GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Species Interactions and Marine Food Webs - Experiments in Marine Food Web Ecology (C003893)

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

Credits 6.0 **Study time 150 h**

Course offerings and teaching methods in academic year 2026-2027

A (semester 2)	English	Gent	lecture
			group work

Lecturers in academic year 2026-2027

De Troch, Marleen	WE11	lecturer-in-charge
Vafeiadou, Anna-Maria	WE11	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

marine, food web, experiments

Position of the course

This deals with experimental quantification of biotic interactions amongst marine organisms relevant for ecosystem functioning: competition, trophic interactions (predation, herbivory..), and the critical interpretation of the outcome of experiments in relation to its design and the organism(s) and ecosystem under study.
To answer ecological research questions by means of well-designed experiments (lab or field).
To use experimental tools for the observation, quantification and modification of species interactions.
To quantify energy flow in marine food webs.
To critically interpret the results of experimental approaches in relation to the characteristics of the species, community and habitat under study at different temporal and spatial scales.

Contents

The course will follow a 3-steps approach, whereby theory will be followed by a substantial pratical part according to the following scheme:
Step 1 (preparatory phase): analysis of an actual research question, literature study and design of an experiment to answer the question put forward: correct formulation of a research question and hypothesis, digital sources analysis, experimental design, selection of model organism and model system, obtaining biological material (field or culture), critical interpretation of available protocols.
Step 2 (experimental phase): set-up of the experiment and application of up-to-date experimental facilities within the Belgian node of the European Marine Biological Resource Centre (EMBRC) network (including culture collections): lab or field experiments, small-scale or large-scale, habitat-specificity of an experiment (intertidal, subtidal, deep sea, soft or hard substrate, benthic or pelagic, ...), planning and feasibility and risk analysis of an experiment, monitoring different experimental treatments, use of up-to-date techniques including trophic markers (stable isotopes, fatty acids, compound-specific isotope analyses), tracer experiments.

Step 3 (interpretation phase): interpretation and correct reporting of the obtained outcome, standardisation of obtained measurements, failure analysis.

Initial competences

Bachelor level in sciences. Basic knowledge in ecology is recommended.

Final competences

1 Students should be able to apply biological and ecological knowledge to make decisions about practical aspects of the design of experiments, the setup of (lab or field, microcosm or mesocosm, short-term or long-term) experiments making use of up-to-date techniques and multidisciplinary tools;
2 critical interpretation of and correct reporting on the material & methods of an experiment and its outcome.
3 To learn how to interpret interactions amongst marine species in different settings, how to quantify energy fluxes in marine food webs by means of experimental approaches and how to apply up-to-date experimental tools to answer ecological questions.

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

Group work, Lecture

Study material

Type: Slides

Name: course-specific slides
Indicative price: Free or paid by faculty
Optional: no
Language : English
Available on Ufora : Yes

References

Belgrano et al. (2005) Aquatic food webs: an ecosystem approach
Arts et al. (2009) Lipids in Aquatic Ecosystems
Bianchi et al. (2011) Chemical Biomarkers in Aquatic Ecosystems
Completed with state-of-the-art articles, reports, books.

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

Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Step 1 (preparatory phase): short report on the research question and how to answer it
Step 2 (experimental phase): permanent evaluation while performing the experiment
Step 3 (interpretation phase): presentation and group discussion of the obtained results
peer assessment to evaluate individual contribution to the group work
individual feedback to each student is provided

Calculation of the examination mark