MASTER SCIENCES AND TECHNOLOGY FOR AGRICULTURE, FOOD AND ENVIRONMENT

IN BRIEF

Type of diploma: Master degree
Ministry field(s): Science and Technology

PRESENTATION

Under construction

ORGANIZATION

- M2 Evolutionary ecology in aquatic environments

ORGANIZATIONAL UNIT

Collège Sciences et Technologies pour l’Energie et l’Environnement (STEE)

PLACES

Anglet

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ANGLET
M2 Evolutionary ecology in aquatic environments

**PRESENTATION**

Applications are now open

Applications will be closed on April 24th, 2020

The aim of the programme “Evolutionary Ecology in Aquatic Environments” is to train scientific experts able to design experiments and models in order to produce knowledge in evolutionary ecology relevant to the management of aquatic ecosystems.

It is backed by the Federation for Research in water resources and aquatic ecosystems (MIRA) which includes research experts and skills in the fields of evolutionary response of aquatic species to anthropic pressures and modelling of aquatic populations and ecosystems.

The master is fully taught in English and is hosted at the College of Sciences and Technologies for Energy and Environment (STEE) of the Université de Pau et des Pays de l’Adour (UPPA) in Anglet (France).

**OBJECTIVES**

* Prepare students at an advanced specialized level to meet present and future challenges in the ecology of aquatic environments,
* Develop research skills to engage in quality and successful research on the evolutionary ecology of aquatic systems,
* Prepare students for leading positions in corporate and academic research departments.

**SKILLS**

Internship: (6 months)
At the end of this programme, the students will be able to:

* Set up relevant experiments and theoretical models to describe the evolution of anthropized aquatic ecosystems.
* Manage and conduct experiments from sampling design to data collection and statistical analysis.
* Analyse, interpret and synthesize results to present them to scientists, managers and the general public.

**ADDITIONAL INFORMATION**

* Region Aquitaine Scholarships for non-EU students
* E2S Talents’ Academy Scholarships for all students
* EIFFEL Scholarship of Excellence
* Specific Master’s scholarship

**TRAINING CONTENT**

This one-year training programme is composed of

1. One semester of eight courses (30 ECTS) covering evolutionary ecology, population dynamics, behavioural ecology, habitat restoration, space and time series analysis, sampling strategies, research initiation and language (French or Spanish), and
2. One 6-month-long internship (30 ECTS) in a research laboratory. Each course is organized in lectures, tutorial classes and practical works, and supplemented by online material.

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<thead>
<tr>
<th>SEMESTER 1 (SEPTEMBER – JANUARY)</th>
<th>ECTS</th>
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<tbody>
<tr>
<td>Evolutionary dynamics and management applications</td>
<td>6</td>
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| State of the art methods and knowledge in evolutionary ecology for novel and adaptive management practices | }
<table>
<thead>
<tr>
<th>Module</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Behavioral Ecology</strong></td>
<td>2</td>
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<tr>
<td>Darwinian approach to the evolution of behaviour, methods, models, collaborative and guided applications</td>
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<tr>
<td><strong>Population dynamics</strong></td>
<td>3</td>
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<td>From case studies, building models to estimating demographic parameters, and simulating dynamics</td>
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<tr>
<td><strong>Time series and spatial analysis</strong></td>
<td>6</td>
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<tr>
<td>Advanced training in statistical ecology for complex datasets</td>
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<tr>
<td><strong>Sampling strategies and abundance estimation</strong></td>
<td>6</td>
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<tr>
<td>Basic and advanced tools used in designing sampling approaches along with associating the appropriate modelling tools</td>
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<tr>
<td><strong>Research initiation</strong></td>
<td>3</td>
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<tr>
<td>Scientific methodologies and analyses for research-oriented projects</td>
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<tr>
<td><strong>French or Spanish course</strong></td>
<td>2</td>
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<td>According to initial level, a final level CERCL-A2 (elementary) or B2 (autonomous) can be targeted</td>
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Ecological restoration of rivers
Diagnostic of dysfunctioning rivers and targeting restoration actions

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<tr>
<th>SEMESTER 2 (JANUARY – JULY)</th>
<th>ECTS</th>
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<tr>
<td>Research project</td>
<td>30</td>
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Conducting a research project, from the elaboration of protocols to the analysis of data and drafting of a report (six months)

CONTROL KNOWLEDGE

Each unit of the coursework is evaluated through ongoing and summative assessments.

Skills and knowledge are mainly assessed through the writing of synthesis reports based on real world case studies. The internship will be evaluated through a thesis and an oral defence.

ACCESS CONDITIONS

Applicants must be fluent in English, both in writing and speaking. An applicant whose native language is not English has to take a recognized international English test.

Minimum required score: CECRL B2 level in English

ACADEMIC REQUIREMENTS

This formation is open to students who have completed a master degree, or who have validated an M1 degree or any other equivalent degree in Ecology and want to develop skills in...
evolutionary ecology of aquatic systems. Foreign students are requested to provide a similar degree.

The applicant must also:

* Have scientific knowledge in the field of aquatic environment ecology.
* Master the key concepts of population genetics and dynamics, functional ecology, ecotoxicology and their formalisation
* Have a taste for mathematical and statistical modelling tools and concepts.

**EXPENSES**

Concerning the registration fees, the ministerial decree of 19 April 2019 sets the annual amount for non-European students enrolling in a Master's degree at €3770.

However, each French higher education institution has the possibility to partially exempt its students from these tuition fees.

For the year 2020-2021, the UPPA will apply this **partial exemption** to all non-EU students. Students benefiting from this partial exemption will pay an annual registration fee of **243** euros (2019_2020 price list as an indication)

**FURTHER STUDY**

Students who completed the programme are granted a Master’s degree.

They can apply to PhD positions in evolutionary ecology of aquatic systems, either in a fully academic environment or in interaction with corporate environment consultancy.

**ORGANIZATIONAL UNIT**

Etablissement

**PLACES**

Anglet

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