

LA ROCHELLE, France

+ A beautiful thousand years old city
with a mild and very sunny climate

A GREAT PLACE TO STUDY!

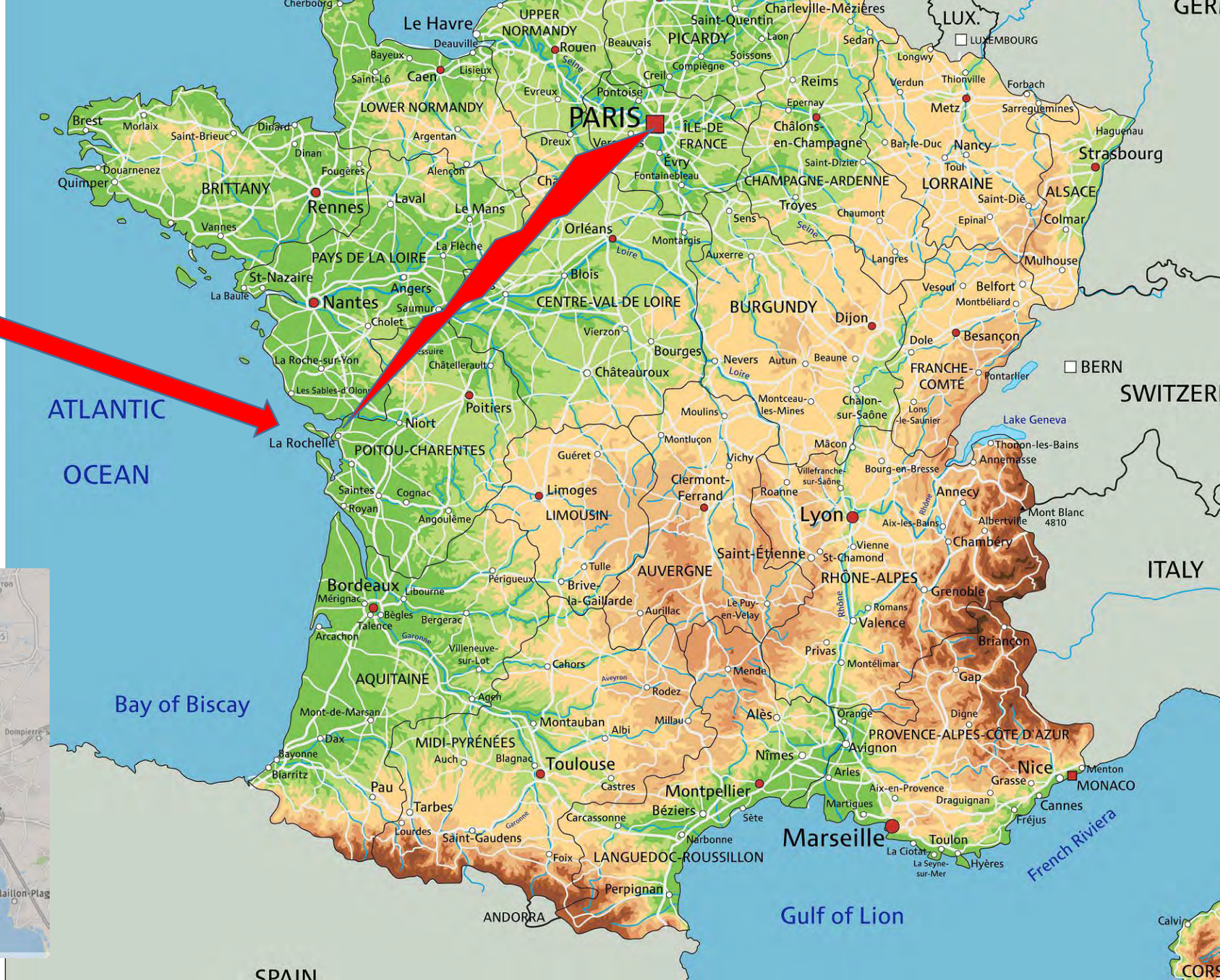
La Rochelle
Université



La Rochelle

2.5 hours from Paris by TGV

Near the beautiful Ré island



ATLANTIC OCEAN

Bay of Biscay

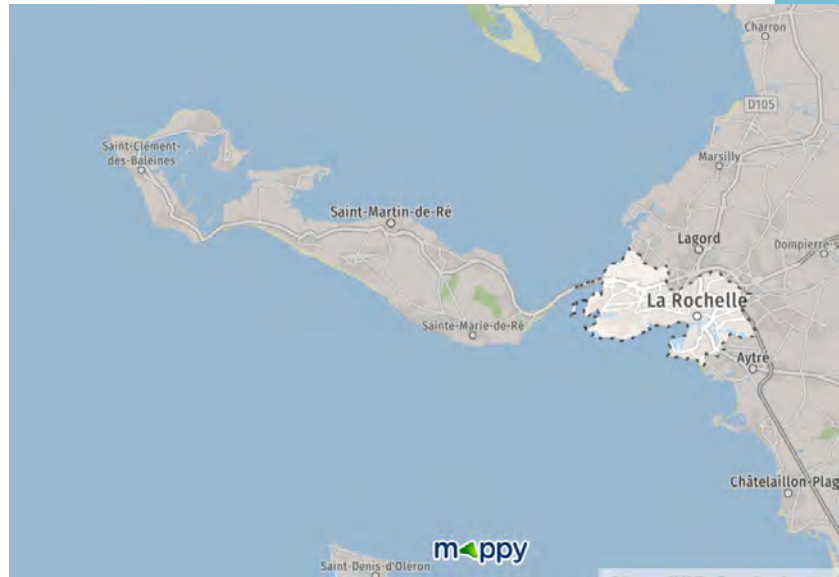
Gulf of Lion

SPAIN

SWITZERLAND

ITALY

CORSICA



La Rochelle
Université



Photo : Clément Mauduit



Historical fact: La Rochelle proclaimed its independence in 1621 which led to the terrible siege of the city, recounted in the famous novel and movie "The 3 Musketeers".

La Rochelle

A city of art and history which offers many cultural events (Francofolies, film festivals, boat show...).
A city known for its quality of life.

