GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2023-2024

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 2023-2024

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

Lecturers in academic year 2023-2024

Adriaens, Dominique	WE11	lecturer-in-charge

Offered in the following programmes in 2023-2024	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;
- discussing curricula;
- learning how to work safely with chemicals (use by pupils, use by the teacher and what chemicals to use in what grade).

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

Learning materials and price

Course material is available on-line. Textbooks can be consulted for free (a deposit of 20€ per book borrowed is requested).

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

end-of-term and continuous assessment

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

Oral assessment, Written assessment with open-ended questions

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

Oral assessment, Written assessment with open-ended questions

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 periodical evaluation:
Written exam with open questions (optional additional oral examination is possible). Students are being tested on their didactical teaching knowledge and skills, with respect to the teaching content biology as applicable to secondary education. The expected knowledge of biology content corresponds to the minimal curricula aims of secondary education.
Details of non-periodical evaluation:
Permanent evaluation based on the submitted assignments and reports. Reports (fieldwork), papers (thematic lecture, language management), microteaching with a skill test (theory and practical, ...). Multiple activities are organised and submitted digitally (thematic lecture, explaining complex matter in a simple manner, mindmap, language management, lecture preparation and test). Info on the several assignments will be provided during the first lecture and can be found on this website http://www.lerarenopleidingbiologie.ugent.be.
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

For non-LIO students, the final score is defined by the periodic evaluation (26% of the final score) and the assignments in the non-periodical evaluation (74%). For LIO-students, the evaluation comprises the same assignments of the non-periodical evaluation, supplemented with the assignment linked to the internship.
Students not submitting one or multiple assignments, without a legitimate reason, cannot pass

this course.

Two types of non-periodical evaluations are:

- individual 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;
- individual assignments that need to be retaken during the second exam period, in case one did not pass the course in total.

Assignments of the non-periodical evaluation 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 closes 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.