

## 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 2025-2026**

A (semester 1)

English

Gent

**Lecturers in academic year 2025-2026**

Declercq, Annelies

LA22

lecturer-in-charge

**Offered in the following programmes in 2025-2026**

[International Master of Science in Health Management in Aquaculture](#)

**crdts**

4

**offering**

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**

- Theoretical lectures, presented through interactive PowerPoint sessions, accompanied by plenary exercises and subsequent discussion rounds.
- Active participation from students through engaging discussions and their own PowerPoint presentations.

### **Study material**

None

### **References**

### **Course content-related study coaching**

Study guidance upon request by email or on appointment

### **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**

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.