GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

Teaching Methodology: Biology (HO02220)

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

Credits 6.0 **Study time 180 h**

Course offerings and teaching methods in academic year 2025-2026

A (Year)	Dutch	Gent	group work
			lecture
			peer teaching
			practical
			seminar

Lecturers in academic year 2025-2026

Adriaens, Dominique	WE11	lecturer-in-charge

Offered in the following programmes in 2025-2026	crdts	offering
Master of Science in Teaching in Science and Technology(main subject Biochemistry and Biotechnology)	6	A
Master of Science in Teaching in Science and Technology(main subject Bioengineering)	6	A
Master of Science in Teaching in Science and Technology(main subject Biology)	6	A
Master of Science in Teaching in Science and Technology(main subject Chemistry)	6	A
Master of Science in Teaching in Health Sciences(main subject Medical Sciences)	6	A
Master of Science in Teaching in Health Sciences(main subject Pharmaceutical Sciences)	6	A
Master of Science in Teaching in Health Sciences(main subject Veterinary Medicine)	6	A
Master of Science in Teaching in Physical Education	6	A
Master of Science in Teaching in Science and Technology (abridged programme)(main subject Biochemistry and Biotechnology)	6	A
Master of Science in Teaching in Science and Technology (abridged programme)(main subject Bioengineering)	6	A
Master of Science in Teaching in Science and Technology (abridged programme)(main subject Biology)	6	A
Master of Science in Teaching in Science and Technology (abridged programme)(main subject Chemistry)	6	A
Master of Science in Teaching in Health Sciences (abridged programme)(main subject Medical Sciences)	6	A
Master of Science in Teaching in Health Sciences (abridged programme)(main subject Pharmaceutical Sciences)	6	A
Master of Science in Teaching in Health Sciences (abridged programme)(main subject Veterinary Medicine)	6	A
Master of Science in Teaching in Physical Education (abridged programme)	6	A

Teaching languages

Dutch

Keywords

Biology education, educational methods, self-evaluation, methodology, research competences, final terms, didactical tools, inquiry learning, organising practicals, organising field work.

Position of the course

This course unit contributes to the realisation of the basic competences for teachers and the educational competences of the educational master's programme at UGent, as included in the programme description and concretised in the competence matrix, to be consulted on www. ugent.be/educativemaster.

Contents

Attendance of the lectures is obligatory. Consequently, this course can no longer be taken up in a curriculum from the third week in the academic year.
This course focuses mainly on the practical implementation of the subject matter and teaching competences in biology education (and associated education). In this course, the following topics are integrated:

Theoretical part:

- basic concepts and principles in the field of biology, as applied in secondary school programs: biology as a knowledge domain versus biology as an educational subject;
- various educational models;
- studying topic-specific final terms;
- educational techniques and models (as implemented in a classroom);
- evaluation: various evaluation and test formats applied to biology teaching;
- knowledge of topic-specific content, as applicable in secondary education;
- overview of the generic tasks expected from a biology teacher (at macro, meso and micro level), as applicable to biology education;
- understanding of cross-curricular final terms, as biology final terms can be integrated in health, environmental education, as well as learn-to-learn;
- a practical: focus points related to organising practical demonstrations and pupil experiments;
- organising fieldwork and excursions;
- discussing curricula;
- learning how to work safely with chemicals (use by pupils, use by the teacher and what chemicals to use in what grade);
- developing basic skills in practicals and experimental demos.

Practical exercises:

- observational skills;
- microteaching and microteaching practical;
- formulating lecture goals and making a lecture preparation;
- developing a personal syllabus and learning material;
- evaluation: how to make a test?
- organising and performing field work
- language use in sciences

Initial competences

Students are expected to sufficiently master the necessary biological content that is to be expected of a biology teacher, prior to initiating the internships. Enrollment criteria to be admitted to the Teaching Methodology courses can be consulted at www.ugent.be/educatievemaster.