La Rochelle
Université

La Rochelle University



A young and friendly
university



8820 students
+80 diplomas offered



10 research laboratories
1 doctoral school



Photo : Thierry Guyot



A campus in the city, near the old harbour

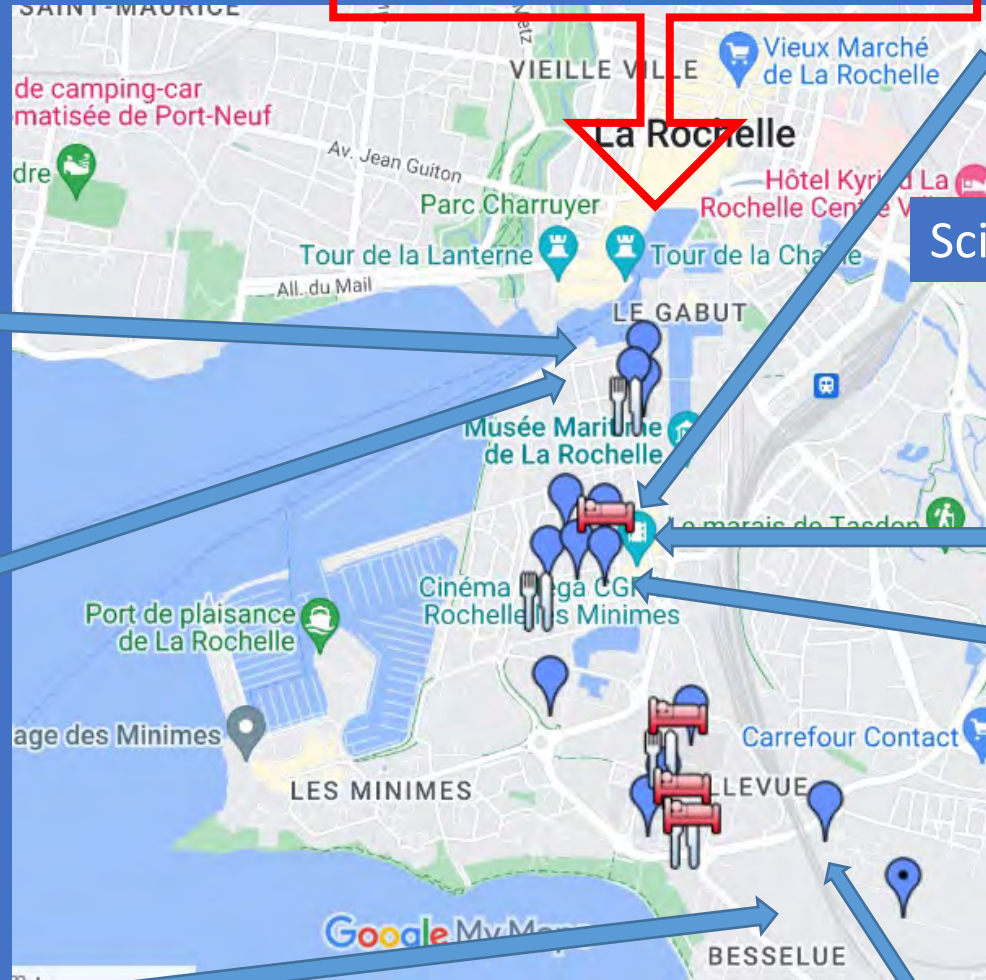


Photo : Thierry Guyot

University Library



Student house
Cultural activities



Science and Engineering Institute



Photo : Thierry Guyot



Photo : Thierry Guyot



Sport : 40 activities

Law and Management
Institute

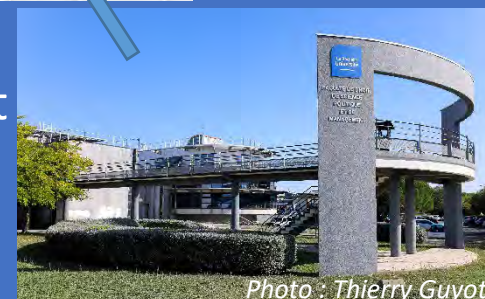


Photo : Thierry Guyot



For Master's students in Coastal Ecology and Environmental Management:

Full Autumn Semester with courses taught in English, at the graduate Level, in the field of Coastal Ecology and Environmental Management:

- Practical research internship in Chizé (2 ECTS)
- Sampling strategies and data analysis (6 ECTS)
- Simulation of the environment (2 ECTS)
- From climate change impacts to adaptation pathways (2 ECTS)
- Integrated wetland and water management (6 ECTS)
- The environment in a computer: examples & projects (6 ECTS)
- Geospatial and web development (6 ECTS)
- Ecology and Management of Marine Mobile Species (EGEMM 1) (6 ECTS)
- Ecology and Management of Marine Mobile Species (EGEMM 3) (6 ECTS)
- Ecology of seabirds (6 ECTS)

- This can be completed with:

6 ECTS French Language (level A2, B1, B2 or C1)

6 ECTS Research methodology and data analysis (Code 222-1-02)

For Master's students in Coastal Ecology and Environmental Management:

Syllabus:

- **Practical research internship in Chizé (2 ECTS) – Code 272-1-11**

Practical work: 35h.

Content:

The aim of this one-week training course is to introduce you to research in a laboratory in the fields of ecology, ecophysiology and behaviour. It combines courses on topics developed in the laboratory, field trips and research projects entrusted to groups of students with final restitution.

Three different and complementary types of actions are carried out: 1. interventions in the form of seminars or conferences supported by researchers and doctoral students in the lab. This represents approximately 25% of the internship time. These courses aim to increase the theoretical background through the example of research work developed in the laboratory or through summarised presentations. They also aim to link theory, concepts and scientific