



Université  
Perpignan  
Via Domitia

CRÉATRICE D'AVENIRS DEPUIS 1350



GRADUATE LEVEL 7

MASTER'S DEGREE

## Functional Biology and Ecology

Initial education  Work-based learning  Continuing education

### LOCATION



### RECRUTEMENT

#### ADMISSION REQUIREMENTS

Hold an undergraduate (Bachelor's) diploma or any diploma deemed equivalent by the pedagogical commission.

#### HOW TO APPLY

<https://www.labex-tulip.fr/La-Graduate-School>

### OBJECTIVES

Using problem-based learning (PBL) pedagogic approaches, in close collaboration with laboratories and socio-economic actors of the Occitanie Region, students will be trained at the interface between ecology, evolution and functional biology, using methods and concepts to understand and predict how organisms and biotic interactions are affected by and adapt to global changes, in particular climate change. Students will be challenged to study these interactions at various scales, i.e., from the molecular level to cells, organisms, populations, communities and ecosystems.

### OVERVIEW OF THE PRESENTATION



The Functional Biology and Ecology Master is a two-year program which seeks to train our future engineers or scientific project managers, mainly in plant breeding, plant protection, sustainable plant production, environmental impact studies, ecosystems and biodiversity, depollution, as well as scientific advisors, teachers and researchers in academic institutes and universities. Details of the first and second year Masters programs are available on the [website](#). A short video presentation is also available [here](#). The Master includes an integration week, a fast immersion into [TULIP](#) laboratories, the design and execution, within a small-group setting, of a 5-month "Junior Lab" project, training by international scientists and the design and execution of an individual 6-month research project. The FBE Master is co-accredited by the Paul Sabatier University in Toulouse and by the University of Perpignan via Domitia in Perpignan.

### LEARNING OUTCOMES

At the end of the training, the graduate will be able to :

- **Use fundamental concepts** in the field of ecology/evolution, genetics/genomics and biochemistry **to establish a precise diagnostic** of the health situation of a natural environment and to evaluate the impact of human activities on this ecosystem.
- **Use fundamental concepts** of informatics and mathematics applied to biology **to model** the evolution of a dynamic natural system.
- **Propose** restoration, rehabilitation or re-affectation strategies for natural environments using concepts and tools from two distinct scientific fields (molecular biology/genetics and ecology/evolution).
- **Use fundamental concepts** from the genetics/genomics field **to propose** a complete crop breeding strategy.
- **Use fundamental concepts** from the ecology/evolution field **to propose an agroecological approach of crop culture.**
- **Use genomic tools to evaluate** the environmental impacts of various agronomic practices.

## ACADEMIC CURRICULUM

YEAR 1	
SEMESTER 1	
Integration week	Guided TourTULIP: LRSV
Guided TourTULIP: LGDP	Guided TourTULIP: LIPM
Guided TourTULIP: IHPE	Guided TourTULIP: GBF
Guided TourTULIP: EDB	Team construction of the "Junior Lab" project (8 weeks)
Guided TourTULIP: SETE	
SEMESTER 2	
Team Realization and Reporting of the Junior Lab (5 months)	
YEAR 2	
SEMESTER 3	
Guided Tour of the International Community, Part 1	
Construction of the Individual Internship Project (7 weeks)	
Individual Internship and Reporting, Part 1 (3 months)	
SEMESTER 4	
Guided Tour of the International Community, Part 2	
Individual Internship and Reporting, Part 2 (4 months)	
Team Writing of a Mini Review Article (6 weeks)	

## PROGRAM DETAILS



**Duration:** 2 ans

**Hours:** 300h (CM, TD, TP), 525h (mentorship)

**Language:** Anglais

**Internships:** 2 internships (5 months during M1 and 6 months in M2). The second internship can be done abroad.

**Volume of courses in a foreign language:** Program taught entirely in English

**Mentored projects:** Three mentored projects included within the program

**Number of credits:** 120 ect

## AND AFTER?

### Possible professional fields of activities:

- Agriculture, forestry and fishing
- Water production and distribution, waste management and depollution
- Public administration
- Specialized scientific activities in the life sciences field

### Training available after the Masters:

- PhD programs

### Types of jobs possible after the Masters:

- Project manager in Sustainable development, Biodiversity management, Agroecology development
- Engineer (in biotechnology, crop breeding, management of natural areas, remediation and depollution, research, research and development)
- Modelling approach manager

### In the field of crop sciences and environments:

- Advisor
- Project leader

## PROGRAM HIGHLIGHTS

- Practical, problem-based learning in an immersed laboratory setting
- Development of competencies in the independent conduct of a research project
- Design and conduct of a multidisciplinary research project in collaboration with socio-economic actors of the Occitanie Region
- Numerous training periods with CNRS and INRAe researchers as well as international scientists
- Two long-term internships (5 and 6 months) - one of which can be done abroad



## PRACTICAL INFORMATION

### ACADEMIC CONTACT

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### ADMINISTRATIVE CONTACT

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### CONTINUING EDUCATION AND WORK-BASED LEARNING (SFCA)

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