SCIENCE, TECHNOLOGY, HEALTH

GREEN Graduate Program "Evolutionary Ecology in Aquatic Environments (EEAE)"

Master Sciences and technology for agriculture, food and environment

ECTS
120 credits

Duration
2 years

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

Language(s)
English

Presentation

In 2022, the University of Pau and Pays de l'Adour opened a **5-year Master's degree + PhD program of excellence** in a variety of disciplines linked to **energy and environmental research**, the Graduate School for Energy and Environmental Innovation (GREEN).

Every student accepted into the program will be offered a €5,000 stipend per year for the first two years (Talents' Academy).

Apply here from October to March

N.B. Our Master's programs may not open if enrollment is too low.

Aquatic ecosystems are both highly diverse and threatened by anthropogenic disturbances such as pollution, global change, eutrophication, harvesting, habitat loss, and fragmentation. These disturbances can have selective effects, or interact with selective factors, in a way that can impact evolutionary processes.

As these processes may either promote population resistance/resilience through adaptation or accentuate the threat through maladaptation, understanding evolutionary forces at work in natural and disturbed aquatic environments is paramount to assessing the fate of biodiversity and managing it sensibly in the long term.

Objectives

This graduate program aims at training scientists who will be able to apply fundamental knowledge of evolutionary ecology in order to tackle the challenge of human-driven loss of biodiversity. As evolutionary processes may be difficult to document and are still not widely accounted for in the management of aquatic ecosystems, the graduate program is strongly research-oriented.

The disciplinary courses will deal with theoretical aspects of evolutionary ecology and empirical methods linked to its study in aquatic ecosystems. Through individual and group projects, students will mix fundamental knowledge and management application to reach their blend of evolutionary ecology in aquatic environments.

Your university

Additional information

* €5,000 per year stipend in Master
* Classes taught in English
* More than one-third of credit hours acquired in research
* Integrating research laboratories right from the 1st semester
* Student-centered learning
* Multidisciplinarity (Chemistry, Physics, and Biology)
* Post-graduate studies with a PhD thesis - if the criteria of excellence are met
* Tutorship and tailor-made programs: each student will have a tutor who will build his curriculum related to his aspirations and research interest.
  The tutor will also help the student define a series of face-to-face or e-learning courses (up to 20 or 25% for the Science graduate programs) that s/he can easily keep up with.

Organisation

Organization

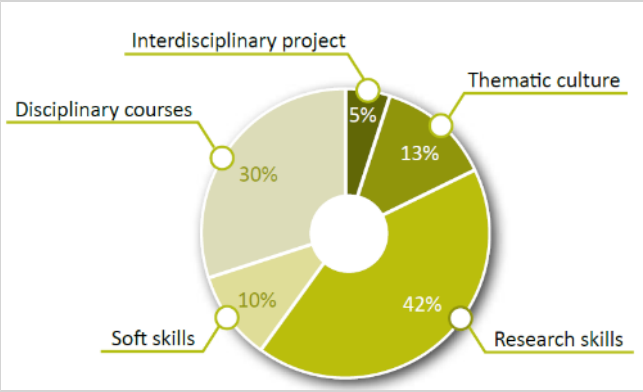
Interdisciplinarity and research immersion in laboratories

To promote transversal and interdisciplinary activities, all the Graduate Programs proposed by GREEN are identically structured. In addition to the research training which represents 40% of a Master's credits, the courses offered in each program are a combination of common thematic culture courses in the field of Energy and Environment (Sustainability Science, Resilience Alliance, Ecological Economics and Political Ecology, Health & Ecotoxicology, Energy Law & Policy…) and basic soft skills completed by fundamental and specialized disciplinary courses to fit with the research or topic of interest of the students.

Project-based learning

The research-based training program of our GREEN program follows the active pedagogy educational approach of "student-based learning." The aim is to guide our students and help them structure their research and innovation projects while giving them much autonomy.

In the second year, there is a significant reduction in face-to-face courses in favor of project-based learning. This puts students in a professional situation to experiment with group work and project management. This framework encourages strong interaction between students, lecturers, and researchers to ensure easier integration into the host research laboratories. The interdisciplinary project proposed in the third semester should allow graduate program students to produce joint, multidisciplinary work.



Graduate program GREEN - Evolutionary Ecology in Aquatic Environments (EEAE)		
Academic Semester 1		
Disciplinary courses		
Course Title	**Course Description**	**ECTS***
Evolutionary ecology & management implications	Where you browse various key concepts in evolutionary	4

	ecology (sexual selection, habitat choice, local adaptation) through their implications for the management of populations or biodiversity	
Demogenetic dynamics in a changing environment	Where you model demo-genetic feedback loops to quantify the ability of populations to thrive and adapt in environments that change naturally or because of human-induced alteration.	4
Eco-evolutionary feedback in aquatic communities	Where you merge within-population phenotypic adaptation and community structure to understand how they mutually shape each other.	4
Journal club:classics in evolutionary ecology	Where you dive into primary literature	2
Phenotypes facing climate change	Where you explore the effect of climate change on thermal adaptation and life-history evolution.	2
Interdisciplinary courses		
Thematic culture		4
Research skills 1	Research Initiation	6
Project management		2
Language	English or French as a Foreign Language	2
Numerical project	Python language	Optional
Academic Semester 2		
Disciplinary courses		
Journal club: new advances in		3

evolutionary ecology		
Bayesian inference for eco-evolutionary processes	Where you model complex ecological datasets in an approach that explicitly untangles biological and observation processes.	4
Evolutionary genomics	Where you seek traces of diversity in genomic data and interpret them as ecological adaptation	2
Interdisciplinary courses		
Thematic culture 2		4
Research skills 2		6
Carbon footprint and life cycle analysis		2
Language	English or French as a Foreign Language	2
Numerical project 2	R	Optional
* ECTS: European Credit Transfer and Accumulation System		

Trainings

Intership : Mandatory

Intership duration : 6 months/year

Admission

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.
* Applicants must hold a Bachelor's degree in Biology/Ecology. Eagerness for research is crucial, and endorsement by a research laboratory prior to application is much appreciated.

How to apply

Apply here from October to March

Tuition Fees and partial exemptions

Go to the Tuition fee page

The school partially exempts non-EU students from the differentiated fees for initial training enrolling in the Master's program.

And after

Professional insertion

Sectors

* Evolutionary ecology,
* Adaptation to global change,
* Biodiversity management,
* Fisheries regulation.

Fields

* Research & development,
* Research

Positions

* Lecturer,
* Researcher,
* Project manager

Useful info

Contacts

Head of Teaching

Cédric Tentelier

cedric.tentelier@univ-pau.fr

Partner laboratories

Ecobiop

https://ecobiop.com/

Group of Stream Ecology @ UPV/EHU

https://www.ehu.eus/streamecology

Freswhwater Research Group @ UC Berkeley

https://vcresearch.berkeley.edu/taxonomy/term/1219

International Lab MacLife

https://liamaclife.org/

Campus

Anglet