

UM4MRM52 MARINE BOTANY		
6 ECTS	<i>Keywords</i>	macroalgae, marine plants, field work, taxonomy, biological traits, life cycles
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Description

Format

Teaching

Lectures: 20h; Practical field and lab work: 40h

Teaching language: English

Participants: This course is open to students of all Universities, and to professionals)

Evaluation

Autonomous work in small groups (production of illustrated documents on seaweeds species)

Oral presentation

Final written exam

Summary

This master degree summer course is a hands-on introduction to marine macroalgae and plants with an emphasis on seaweeds. It trains the students to recognise and identify the typical marine algae and plants in various coastal habitats of Brittany. The organisms are studied in their environment during field excursions and in vivo back to the laboratory. The students will become familiar with identification of the main species using morphological and ecological characters, as well as with their cyto-anatomical features and life cycles. The course also offers an introduction to the use of genetic characters to study seaweeds systematics and evolution. These studies build the foundation from which the main scientific questions in the systematics, biology, ecology and evolution of marine flora can be addressed.

Check out a short video introducing the course: <https://youtu.be/qER5dy2up-0>

Learning objectives

With this course, the students will be able to:

1. describe and analyse the morphology (including anatomy and cytology) of seaweeds and marine plants using the dedicated vocabulary
2. point out the relevant morphological, biological, ecological characters needed to identify seaweeds
3. identify the most common seaweeds of the western English Channel
4. identify and interpret seaweeds reproductive structures
5. set limits in the use of morphology for taxa identification (i.e., to be able to explain when, and why they cannot give a species name to a specimen)
6. explain the importance of genetic characters in algal systematics and taxonomy

Prerequisites

Basic knowledge in biology is needed to attend the course. An upgrade of the prerequisites will be proposed to the students approximately one week before the start of the course. It consists of a formative quiz, which allows the review of a number of basic notions of biology.

Bibliography

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Organisation details

The Marine Botany course is a hands-on introduction to marine algae and plants. Its objective is to train students to the scientific methods used to identify marine algae and plants (with an emphasis on seaweeds and on practical work). This summer course is open to students of all Universities and to professionals whose activities require knowledge in systematics, biology and marine ecology. It is given in english.

The course includes:

- **Lectures on the characteristics of the main seaweed phyla:** morphology, anatomy, cytology and pigmentation, reproduction, ecology, classification (including molecular phylogeny).
- **Fieldwork:** the students will study seaweeds and marine plants in their environments and learn how to collect specimen for further studies. Five field trips to very contrasting coastal and near-shore habitats, accessible during low tide are organized (sheltered and exposed rocky-shores, soft shores). When possible, samples from pelagic and subtidal environments are collected during a sea excursion on an oceanographic boat.
- **Practical coursework in the lab:** the students will conduct in vivo observations of the sampled species under a dissecting microscope or optical microscope to study the biological and taxonomic criteria presented during the lectures. Each student has access to a microscope and a dissecting microscope during the whole course.
- **Exercises in using identification keys:** the students will have access to a number of specialized works and teaching documents designed for the course to identify the species collected during field trips. Students also have access to on-line tools.
- **Projects:** the students will participate to a collaborative work aiming at producing a list of the native or introduced species growing in the artificial habitats of the Roscoff marina. They will also have the opportunity to make a herbarium.

The course is organised by the Station Biologique de Roscoff, which offers direct access to the temperate marine flora in situ, and facilities for studying them in the lab. The course also takes advantage of the Moodle platform in order to provide the students with relevant teaching resources. The course instructors are research lecturers in phycology who have extensive teaching experience on seaweed biodiversity in coastal and nearshore environments.

Note: This document is for informational purposes. The details of the content and format of the courses and evaluations may change from year to year.