processes; 2. research subjects (study projects) assigned to groups of students supervised by a doctoral student, in accordance with the themes explored in seminars (approximately 50% of the internship time). Students must then solve a given problem and present their approach and results at the end of the week. 3. discoveries made on the field station with the livestock and the surrounding natural environment, such as the biological reserve (about 25% of the time). The whole of the biological reserve is a life-size laboratory as it covers 2600 ha of freely evolving forests.

Required knowledge:

Basic ecology and ecophysiology skills.

- **Sampling strategies and data analysis (6 ECTS) – Code 272-1-12**

Lectures: 15h, tutored courses: 12h, practical work: 15h, supervised self study: 22.5h

Content:

Topics covered include:

- ✓ Understanding variability in benthic ecosystems.
- ✓ Implementing a sampling plan after comparing and discussing different types of sampling strategies.

For Master's students in Coastal Ecology and Environmental Management:

- ✓ Determining the number of replicates and sampling unit size required to address a scientific question.
- ✓ Precision and sample size considerations.
- ✓ Sampling methods for benthic macrofauna and meiofauna.
- ✓ Statistical methods to analyse ecological data, including comparisons of proportions, odd ratios and means, correlation tests, linear regression, analysis of variance (including 1-factor, 2-factor crossed, hierarchical, repeated measures and mixed models), and multivariate analyses such as Principal Component Analysis (PCA) and Correspondence Analysis (CA)
- ✓ Introduction to the R statistical software and the tidyverse packages, to perform all steps of data analysis, from data wrangling and feature design to visualizations and statistical analyses.

Required knowledge:

Basic ecology and ecophysiology skills. Basic knowledge of statistics

- **Simulation of the environment (2 ECTS) – Code 272-1-22**

Lectures: 12h, tutored courses: 3h, supervised self study: 4.5h

Content:

Simulating mass flows in a planktonic ecosystem:

Conceptualizing a given problem, building a quantitative model, numerically solving differential equations applied to biology, coding in Python, testing simple climate change scenarios with the model, and analysing, interpreting and communicating the model results.

