

Admission requirements

For students with a Bach. Sc. degree from a Flemish university

Direct admission to the Bioscience Engineering Track:

- Bachelor in de bio-ingenieurswetenschappen (cel- en genbiotechnologie)
- Bachelor in de bio-ingenieurswetenschappen (chemie en voedingstechnologie)
- Bachelor in de bio-ingenieurswetenschappen (land- en bosbeheer)
- Bachelor in de bio-ingenieurswetenschappen (landbouwkunde)
- Bachelor in de bio-ingenieurswetenschappen (milieutechnologie)
- Bachelor in de biochemie en de biotechnologie

Direct admission to the Systems Biology Track:

- Bachelor in de bio-ingenieurswetenschappen (cel- en genbiotechnologie)
- Bachelor in de biochemie en de biotechnologie

Direct admission to the Engineering Track:

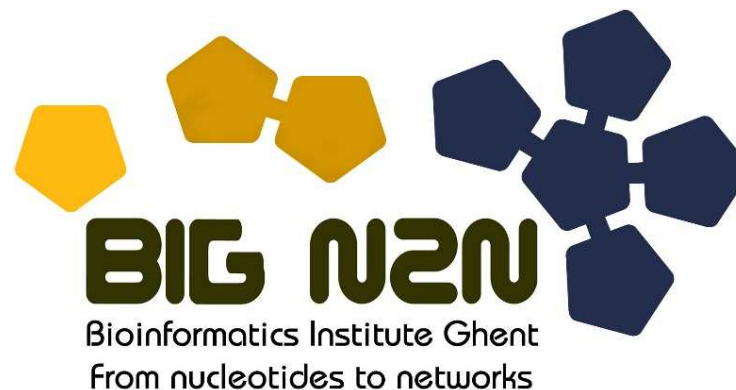
- Bachelor in de informatica
- Bachelor in de ingenieurswetenschappen: computerwetenschappen

For other Bach. Sc. degrees, admission is possible via preparatory programme

See ww.bign2n.ugent.be/master-requirements

For international degree students

Diploma equivalence of international Bachelor degree students will be checked by the OC on the base of their individual dossier. Please contact Prof. Dr. Kathleen Marchal kathleen.marchal@intec.ugent.be



More information

For detailed information, visit

www.bign2n.ugent.be/master

Contact the programme coordinator for further questions:

Prof. Dr. Kathleen Marchal
kathleen.marchal@intec.ugent.be

Application deadline for international students:

1st of March for students who need a Visa
1st of June for students who do not need a Visa
Start of the program: last week of September



Master of Science in Bioinformatics



“Bioinformatics has become a necessity for all life sciences!”

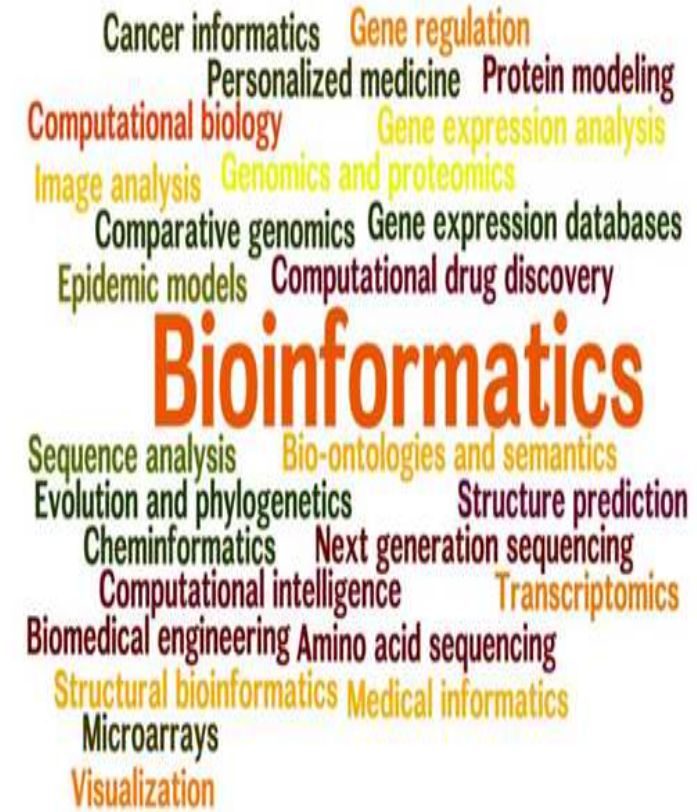
Prof. Yves Van de Peer

Master of Science in Bioinformatics

Embedded in the **Bioinformatics Institute Ghent** and the Ghent Biotech environment, the interfaculty Master of Science in Bioinformatics at Ghent University provides a curriculum of 120 ECTS, taught in **English**. Bioinformatics is inherently multidisciplinary, and requires not only learning skills/knowledge from domains different than those of the bachelor's degree, but also acquiring a more in-depth knowledge/training in the domain that corresponds to the students' specific background and primary interest. The master is structured to provide both this broadening and deepening and prepares its students for a future full of challenges and **job security** in academics or life science companies.

M. Sc. in Bioinformatics: Program Overview

Students following the ‘**Systems Biology**’ track learn to define their own research problems in the broader domain of biology and solve these by combining the appropriate ‘omics’ technologies/data with the proper state-of-the-art bioinformatics tools. The ‘**Bioscience Engineering**’ track (title of ‘bioscience engineer’) focuses on the application, combination and integration of existing (bio-)informatics tools and techniques to solve complex problems with industrial/practical finality. The third track, ‘**Engineering**’ (title of ‘engineer’), aims at educating students capable of developing novel algorithms and implementations that improve upon existing bioinformatics tools or that can tackle yet unsolved problems.



Master of Science in Bioinformatics

Common package (33)		
Applied bioinformatics module Statistical genomics (6) Applied high-throughput analysis (6) Genome biology (6) Integrative biology (6) Design project (9)		
'Bioscience Engineering' (87)	'Systems Biology' (87)	'Engineering' (87)
Bioscience Engineering module (31) <i>Reorientation: B.Sc. Bioscience Engineering</i> • Plant biotechnology (5) • Molec. techniques for microbial analyses (4) • Protein chemistry (4) <i>Reorientation: B.Sc. Biochemistry & Biotech.</i> • Process engineering (5) • Process technology (4) • Modelling and simulation of biosystems (4) <i>Bio-engineering techniques: everybody</i> Industrial biotechnology (5) • Bio-imaging and image informatics (5) • Process engineering 2 (5) • Analysis of high dimensional data (3)	Systems Biology module (30) • Evolutionary biology (3) • Capita Selecta in bioinformatics (6) • Computational Biology and modeling of biological systems (3) • Biostatistics (3) • Proteomics (3) • Choice from list of biologically oriented courses (12)	Engineering module (42) • Optimization techniques (6) • Computational challenges in bioinformatics (6) • Machine learning (6) • Parallel and distributed software systems (6) • Choice from list of engineering courses (18)
Applied mathematics and informatics module (21) Biological databases (3) Programming for bioinformatics (6) Selected topics in mathematical optimization (3) Applied machine learning (6) Bioinformatics algorithms (3)		Biology module (9) Cellular and molecular biology (6) Introduction to bioinformatics (3)
Elective course (5) To choose from all courses at UGent (needs approval)	Elective course (6) To choose from all courses at UGent (needs approval)	Elective course (6) To choose from all courses at UGent (needs approval)
Master thesis (30)		

