

Marine Juvenile Production (I002861)

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

Credits 7.5	Study time 200 h	Contact hrs	60.0h
--------------------	-------------------------	--------------------	-------

Course offerings in academic year 2022-2023

A (semester 2)	English	Gent
----------------	---------	------

Lecturers in academic year 2022-2023

Kjørsvik, Elin	TRONDH01	lecturer-in-charge
Reitan, Kjell Inge	TRONDH01	co-lecturer

Offered in the following programmes in 2022-2023

International Master of Science in Health Management in Aquaculture	crdts	offering
	7.5	A

Teaching languages

English

Keywords

Marine fish larvae, larval morphology and physiology, live feed zoo techniques, production techniques, nutrition and microbial environment

Position of the course

The course is focusing upon growth and functional development of different types of fish larvae, and fish will be compared with other animal groups. The importance of nutritional and environmental conditions are viewed in relation to larval adaptation and sensitivity to environmental factors in nature and in cultivation. The course has a special focus upon marine pelagic fish larval development, and how biological and rearing conditions may determine the further growth and functional development.

The course will also focus upon cultivation of microalgae and zoo-plankton used as food for the early stages of marine fish larva. Emphasis is given to the physiology and growth kinetics of different species, and also to cultivating techniques (production). The course includes practical exercises in cultivation of microalgae, zooplankton and marine fish larvae.

Contents

- Culture of marine fish larvae, different species
- Growth and functional development of fish larvae
- Nutritional and environmental conditions
- Effects of reproductive strategies and spawning biology on embryonic development and early life stages
- Larval sensitivity to environmental factors
- Effects of rearing conditions on functional development.
- Cultivation of microalga
- Cultivating techniques of live food zooplankton for fish larvae
- Physiology and growth kinetics of live food species
- Practical exercises in cultivation of microalgae, zooplankton and marine fish larvae in cultivation of microalgae, zooplankton and marine fish larvae

Initial competences

Competence for admission to EM AquaH study program and first semester courses at UGent. Bachelor of marine science and aquaculture for national program MSOCEAN

Final competences

- 1 The candidate should know:
 - how fish reproduction strategies and spawning biology affect the offsprings developmental pattern, viability and environmental adaptation
 - Comparative functional development in fish, from fertilisation to adult stage
 - Environmental and nutritional requirements in fish larvae, using marine pelagic fish larvae as model organisms
 - Cultivation methods and basic biology for microalgae and zooplankton species.
- 2 Assess basic environmental requirements and ecological niche of fish embryos/larvae based on the fish spawning biology and morphological traits of the offspring
- 3 Identify critical stages and factors for cultivation of early life stages of fish, and estimate possible effects from environmental variations
- 4 Design cultivation regimes for fish larvae and live feed organisms based on water quality control and the larval nutritional and environmental requirements
- 5 Evaluate feed quality, growth and functional development of larvae during experimental or commercial rearing conditions
- 6 General competence (attitudes):
 - a solid understanding of how cultivation conditions may affect the characteristics of live feed organisms
 - a good understanding of the plasticity of marine fish larval development
 - a good understanding of how environmental conditions (water quality, nutritional quality, feeding strategies, etc) may affect development, growth, and juvenile production both in captive, controlled systems and in nature.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Practicum, Demonstration, Lecture, Project

Extra information on the teaching methods

The course involves 20 lectures, a comprehensive obligatory laboratory exercise lasts for 7-10 days (not full time). Students prepare a laboratory report field work, an aim of course teaching is learning by doing.

Learning materials and price

Learning costs are chemicals and other needs in laboratory course. PowerPoint lectures are uploaded to the web and available with no costs.

References

Course content-related study coaching

PhD students acts as practical course advisers, support from a permanently employed engineer, guiding upon request, student advice on agreement

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

Report, Written examination, Oral examination, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Written exam counts 75/100 and approved report 25/100. All assessment components included in the course must be passed. In the case of 'fail' or 'retake', the final written examination needs to be taken again. Appeals for reassessment apply to the final written examination only. The individual components will not be

graded and assessment consists of an overall final grade. The written exam can be changed to an oral exam in the semester when the course is not taught.

Calculation of the examination mark

The normal grades are A-F and 7.5 ECTS achieved if passed (E or better, 40%)

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