Required knowledge:

Basic knowledge in ecology

- **From climate change impacts to adaptation pathways (2 ECTS) – Code 272-1-24**

Lectures: 9h, tutored courses: 3h, supervised self study : 3h

For Master's students in Coastal Ecology and Environmental Management:

Content:

The aim is to understand the key environmental changes observed on the coast and their main drivers, including uncertainties relating to the estimation of changes and the spatial variability of changes. Knowledge of the methods to be used to assess environmental changes and analyse environmental changes from the global to the local scale based on focused case studies.

Required knowledge:

Basic knowledge of environmental sciences

- **Integrated wetland and water management (6 ECTS)** – Code 272-3-21

Lectures: 39h, tutored courses: 6h, practical work: 15h, supervised self study: 7.5h

Content:

Comparative ecology, conservation, threats and sustainable management of continental and coastal wetlands (swamps, mangroves, lagoons, seagrass beds, coral reefs, etc.).

Microbiological analysis of water. Chemical parameters. Biological water purification. Uses of continental water. Eutrophication. Framework directives, indicators and monitoring networks.

Required knowledge:

Basic knowledge of ecology and microbiology

- **The environment in a computer: examples & projects (6 ECTS)**– Code 270-1-71

Lectures: 6h, practical work: 44h, supervised self study: 10.5h

Content:

The goal for students is to acquire programming agility, addressing a portfolio of problems in different disciplines and at various levels. Students will apply the basics of algorithms to concrete problems, where they will be required to process data and develop simple models to replicate the evolution of a system.

For Master's students in Coastal Ecology and Environmental Management:

- **Geospatial and web development (6 ECTS) – Code 270-3-71**

Lectures: 19.5h, tutored courses: 10h, supervised self study: 19.5h

Content:

In this EC, students will learn the general principles of the interaction between computer code and the internet, up to the basic concepts of web programming and internet services. It also involves learning and implementing geographic information methods in simple code to solve a problem in an integrated manner.

- **Ecology and Management of Marine Mobile Species (EGEMM 1) (6 ECTS)– Code 270-1-8**

Lectures: 37.5h, tutored courses: 6h, supervised self study: 13.5h

Content:

Law of the Sea and Biodiversity. From the international to the national level (French level), including European Law.

Ecology of top predators: basic knowledge of fish, sea birds, marine mammals and marine turtles' biology and ecology

Impact of human activities (on marine top predators): the different categories of pressures, and more detailed descriptions of bycatches, entanglement, ecotoxicology, noise pollution, disturbance in general, and well as the impacts of climate change and ecosystem shifts.

Required knowledge:

Basic knowledge of ecology and biology

- **Ecology and Management of Marine Mobile Species (EGEMM 3) (6 ECTS)– Code 270-3-81**

Lectures: 31.5h, tutored courses: 9h, practical work: 6h, supervised self study: 13.5h

Content:

Sensory systems and orientation in marine top predators. This course presents the sensory systems of fish, seabirds, marine mammals etc., as well as their orientation skills at sea.

For Master's students in Coastal Ecology and Environmental Management:

Management of exploited resources. This course gives an overview of the world's marine fishery resources, methods and levels of exploitation, models and management in France and in Europe.

Monitoring tools: The presented monitoring techniques include surveys at sea for the estimate of the distribution and abundance of marine mammals and seabirds, monitoring marine mammal strandings (protocols, sampling and analyses on the biology of these animals, temporal trends) and the use of ecological tracers.

Required knowledge:

Basic knowledge of ecology and biology

- **Ecology of seabirds (6 ECTS) – Code 170-5-73**

Lectures: 9h, tutored courses: 3h, practical work: 3h, supervised self study: 1.5h

Content:

The aim of this course is to enable students to understand the diversity of seabirds from the point of view of their systems, adaptation skills and environment.

