GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Field Practices, Sampling Design and Census of Marine Communities (C004349)

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

Di Camillo, Cristina Gioia	ANCONA01	lecturer-in-charge
Rindi, Fabio	ANCONA01	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

Sampling design, sampling methods, scientific underwater samplings, benthos, taxonomy

Position of the course

This course aims at providing the students with a baseline for field work at sea, enabling the students to acquire the skills needed for research activities in the marine environment. The field course deals with theoretical and practical issues on biological samplings.
The students will gain basic knowledge and skills to:
- plan fields activities and to build a timetable
- choose the most appropriate methods of census of marine communities in relation to an environmental target
- manage and label properly the collected samples
- identify main taxa of marine benthic organisms (from both hard and soft substrates)
- manage the information to build a dataset

The course includes lectures and practical training in the field and in the lab.

Contents

Theoretical lessons

Through theoretical frontal lessons the students will comprehend:
- details of several destructive and non-destructive sampling techniques
- concepts of population, sample and sample representativeness
- the importance of evaluating the feasibility of a planned sample strategy
- the importance of knowing phenology of marine organisms for defying a sampling strategy
- how to choose the most appropriate sampling method

Practical activities in the field

The aim of practical activities is to apply some of the techniques illustrated during the theoretical part of the course. Since part of the students may not have a diving license, most of the activities will be carried out on the seashore. They will include from four to five activities (little variation in the planned activities could occur in case of bad weather conditions):
- sampling of benthic macrofauna on the intertidal zone of a sandy beach (method: hand corers)

- sampling of seaweeds on the intertidal zone of a rocky beach (method: scraping)
- simulation of a depth transect using shapes of benthic organisms and fish (visual census, quadrats)
- collection of marine litter following the protocol of the Marine Strategy

In the lab students will examine different phyto- and zoo-benthic taxa to learn the main identification approaches.
Briefing and analysis of underwater pictures through the free software PhotoQuad to determine the percentage cover of the organisms

Diving activities may be performed depending on meteomarine conditions and level of diving license. Diving activities will be performed during field trips and costs will be defined depending on the number of participants and destination. Diving activities will be permitted only students having a diving license, and a valid (lasting no more than one year) medical certificate specific for diving activities (released by a hyperbaric physician).

Initial competences

Basic knowledge on zoology, ecology and marine biology; source criticism; teamwork skills

Final competences

1 Enhanced knowledge about the main techniques and methodologies for specific case studies, in either research activities or conservation issues.
2 Increased dexterity in managing sampling tools and collected samples.
3 Improved ability in setting a sampling strategy.
4 Advanced cognizance about the identification of main marine taxa, at least at family level.
5 Improved problem-solving propensity.
6 Increased ability to apply concepts/methods illustrated in the course to a real situation.

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, Practical

Extra information on the teaching methods

The course will include excursions, teamwork, lecture, a round table to evaluate progresses of a work experience (see ahead, 'Evaluation methods'), fieldwork

Study material

None

References

See above

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

Oral assessment, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

The students will be divided in teamwork to develop a work group. Each team will

plan a sampling strategy in relation to a goal proposed by teachers (see the example below). The students should look for available literature autonomously, consider species or habitats protected by the principal EU regulations, propose an appropriate sampling strategy, set indicators of the suggested monitoring activities, examine factors of risk, illustrate expected results. The students must demonstrate that they have acquired the basic knowledge presented during the course; with regard to the practical part, the student will be asked to conceptually apply to their case of study. The final grade is mainly allocated according to the ability to set an exhaustive and schematic project as well as the ability to present their work experience.
A round table will be planned to assess progresses of the teams. Each team will present a draft of their work. The aim of this session is not to attribute a score; on the contrary, the objectives are to fine tune the implementation of the students' proposals to achieve final competences, to discuss weakness and strength points, to promote the exchange of ideas among students.
The final grade is mainly allocated according to the ability to set an exhaustive and schematic project as well as the ability to present their work experience. To attribute a final mark, teachers will consider parameters listed below:

1 capacity to apply the concepts/methods illustrated in the course to a real situation

2 capacity to obtain information relevant to the work experience from different sources

3 capacity to make good use of the information obtained

4 capacity to work in a team

5 clarity of the proposed solutions/strategies

6 use of proper scientific terminology

7 ability to summarize concepts and to present the work in a synthetic form

See ahead 'Calculation of the examination mark'

Calculation of the examination mark

For each of the aforementioned seven parameters teachers will attribute a score from 1 to 4. If all the parameters will receive a full marks (4), the final mark will be 28/30. If the student will distinguish himself during his dissertation, or the presented work is particularly smart and brigth, the final mark could increase to 30/30 or to 30/30 cum laude.