

Methods in Experimental Marine Ecology (C003892)

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

Lecturers in academic year 2026-2027

De Troch, Marleen

WE11

lecturer-in-charge

Braeckman, Ulrike

WE11

co-lecturer

tkint, Tim

WE11

co-lecturer

Vafeiadou, Anna-Maria

WE11

co-lecturer

Offered in the following programmes in 2026-2027

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

crdts

6

offering

A

Teaching languages

English

Keywords

Position of the course

The course deals with baseline aspects of experimental approaches from ecological concept over experimental design and up-to-date experimental techniques to limitations of an experiment and critical interpretation of its outcome.

At the end of the course, we expect students to have a critical vision on the experimental toolbox available for marine ecological research.

Contents

Marine ecological conceptual theories (biodiversity-ecosystem functioning, ...), experimental design and relevant statistics, ethics and legal framework (Nagoya protocol, ...), biosafety levels for experimental lab, lab techniques (aquarium techniques, sensors, fluorescence-based measurements...), correct notation and critical interpretation of protocols, culture collections, scaling an experiment (from micro- to mesocosm), sensors (Arduino sensor development, use of optodes, (micro) electrodes, discussion of field experiments in different habitats (intertidal, subtidal, deep sea), limiting factors of an experiment.

The practical part of this will include hands-on sessions and visits to Belgian partner labs of the European Marine Biological Resource Centre (EMBRC) network to get acquainted with up-to-date infrastructure and culture collections: [bivv.Marine Biology \(UGent\)](#), [Protistology and Aquatic Ecology \(UGent\)](#), [Laboratory of Microbiology, Department of Biochemistry and microbiology \(UGent\)](#), [Aquaculture \(UGent\)](#) and [Flanders Marine Institute \(VLIZ, Marine Station Ostend\)](#).

Initial competences

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

Final competences

- 1 Students should have a good overview of the available up-to-date lab techniques to setup experiments and should develop a critical vision on this experimental toolbox.
- 2 To get an overview of the available techniques to design an experiment and to learn how to make optimal use of these up-to-date techniques.

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

Lecture

Study material

Type: Slides

Name: course-specific slides

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

Online Available : No

Available in the Library : No

Available through Student Association : No

Type: Other

Name: guided tour in labs

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : No

Online Available : No

Available in the Library : No

Available through Student Association : No

References

Solan, Aspden & Paterson (2012). Marine biodiversity and ecosystem functioning: Frameworks, methodologies, and integration.

Quinn & Keough (2002). Experimental design and analysis for Biologists

Articles of presented case-studies

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

Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Assignment: Critical interpretation (recorded PowerPoint presentation) of the Materials and Methods section of a marine research paper.

Arduino and other demonstrations: permanent evaluation

Calculation of the examination mark

individual evaluation of assignment with individual feedback