

Agrobiotechnology (I700238)

Course size *(nominal values; actual values may depend on programme)*

Credits 4.0 **Study time 120 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)	Dutch	Gent	practical lecture
----------------	-------	------	----------------------

Lecturers in academic year 2024-2025

Werbrouck, Stefaan	LA21	lecturer-in-charge
--------------------	------	--------------------

Offered in the following programmes in 2024-2025

Bachelor of Science in Bioscience Engineering Technology	crdts	offering
	4	A

Teaching languages

Dutch

Keywords

Biotechnology, DNA, RNA, enzymes, proteins, plant and animal, food, regulation

Position of the course

The master in applied bioscience will, as professional or consumer, inevitably be confronted with transgenic organisms and their products. This introductory course wants to provide insight in the way transgenic bacteria, plants and animals are created and characterized. A realistic view is presented on the problems, current realizations and future prospects of biotechnology. The interests of the different involved parties are also discussed. We focalize on plants, but implementations of transgenic animals and microorganisms are also treated.

Contents

Theory

Identification and cloning of genes, transformation techniques, genetic characterization of transformed plants and animals (blotting, PCR, ...), current applications in plant and animal sector, risks assessment of transgenic organisms and products, biosafety regulation. Further applications such as DNA fingerprinting, cloning of animals, DNA-chips.

Exercises

Basic techniques such as use of micropipette, transformation of *E. coli* and tobacco, GUS and GFP evaluation, PCR, gel electrophoresis, demonstrations with transgenic plants.

Initial competences

Agrobiotechnology builds on certain competences of the courses Botany, Zoology, Cell Biology, Biochemistry, Genetics, biochemistry, Microbiology. Or these competences were acquired in another way.

Final competences

- 1 **KNOWLEDGE & INSIGHT:** To define Biotechnology terminology
- 2 **KNOWLEDGE & INSIGHT:** To discuss and explaining actual agrobiotechnological techniques
- 3 **KNOWLEDGE & INSIGHT:** To summarize GMO regulations
- 4 **KNOWLEDGE & INSIGHT:** To indicate the different steps of the legal procedure concerning testing and applying GMOs
- 5 **SKILLS:** To compare biotechnical techniques and to evaluate them critically

- 6 **SKILLS:** To analyse the limitations of modern agrobiotechnology
7 **SKILLS:** To substantiate pros and contras of specific GMOs
8 **SKILLS:** To form and an own opinion, based on scientific facts
9 **ATTITUDES:** To pay attention to the public opinion
10 **ATTITUDES:** To show an own opinion, to empathize with another point of view

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, Practical

Extra information on the teaching methods

24h hoorcollege

18h practicum

Study material

Type: Syllabus

Name: Agrobiotechnology

Indicative price: € 25

Optional: yes

Language : Dutch

Number of Pages : 160

Available on Ufora : Yes

Online Available : Yes

Available in the Library : No

Available through Student Association : No

Additional information: student prints the syllabus him or herself

References

Course content-related study coaching

Possibility for questioning during lessons and after appointment, guidance and coaching during excercises.

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Written assessment with open-ended questions

Examination methods in case of periodic assessment during the second examination period

Written assessment with open-ended questions

Examination methods in case of permanent assessment

Participation, Written assessment, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

Extra information on the examination methods

- Theory: oral examination on 15 points
- Exercises: report after each session (1,5p), written examination about exercise (2,5p), permanent evaluation (1p)
- Points of reports and permanent evaluation are transfered to possible 2nd examination. The written examination about the exercises should be done again.

Calculation of the examination mark

Theory: 75%

Exercices: 25%