Final competences

1 The student can describe the objectives of biology teaching.
2 The student can interpret and apply the different components of the biology curricula.
3 The student has control over the most relevant content related to the biology curricula and stays up to date with new evolutions within the domain of biology.
4 The student is capable to apply different didactic teaching methods, by using adequate teaching tools.
5 The student is capable to apply different practical teaching methods, by using adequate teaching tools.
6 The student can make a lecture preparation and give a lecture.
7 The student is adequate in using basic software, as used within a professional educational environment.
8 The student can organise, give and supervise a practical lecture and pupil experiment.
9 The student is aware of how safety regulations in a lab environment and in the field need to be applied and warranted.
10 The student can prepare, organise and supervise an excursion (fieldwork)
11 The student is capable of supporting pupils in the development of their skills and to guide them where necessary.
12 The student can set up a test for pupils, making use of different types of evaluation formats and questions.
13 The student demonstrates a correct use of Dutch.

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

Group work, Seminar, Lecture, Practical, Peer teaching

Extra information on the teaching methods

Interactive lectures and seminars (teaching content and tools, fieldwork). Practical excercises (making a test, study of biology curricula, making a lecture preparation, constructing a yearly plan, language management, essential practica as used in biology teaching, ...), peer teaching, practical exercise.
Part of the teaching activities take place on campus, other parts are through online education (what is on campus and what is online is communicated at the start of the academic year).
This course assumes the responsible use of generative artificial intelligence (GAI). During the lessons, what this means will be explained.

LIO-guidelines (for students with an in-service internship) are provided in the LIO-manual.

Study material

Type: Syllabus

Name: Vakdidactiek Biologie
Indicative price: € 15
Optional: yes
Language : Dutch
Number of Pages : 135
Oldest Usable Edition : 2020
Available on Ufora : Yes
Online Available : Yes
Available in the Library : No
Available through Student Association : No

Type: Lab Material

Name: Consumables for microteaching
Indicative price: € 10
Optional: no

References

References and updates to it are provided on Ufora.

Course content-related study coaching

Teaching assistants can be consulted every Wednesday afternoon. They can also be reached through e-mail. Additional contact moments will be communicated through Ufora.

Assessment moments

continuous assessment

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

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

Examination methods in case of permanent assessment

Skills test, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Details of non-periodical evaluation:
Permanent evaluation based on the submitted assignments and reports. Multiple activities are organised and submitted digitally. Info on the several assignments will be provided during the first lecture and can be found on Ufora.

Attendance to the exercises is mandatory, as well as attendance to the first lecture.
In case of legitimate absence, an alternative assignment will be discussed with the course providers.
Feedback is provided at the end of the exercises.
Taking the exam in the second period is possible, but some assignments can be organised in a somewhat alternate format.
For students in a LIO-program, a permanent evaluation is foreseen through an alternative assignment (portfolio). Additionally, there are at least 3 mandatory contact moments and 2 additional coaching moments are offered. Information about this is communicated at the start of the academic year.

Calculation of the examination mark

Two types of non-periodical evaluations are:

- **Individual assignments:** assignments for which one has to pass to receive a final grade that can be deliberated (for the total course); these assignments have to be retaken during the second exam period;
- **Clustered assignments:** a set of assignments for which one has to pass for the cluster to receive a final grade that can be deliberated (for the total course); these assignments have to be retaken during the second exam period.

Students thus have to pass for each Individual assignment and for each Cluster of assignments. Not submitting assignments before the communicated deadline automatically implies that one does pass for these assignments. Every Individual assignment and Cluster of assignments that is not submitted in time, has to be during the second exam period.
The qualifications for each of these assignments will be communicated at the start of the academic year and will be announced on Ufora.
Assignments for which students obtain a sufficient partial score in the first exam period can be transferred to the second exam period within the same academic year. Partial scores are never rounded to the closest integer.
Students are obligated to attend the first lecture. LIO-students must also attend this lecture

Facilities for Working Students

To be determined through consulting the course providers.
LIO students discuss their program with the course providers.