Five main themes will be explored:

Systematic and Distribution (lectures)

Morphological adaptations (lectures)

Demography (lectures)

Feeding ecology (student work in groups)

Conservation and threats (student work in groups)

Required knowledge:

Basic knowledge of ecology and biology

For Master's students in Coastal Ecology and Environmental Management:

Full Spring Semester with courses taught in English, at the graduate Level, in the field of Coastal Ecology and Environmental Management:

- Coastal and trophic dynamics (2 ECTS)
 - Ecotoxicology (2 ECTS)
 - Numerical analysis in ecology, time series (2 ECTS)
 - From data to information (6 ECTS)
 - Ecology and Management of Marine Mobile Species (EGEMM 2) (6 ECTS)
 - Ecology of Marine Mammals (2 ECTS)
- This can be completed with:
- 6 ECTS French Language (level A2, B1, B2 or C1)
 - 2 ECTS Climate Change and Resilience Challenges (World energy situation) (Code 256-2-81)
 - 2 ECTS Energy and climate (Code 256-2-82)
 - 2 ECTS Quantitative research (Code 225-2-31)

For Master's students in Coastal Ecology and Environmental Management:

Syllabus:

- **Coastal and trophic dynamics (2 ECTS)** – Code 272-2-11

Lectures: 28h, tutored courses: 6h, practical work: 7h, supervised self study: 6h

Content:

Coastal and estuarine physical, chemical and biological oceanography: waves, circulation, upwelling. Primary production and the fate of organic matter, from micro-organisms to macroconsumers. Food web trophic dynamics and ecosystem models.

Required knowledge:

Basic knowledge of biology, ecology, microbiology

- **Ecotoxicology (2 ECTS)** – Code 272-2-12

Lectures: 14h, tutored courses: 9h, practical work: 9h, supervised self study: 10h

Content:

Environmental chemistry: this part comprises an overview of the main different chemical groups present in the environment, and their source and fate in the environment. The focus is on bioavailability, concentration and magnification factors. The student learns from the podcasts and scientific papers.

The toxicological risk: this part comprises the critical evaluation and comprehensive analysis of scientific papers. The focus is on effects of anthropogenic chemicals on different biological organisation levels (organism, population, ecosystem). Practical works on biomarkers are included. Environmental risk

assessment: indicators and sentinel species

Required knowledge:

Basic knowledge of biology, ecology, chemistry.

For Master's students in Coastal Ecology and Environmental Management:

- **Numerical analysis in ecology, time series (2 ECTS)** – Code 272-2-13

Lectures: 9h, tutored courses: 3h, practical work: 4.5h.

Content:

Processing and analysing univariate time series, correlation analysis of multivariate series, spatial interpolation using the software R.

Required knowledge:

Basics of biology, statistics

- **From data to information (6 ECTS)** – Code 270-2-71

Lectures: 19.5h, practical work: 20h, supervised self study: 10.5h

Content:

In this course, students will learn the basics of data mining, with its application to environmental studies. Students will apply these methods to concrete problems through computer code and interpret the results. Students will also learn the basics of image analysis and its application to environmental monitoring. In this EC, students will write computer code to analyse images and interpret the results.

Required knowledge:

Basics of environmental sciences

For Master's students in Coastal Ecology and Environmental Management:

- **Ecology and Management of Marine Mobile Species (EGEMM 2) (6 ECTS) – Code 270-2-8**

Lectures: 33h, tutored courses: 13.5h, practical work: 6h, supervised self study: 7.5h

Content:

Management of protected marine species. This consists of a series of seminars given by professionals working in nature reserves, marine national parks or working on conservation issues on seabirds and/or marine mammals, including the International Whaling Commission, depredation and bycatch issues, etc. Oceanography. General oceanography and introduction to the concepts of spatial remote sensing

Monitoring tools: We focus on the use of biologging and telemetry for the study of marine top predators, as well as the use of environmental data for the modelling of their habitats.

Required knowledge:

Basics of biology, ecology

- **Ecology of Marine Mammals (2 ECTS) – Code 170-6-73**

Lectures: 12h, tutored courses: 1.5h, practical work: 3h.

Content:

The course consists of 5 chapters of lectures (1- Diversity of marine mammals, 2- Anatomy and physiology of marine mammals, 3- Sensory systems and communication in marine mammals, 4- Reproduction of marine mammals, 5- Feeding ecology of marine mammals and a practical on marine mammal reproduction and/or diet:

Required knowledge:

Basics of biology, ecology

For Master's students in Coastal Ecology and Environmental Management:

Autumn or Spring semester

in the field of Coastal Ecology and Environmental Management:

- It is also possible to apply for an internship in the following laboratories of La Rochelle University for a few weeks to a few months:
- [Laboratory of Littoral, Environment and Societies \(LIENSs\)](#)
- [Centre d'Études Biologiques de Chizé \(CEBC\)](#)

FOR EXCHANGE STUDENTS

- ESN Erasmus Student Network: office in La Rochelle
- University accommodation offer
- Buddy scheme
- Free student “pass culture”
- And an international office to help you

LEARNING FRENCH

Free access to 6 ECTS credits per semester
in French language for exchange students



La Rochelle
Université

Welcome to La Rochelle University !

La Rochelle
Université



Photo : Thierry Guyot