

## Established and Emerging Model Organisms for Marine Science Schmid Training Course – MU4BM113

**Dates:** 27 February - 10 March, 2023

**Place:** Station Biologique de Roscoff, Brittany - France

**Course format:** hybrid (online and on-site)

**Language:** English

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Marine organisms have for a long time fascinated biologists. During this training, students will meet several researchers expert in a wide range of marine models (acoels, brown algae, annelids, marine bacteria, cephalochordates, *Chondrichthyes*, cnidarians, echinoderms, sponges, placozoans and tunicates) and will discover with them the great biological questions addressed using these organisms.

The joint presentation of life cycle, embryogenesis, anatomy, developmental mode and genomic database for each model will allow students to understand which kind of descriptive and functional approaches are possible.

On an experimental level, students will perform immunocytochemistry, egg micro-injection, phototaxy test, regeneration experiments, embryo dissection and development tables. All organisms will be available for observation in the practical room. A low tide excursion is also scheduled to measure the extent of biodiversity on the Breton coastline in this region.

The way of teaching of this training is hybrid meaning that it comprises a preparation time upstream the course and an in-person time with the researchers for the practical and conceptual parts. A specific web site called DigitalMarine (<https://digital-marine.sorbonne-universite.fr/index.php/digitalmarine>) has been created for the students to assist them in the preparation of the training (online course). This web site contains pages dedicated to each marine organism hosting videos, interactive diagrams, interviews of researchers and 2D animations.

This upstream learning provides students with basic knowledge on marine organisms before discovering them in the lab together with their associated research projects. A greater time is therefore allocated to practical and conceptual issues during the on-site time at the marine station of Roscoff.

### Assessment

Three type of evaluation are proposed:

-Fundamental knowledge evaluation by a MCQ (30% of the final mark)

-A journal club session during which students make an oral presentation of a scientific paper (30% of the final mark)

-A final exam during which students have to write the summary of a scientific paper (where the abstract has been previously deleted) (40% of the final mark)

### Credits

Students will be awarded 6 ECTS\* credits after they have successfully completed the course programme (see assessment above)

\* ECTS: European Credit Transfer and accumulation System (1 ECTS = 10 hours training)

### Prerequisites

Good knowledge on

Tree of life, metazoan phylogeny

Molecular biology and genes involved in embryonic development

Developmental biology

Animal biology

Scientific English

### Learning outcomes

Cellular, molecular and anatomy knowledge on a wide range of marine organisms used in experimental biology

Know how to read and analyse a scientific paper

Know how to talk in front of a scientific audience

Know the methodology required to design a scientific project

Recognize a large array of marine organisms

Make laboratory experiments with marine organisms