

# MASTER SCIENCES AND TECHNOLOGY FOR AGRICULTURE, FOOD AND ENVIRONMENT

## IN BRIEF

**Type of diploma** : Master degree  
**Ministry field** : Science and Technology

### PRESENTATION

Under construction

[MORE INFO](#)

### ORGANIZATION

- M2 Evolutionary ecology in aquatic environments

[LEARN MORE](#)

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

### ORGANIZATIONAL UNIT

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

### PLACES

Anglet

### PERSON IN CHARGE

Merchermek Nacira  
nacira.merchermek@univ-pau.fr  
Phone +33 559574442

Tentelier Cédric  
cedric.tentelier@univ-pau.fr  
Phone +33 559574447

Monperrus Mathilde  
mathilde.monperrus@univ-pau.fr  
Phone +33 540175033

Bolliet Valerie  
valerie.bolliet@univ-pau.fr

Phone +33 559574446

Lalanne Yann

yann.lalanne@univ-pau.fr

Phone +33 559574441

**ADMINISTRATIVE CONTACT(S)**

Marie-Josée Labéguerie

Phone +33 559574401

marie-jose.labeguerie@univ-pau.fr

1 Allée du Parc de Montaury

Bâtiment 1

<sup>64600</sup> ANGLET

# M2 Evolutionary ecology in aquatic environments

## PRESENTATION

« Applications are open from December 2018 to April 2019 from <https://aap.e2s.univ-pau.fr/siaap/pub/appel/view/5>

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).

## MORE INFO

**ECTS credits** : 60

**Type of education**

- \* Foreign students
- \* Ongoing training

**Internship** : Mandatory (5 months)

## 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

**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

## TRAINING CONTENT

SEMESTER 1	ECTS
<p><b>Evolutionary dynamics and management applications</b></p> <p>State of the art methods and knowledge in evolutionary ecology for novel and adaptive management practices</p>	6
<p><b>Behavioral Ecology</b></p> <p>Darwinian approach to the evolution of behaviour, methods, models, collaborative and guided applications</p>	2
<p><b>Population dynamics</b></p> <p>From case studies, building models to estimate demographic parameters, and simulate dynamics</p>	3
<p><b>Time series and spatial analysis</b></p> <p>Advanced training in statistical ecology for complex datasets</p>	6
<p><b>Sampling strategies and abundance estimation</b></p>	6

Basic and advanced tools used in designing sampling approaches along with associating the appropriate modelling tools	
<b>Research initiation</b> Scientific methodologies and analyses for research-oriented projects	<b>3</b>
<b>French or Spanish course</b> According to initial level, a final level CERCL-A2 (elementary) or B2 (autonomous) can be targeted	<b>2</b>
<b>Ecological restoration of rivers</b> Diagnostic of dysfunctioning rivers and targeting restoration actions	<b>2</b>
<b>SEMESTER 2</b>	<b>ECTS</b>
<b>Research project</b> Conducting a research project, from the elaboration of protocols to the analyse of data and redaction of a report (six months)	<b>30</b>

The one-year training programme is composed of 1) a 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) a 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.

## 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

## ADMISSION REQUIREMENTS

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. Admission is based after submission of the following application documents: a cover letter describing the student's motivation and career plan, the transcript of records and the consistency between the academic curriculum and project (former academic subjects and internships).

**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.

## TUITION FEES

### Scholarships

- \* Region Aquitaine Scholarships for non-EU students
- \* E2S Talent's Academy Scholarships for all students
- \* Master's scholarships

## 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.

## PLACES

Anglet

## PERSON IN CHARGE

Tentelier Cédric  
cedric.tentelier@univ-pau.fr  
Phone +33 559574447