GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2026-2027

Basic Principles in Aquaculture Techniques (I003023)

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

Credits 4.0 **Study time 120 h**

Course offerings in academic year 2026-2027

A (semester 1) English Gent

Lecturers in academic year 2026-2027

Declercq, Annelies LA22 lecturer-in-charge

Offered in the following programmes in 2026-2027	**crdts**	**offering**
International Master of Science in Health Management in Aquaculture	4	A
Master of Science in Aquaculture	4	A
Exchange Programme in Bioscience Engineering: Agricultural Sciences (master's level)	4	A

Teaching languages

English

Keywords

- Aquaculture species overview
- Fish larviculture techniques
- Live food and larviculture applications
- Aquaculture system management
- Sustainability and regulatory compliance in aquaculture

Position of the course

- Provide a comprehensive introduction to aquaculture species.
- Emphasizing the principles and techniques of fish larviculture, introducing some nutritional and zootechnical aspects.
- Explore aquatic invertebrates as live food, covering their availability, characteristics, culture techniques, and applications in larviculture, with a focus on Artemia
- Covering the basic culture techniques applicable to different freshwater and marine fish species.
- Discuss advancements in microdiets and their relevance to aquaculture.

Contents

1. General introduction to aquaculture species:
- Provide a comprehensive overview of aquaculture species.
2. Fish larviculture principles and techniques:
- Emphasize general principles and techniques of fish larviculture.
- Introduce key aspects of nutrition and zootechnical considerations.
3. Live food - Artemia and aquatic invertebrates:
- Explore aquatic invertebrates as live food, focusing on Artemia.
- Cover their availability, characteristics, culture techniques, and applications in larviculture.
4. Aquaculture systems:
- Overview of different culture systems (ponds, cages, recirculation).
- Key parameters such as water parameters, specific growth rate, and food conversion rate.
5. Species-specific considerations:
- Basic breeding techniques for freshwater, marine, and anadromous fish
- Molluscs and crustaceans basic breeding methods.
6. Demonstrations on live feed production (3 hours):

- Demonstration of Artemia and live feed production

Initial competences

Knowledge in General biology, Chemistry, Biochemistry

Final competences

1 The student can provide a comprehensive overview of various aquaculture species, including their characteristics, requirements, and significance in aquaculture practices.
2 The student demonstrates mastery of general principles and techniques in fish larviculture, emphasizing key aspects of nutrition and zootechnical considerations.
3 The student exhibits in-depth knowledge of live food organisms, particularly Artemia and other aquatic invertebrates. This includes exploring their advantages, restrictions, availability, production techniques, and applications in larviculture.
4 The student possesses a general understanding of Artemia biology and culture techniques.
5 The student is knowledgeable about the cultivation techniques of various fish species, covering reproduction, larviculture, and grow-out phases.
6 The student understands basic principles of managing and exploiting an aquaculture farm, including sizes of different tanks and ponds, coordinating harvest cycles, assessing water and feed needs.
7 The student understands effective water quality management techniques, including monitoring and maintaining optimal parameters such as pH, temperature, dissolved oxygen, and salinity.
8 The student understands strategies for disease prevention and control in aquatic organisms, including the application of quarantine protocols.
9 The student engages in discussions on sustainable aquaculture practices, emphasizing the minimization of environmental impact and the promotion of responsible resource management.

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

Extra information on the teaching methods

- **Interactive lectures:** key theoretical concepts are introduced through interactive sessions supported by presentations, including plenary exercises and guided discussions.
- **Flipped classroom and case-based learning:** students actively engage with course content through the preparation and presentation of case studies (including student-led presentations). These sessions focus on the application of theoretical knowledge to practical disease scenarios, fostering critical thinking, discussion, and peer learning.

Study material

None

References

Course content-related study coaching

Study guidance upon request by email or on appointment

Assessment moments

end-of-term and continuous assessment

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

Written assessment

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

Examination methods in case of permanent assessment

Participation, Written assessment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

1 Assessment methods for non-periodic evaluation include a written exam and evaluation of class participation, involvement in class exercises, and active engagement in discussions.
2 Written tests on specific parts of the course, spread throughout the semester. Second-chance by one single exam.

Calculation of the examination mark

The final score calculation incorporates contributions from various components, including a written exam, class participation, involvement in class exercises spread throughout the semester, and active engagement in discussions.

- Written Exam: 16 points out of 20
- Classical exercises/discussions/presentations: 4 points out of 20

Furthermore, students are provided with a second chance through one single written exam to compensate for any missed assessments.
It's important to note that students who choose to abstain from both period-aligned and non-period-aligned evaluations for this course unit may face potential failure, as determined by the examiner.