ba biowetenschappen
- Ba industriële wetenschappen: chemie

TAAL
Je voldoet aan de taalvoorwaarden op basis van je Vlaams diploma.

PRAKTISCHE INFORMATIE

Studieprogramma:
https://studiegids.ugent.be
> faculteiten > opleidingstypes > ga naar de opleiding van je keuze

Infomomenten
Masterbeurs
www.ugent.be/masterbeurs

Trajectbegeleiding
Beata De Vliegher
T 09 264 50 53 - beata.devliegher@ugent.be

Meer info
Afdeling Studieadvies – Campus Ufo, Ufo,
Sint-Pietersnieuwstraat 33, 9000 Gent, T 09 331 00 31
studieadvies@ugent.be – www.ugent.be/studieadvies

Contact
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ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

The course is open to students with at least a bachelor degree in the field of biochemistry and biotechnology with minimum 180 credits.

LANGUAGE

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

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

Contact
Ghent University – Faculty of Sciences
Student Administration Office
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