GHENT UNIVERSITY

Course Specifications

From the academic year 2021-2022 up to and including the academic year

Fish Laboratory Course (I002875)

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

Credits 2.0	**Study time 50 h**	**Contact hrs**	12.5h

Course offerings in academic year 2022-2023

A (semester 2)	English	Gent

Lecturers in academic year 2022-2023

Gutiérrez Fruitos, Joaquim	BARCELO1	lecturer-in-charge
Capilla, Encarnación	BARCELO1	co-lecturer
Fernández-Alacid, Laura	BARCELO1	co-lecturer
Garcia de la Serrana, Daniel	BARCELO1	co-lecturer
Garcia-Meilán, Irene	BARCELO1	co-lecturer
Martin-Pérez, Miguel	BARCELO1	co-lecturer

Offered in the following programmes in 2022-2023	**crdts**	**offering**
International Master of Science in Health Management in Aquaculture	2	A

Teaching languages

English

Keywords

Fish handling, water quality, larval development, fish muscle growth and myogenesis, hyperplasic and hypertrophic growth, skeletal malformations, flesh organoleptic traits, feeds formulation.

Position of the course

This course aims at identification of aquaculture species, sampling and husbandry procedures, water quality measurements, muscle structure and morphology associated to flesh quality and identification of skeletal anomalies.

Contents

- *Fish handling: anesthesia, blood draw and hematocrit, microchip injection, sacrifice, hormones administration and biometrics.*
- *Identification of species of interest in aquaculture and freshness parameters.*
- *Water quality: measurements of pH, salinity and nitrogenous compounds in different water samples.*
- *Fish muscle structure recognition: red and white skeletal muscle, myotomes and myoseptum; structural differences between fish species; colour analysis with Minolta colorimeter; lipid measurement with Fatmeter.*
- *Larval skeletal malformations analysis: methods to prepare fish larvae to study bone development; microscopic study of normal and malformed larvae, identification of cranial, vertebral and caudal anomalies.*

These activities will be accompanied by specialized visits (research centre and mussel production centre and treatment plant) and/or selected conferences related to the topics dealt in the course.

Initial competences

General biology, general physiology, zoology

Final competences

1 *Know how to handle the fish during different processes such anesthesia, sampling or hormone administration maintaining fish welfare*
2 *Know how to measure and to understand water quality parameters*

3 *Identifying muscle structures and appearance associated to species specificity, flesh quality and animal welfare*
4 *Identifying skeletal malformations in fish larvae*

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, Group work, Guided self-study, Excursion, Seminar: coached exercises

Learning materials and price

syllabus

References

- *Boglione, C., Gavaia, P.Koumoundouros, G., Gisbert, E., Moren, M., Fontagne, S. Witten, P. E. (2013). Skeletal anomalies in reared European fish larvae and juveniles. Part 1: normal and anomalous skeletogenic processes. Reviews in Aquaculture 5 (Suppl. 1), S99–S120*
- *Boglione, C., Gisbert, E., Gavaia, P, Witten, P.E., M. Fontagne, S., Koumoundouros, G. (2013). Skeletal anomalies in reared European fish larvae and juveniles. Part 2: main typologies, occurrences and causative factors. Reviews in Aquaculture 5 (Suppl. 1), S121–S167.*
- *Chhorn Lim, C.D. Webster (editors) Nutrition and fish health. New York: Food Products Press, (2001). .*
- *Grosell, M., Farrell, A.P., Brauenr, C.J. (2011). The multifunctional gut of fish. Fish Physiology 30: 1-448*
- *Johnston, I. Fish Physiology, XVIII. Muscle Development and Growth. Ed. Ian Johnston, William Hoar, Anthony Farrell, Academic Press 2001.*
- *Ross, L. G. and Ross, B. (2000) Anaesthesic and sedative techniques for aquatic animals. Wiley-Blackwell; 2nd Edition, UK*
- *Shadwinck, R.E. and Lauder, G.V. Fish Physiology, XXIII. Fish Biomechanics. Academic Press, 2006*
- *Vélez, E.J., Lutfi, E., Azizi, Sh., Perelló, M., Salmerón, C., Riera-Codina,M., Ibarz, A., J Fernández-Borràs, J., Blasco, J., Capilla, E., Navarro, I., Gutiérrez, J. (2017). Understanding fish muscle growth regulation to optimize aquaculture production. Aquaculture, 467, 28-40.*

Course content-related study coaching

Teacher available for student counselling

Assessment moments

end-of-term and continuous assessment

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

Report, Written examination, Participation

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

Report, Written examination

Examination methods in case of permanent assessment

Report, Written examination, Participation, Job performance assessment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Calculation of the examination mark

Written exam 40%; Report lab activities 40%; Visits and conference questions 15%; Behavioural evaluation accomplishment 5%
Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.