

Advanced Aquaculture Techniques (I003025)

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

Credits 6.0 **Study time 180 h**

Course offerings in academic year 2025-2026

A (semester 2) English Gent

Lecturers in academic year 2025-2026

Declercq, Annelies LA22 lecturer-in-charge

Offered in the following programmes in 2025-2026

| | crdts | offering |
|--|--------------|-----------------|
| Master of Science in Aquaculture | 6 | A |

Teaching languages

English

Keywords

1. Molluscs
2. Crustaceans
3. Integrated aquaculture
4. Live food cultivation
5. Practical application

Position of the course

- Builds upon foundational aquaculture knowledge as obtained within the course of Basic Principles in Aquaculture Techniques
- In-depth exploration of advanced aquaculture techniques of different important fresh and marine aquaculture species
- In-depth exploration of specific areas on molluscs (mussels, oysters), crustaceans (shrimp), offshore aquaculture, multi-use and integrated aquaculture.
- Emphasis on practical applications and hands-on experiences.
- Larviculture
- Live food cultivation with focus on Artemia
- Provides a comprehensive understanding of advanced techniques.

Contents

1. Theory part (total 36 hours):
 - Advanced techniques in fresh water and marine aquaculture species
 - Molluscs (mussels, oysters)
 - Crustaceans (shrimp)
 - Offshore Aquaculture of different species
 - Multi-use and integrated aquaculture
 2. Practical component (total 90 hours):
 - Live food cultivation: practical sessions on Artemia cultivation, with individual social media messaging assignments.
 - Larviculture practical: in-depth practical sessions covering larval fish rearing techniques and hands-on experience in advanced catfish aquaculture practices.
- This course content is designed to provide students with a nuanced understanding of advanced aquaculture techniques through a combination of theoretical insights and extensive practical training. Students will engage in immersive experiences, fostering both knowledge acquisition and practical proficiency in various facets of advanced aquaculture.

Initial competences

Knowledge in General biology, Chemistry, Biochemistry, Aquaculture Techniques

Final competences

- 1 The student can provide a detailed overview of advanced aquaculture techniques, focusing on molluscs (mussels, oysters), crustaceans (shrimp), offshore aquaculture of different species, and multi-use and integrated aquaculture.
- 2 The student demonstrates practical proficiency in live food cultivation, including Artemia, with the ability to execute practical techniques such as cyst decapsulation, nauplius enrichment, and cyst quality control. The student can effectively communicate and report on these techniques.
- 3 The student exhibits advanced practical skills in larviculture, showcasing in-depth knowledge of larval fish rearing techniques and hands-on experience in advanced fish aquaculture practices. The student can apply practical techniques related to the use of Artemia in larviculture, and reporting on these activities.
- 4 The student is skilled at running a laboratory-scale larval fish culture, including aspects such as the supply of artificial and live food, calculation of needed amounts of artificial and/or live food, zootechnical considerations, maintenance of recirculation systems, and analysis of parameters related to fish larval growth. The student can document and report on these activities in the format of a scientific paper.

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

- Theoretical lectures, presented through dynamic PowerPoint sessions, accompanied by plenary exercises and subsequent discussion rounds.
- Student participation: actively engaging students in discussions cultivates a collaborative learning environment. Students are empowered to share their perspectives and insights, fostering a sense of ownership in the learning process. Additionally, students create and deliver their own PowerPoint presentations, enhancing their ability to articulate and communicate learned concepts. Students will also learn to share scientific news to a broad audience via social media communication via a contest called Hack the teachers LinkedIn
- Social media communication contest: As part of enhancing communication skills, students will participate in a contest named Hack the teachers LinkedIn. This contest aims to teach students how to share scientific news with a broad audience through effective social media communication.
- Practical classes: practical sessions are a vital component, offering students hands-on experience in applying theoretical knowledge. These sessions cover live food cultivation, larviculture, and running a laboratory-scale larval fish culture. Students not only gain practical skills but also learn to document and report their activities in a scientific paper format, enhancing their ability to communicate their findings effectively also to a scientific community.

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

Participation, Written assessment, Assignment

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

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

- Written exam: a comprehensive written exam assesses students' theoretical knowledge of advanced aquaculture techniques.
- Class participation: active engagement in class discussions and exercises is evaluated, emphasizing students' contributions to the collaborative learning environment.
- Practical exercises reporting: evaluation involves reporting on practical exercises, such as live food cultivation, larviculture practices, and running a laboratory-scale larval fish culture. Students are required to submit reports in a scientific paper format, demonstrating their ability to document and communicate their activities effectively.
- Social media contest reporting: assessment includes reporting on the "Hack the teachers LinkedIn" social media contest. Students are evaluated based on their ability to communicate scientific information to a broad audience through social media platforms.
- Previously announced written tests and reports: throughout the semester, students will undergo previously announced written tests and submit reports on specific course components. This approach ensures continuous assessment and allows students to demonstrate their understanding of both theoretical and practical aspects.
- Second-chance assessment: students have the opportunity for a second chance through one single exam. This second chance not only covers the written exam but also includes an upgraded version of the reports submitted earlier. This allows students to address any areas that may need improvement.

Calculation of the examination mark

- Written exam: 12 points out of 20 are allocated to assess students' theoretical knowledge of advanced aquaculture techniques.
 - Practical reports/ exercises/ discussions/ presentations: another 8 points out of 20 are dedicated to evaluating students' practical application, as demonstrated through reports, exercises, discussions, and presentations.
- Furthermore, students are granted a second chance through one single written exam, which includes an upgraded version of the reports. This ensures that students have the opportunity to improve and showcase their understanding and skills.

It's crucial to highlight 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. Regular participation and engagement are essential for a successful learning experience in this advanced aquaculture techniques course.