

## Freshwater Fish Culture Techniques (1002788)

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

**Credits 6.0**

**Study time 180 h**

**Course offerings in academic year 2023-2024**

A (semester 1)

English

Gent

**Lecturers in academic year 2023-2024**

Declercq, Annelies

LA22

lecturer-in-charge

**Offered in the following programmes in 2023-2024**

[Master of Science in Aquaculture](#)

**crdts**

6

**offering**

A

[Exchange Programme in Bioscience Engineering: Agricultural Sciences \(master's level\)](#)

6

A

**Teaching languages**

English

**Keywords**

Trout, carp, tilapia, eel, catfish, polyculture, rizi-pisciculture, integrated fish culture, feeding level, productivity, specific growth rate, food conversion rate, recirculation system, cage culture, oxygenation, exploitation plan, artificial reproduction.

**Position of the course**

This course offers a general introduction to fish culture and focusses on culture of freshwater fish of temperate and tropical regions. Different culture systems are explained such as ponds, cages and recirculation systems. Attention is paid to aeration, grading and feeding systems. Integrated pisciculture explains the different types of possible mixed aquaculture and agriculture production methods, and its advantages, pathways and drawbacks.

As a practical case-study of fish culture and artificial reproduction, the African catfish (*Clarias gariepinus*) is used. A practical pond construction field work is included and students write an exploitation plan for a freshwater fish farm.

**Contents**

Freshwater fish culture

1. Tilapia farming and aquaculture principles
2. Carp farming and polyculture
3. Carp reproduction - reproduction of tropical species
4. Trout - eel - catfish farming, intensive farming in recirculation systems
5. Exercise : design of an exploitation plan for a tilapia farm
6. Pondconstruction: theory and fieldwork
7. Practical on artificial reproduction in African catfish (*Clarias gariepinus*)
8. Principles of a recirculation system

Integrated agro-aquaculture

1. Different combinations of fish culture with agriculture production: performance, nutrient balans, economics
2. Agro-aqua exercise

Technics in fish culture

1. Aeration technics, feeding systems, principle of cage culture

**Initial competences**

General biology, chemistry and biochemistry.

## Final competences

- 1 The student has knowledge on the cultivation techniques of freshwater fish (reproduction, larviculture, grow-out).
- 2 The student has knowledge on specific machines used in a commercial fish production plant.
- 3 The student has a good knowledge on advantages and disadvantages of integrated agro-aquaculture.
- 4 The student is able to manage and exploit a freshwater fishfarm (amount and sizes of different tanks and pond, harvest cycles, need of water and feed, productivity, food conversion rate).
- 5 The student is able to construct ponds.
- 6 The student is able to reproduce naturally or artificially farmed fish species (based on their experience with *Clarias gariepinus*).

## 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, Independent work

## Extra information on the teaching methods

Theory lectures: lectures based on powerpoint presentations and videos.

Practical classes: pond construction field work and artificial reproduction lab work with *Clarias* in small groups.

Guided selfstudy: writing of an exploitation plan for a freshwater fish farm.

Field work : pond construction

Lecture with plenary exercise

## Learning materials and price

Printout of the powerpoint presentation will be available during all classes.

Estimated cost of the printouts: 20 euro (included in fee that is paid in the beginning of the academical year).

## 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

Written assessment

## Examination methods in case of permanent assessment

Participation, Assignment

## Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

## Extra information on the examination methods

Period aligned evaluation: theory: written closed book exam.

Non-period aligned evaluation: practical classes, exploitation plan and field work: participation and report.

## Calculation of the examination mark

Out of 20:

16 points attributed to written exam

4 points attributed to report on practical classes

Students that do not attend practical classes without a valid reason, should retake the course the next academic year.

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.