GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Molecular Techniques applied to Resource Evaluation and Management (C003885)

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

Credits 6.0 **Study time 150 h**

Course offerings in academic year 2026-2027

A (semester 2)	English	Gent

Lecturers in academic year 2026-2027

Machado Schiaffino, Gonzalo	OVIEDO01	lecturer-in-charge
Borrell Pichs, Yaisel Juan	OVIEDO01	co-lecturer

Offered in the following programmes in 2026-2027	**crdts**	**offering**
International Master of Science in Marine Biological Resources	6	A

Teaching languages

English

Keywords

Position of the course

Contents

Module 1 (3 ECTS): Spatial distribution of genetic biodiversity.
Population genetic structure and gene flow. Population differentiation, F analysis. Indicators of population mixture. Wahlund effect. Distribution of genetic variation within a species and its determining factors.
Populations and stocks. Molecular applications to the management of exploited populations. Identification of biological and management units. Estimates of effective population size through genetic variation. Inference of bottlenecks. Genetic signatures and examples of marine metapopulations.
Practical work: Research-based of a case study comprising field, laboratory, analytical work using modern software. Critical analysis of a relevant quality publication; analysis of a real dataset with state of the art software.

Module 2 (3 ECTS). Genetic biodiversity and marine resources
DNA-based technologies and prospection of new marine resources. Metagenomics and other biodiversity inventories for exploration of functional diversity. New products inferred from marine molecular surveys. Molecular applications in resource sustainability. Genetic traceability of fish catch and seafood products. Mislabeling in markets: detection, causes and consequences. Molecular markers applied to traceability of species, oceans and geographic regions. Phylogeographic signal and traceability of origin in seafood.
Practical work: Research-based laboratory analysis of commercial seafood products using adequate methodology. Critical analysis of a relevant quality publication.

Initial competences

Graduate level in sciences. Basic knowledge in molecular biology is recommended.

Final competences

1 Students should be acquainted with state of the art molecular methodologies currently applied in the assessment and management of marine living resources.
2 They should also be able to design complete protocols for analysis of genetic biodiversity, population and stock structure, and traceability of marine species and populations.

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

Seminar, Lecture

Study material

None

References

Course content-related study coaching

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

Peer and/or self assessment, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Module 1: Presentation of the results of the case study supported by visual material. Team working is encouraged and peer evaluation will represent 20% final score.
Module 2: Short presentation supported by visual material. Class notebook and continuous evaluation (portfolio).

Calculation of the examination mark