

## Responses in a Changing Marine Environment - Experiments in Marine Global Change Ecology (C003891)

**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

seminar

lecture

### Lecturers in academic year 2026-2027

Van Colen, Carl

WE11

lecturer-in-charge

Braeckman, Ulrike

WE11

co-lecturer

### Offered in the following programmes in 2026-2027

[International Master of Science in Marine Biological Resources](#)

**crdts**

**offering**

6

A

### Teaching languages

English

### Keywords

### Position of the course

This course deals with the experimental quantification of the effect of (a)biotic changes on the functioning of marine organisms and ecosystems 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 non-trophic species interactions under variable abiotic conditions.

To be able to quantify biogeochemical cycling in marine communities.

To be able 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 each step will consist of theory followed by a substantial practical part consisting of a specific case:

Step 1 (preparatory phase): analysis of an actual research question on global change in the marine environment, 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 network EMBRC (including culture collections): sample collection in the field, lab experiments, planning and feasibility and risk analysis of an experiment, application of physiological and biogeochemical measurements, use of chemical tracers.

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 To be able to apply biological, ecological and chemical knowledge to make decisions about practical aspects of the design and set-up of experiments making use of up-to-date techniques to answer ecological questions in relation to climate change and anthropogenic disturbance in marine ecosystems.
- 2 Critical interpretation of and correct reporting on the material & methods of an experiment and its outcome.
- 3 To be able 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.

## **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**

Type: Slides

Name: lecture notes

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

## **References**

Solan & Whitely (2016). Stressors in the Marine Environment: physiological and ecological responses; societal implications

## **Course content-related study coaching**

## **Assessment moments**

### **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**

### **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): 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

### **Calculation of the examination mark**