

Studies identity sheet

Domain: Natural and life sciences

branch: Biological sciences

Speciality: Animal Ecophysiology

Cycle: Academic Master

**Attachment structure: Faculty of Natural and life sciences /
department of cellular and molecular biology.**

❖ Training Objectives

In a global context, the Animal Ecophysiology program deals with biological models that lead students to reflect on the pathways of life during adaptation. It examines the mechanisms involved in coping with various ecosystem characteristics and the strategies associated with them. This specialization aims to serve as an interface between classical ecophysiological concepts and modern physiology. The terrestrial environment, with its specific physico-chemical constraints, requires specific functional adaptations—both morphological and physiological—for conquest and survival. These adaptations may manifest as different but equally effective strategies. Environmental stress factors are known to reduce the physiological capabilities of living beings, sometimes resulting in pathological conditions that impair cellular functions. Certain biochemical and physiological anomalies in animals are linked to environmental changes such as climate disruptions, ecosystem degradation, ecological imbalances, extreme conditions, and xenobiotics. These anomalies are better understood through the study of organ functions like hepatic, renal, gonadal, nervous, and endocrine functions. The training focuses on studying both the causes of biological changes and the biochemical and physiological indicators necessary to detect and understand these changes. It also includes the study of natural and anthropogenic factors affecting animals in an increasingly adverse local environment.

❖ Admission Requirements: Required Degree: Bachelor's degree in Animal Biology and Physiology.

Transition from 3rd-year license to Master's: Based on supervisory capacity, a maximum of 30 students who have validated all 180 credits in the third year of Animal Biology and Physiology may be selected.

❖ **Career Profiles and Skills**

The proposed Master's in "Animal Ecophysiology" is tailored to the local socio-economic environment, training and research potential, and internship hosting facilities at the university and local institutions.

Students will acquire theoretical and experimental skills enabling them to:

Integrate into research teams in universities and research centres working in physiology, biotoxicology, and clinical biochemistry.

Pursue careers in medical research or medical analysis laboratories.

Conduct research or development in industry: environmental control labs, pollution management, medical analysis labs.

Aspire to laboratory management positions in biochemical analysis in various fields:

- Public and private clinical laboratories
- Food industry laboratories
- Fraud control laboratories
- Drug control laboratories
- Environmental protection laboratories

❖ **Regional and National Employability Potential**

Due to its area and the diversity of its ecosystems, Algeria offers a wide field for investigations and research in animal ecophysiology. Most ecosystems in Algeria are fragile due to climatic, agricultural, and industrial changes.

Graduates can pursue careers in:

- Research (Universities, Research Centres, Natural Parks)
- International expertise in resource management
- Environmental risk assessment
- Species protection
- Environmental consulting, documentation, tourism, journalism

Other employment avenues:

- Provincial water services
- Environmental inspection agencies
- Agricultural services

- Health and population departments (HPD)
- Private consulting firms specialized in environment
- Pharmaceutical and cosmetic sectors

❖ **Bridges to Other Specialties**

All programs related to animal physiology and ecophysiology.

❖ **Training Monitoring Indicators**

Continuous assessment, evaluation of personal work reports (internship reports, field trips, practical work, oral presentations), final thesis.

Semester (S1)

Teaching units	Title of the subject	Study hours per week			Half-yearly hourly volume	Coeff	Credit
		courses	tutorial	Practical courses			
Fundamental Unit		9	4.5	3	202.5	9	18
Fundamental Unit 1	Ecotoxicological elements	3	1.5	1.5	67.5	3	6
	Physiopathology	3	1.5	1.5	67.5	3	6
Fundamental Unit 2	Population genetics and dynamics	3	1.5		67.5	3	6
Methodology Unit		3	3		105	5	9
Methodology Unit	Biostatistics	1.5	1.5		60	3	5
	Histochemical techniques	1.5	1.5		45	2	4
Discovery Unit	Parasitology	1.5	1.5		45	2	2
Transversal Unit	Communication	1.5			22.5	1	1

Semester 2 (S2)

Teaching units	Title of the subject	Study hours per week			Half-yearly hourly volume	Coeff	Credit
		Courses	Tutorial	Practical courses			
Fundamental Unit		9	4.5	3	202.5	9	18
Fundamental Unit 1	Neurobiology	3	1.5	1.5	67.5	3	6
	Ecological and physiological imbalances	3	1.5	1.5	67.5	3	6
Fundamental Unit 2	Pharmacotoxicology	3	1.5	1.5	67.5	3	6
Methodology Unit		3	3	1.5	105	5	9
Methodology Unit	Sampling techniques	1.5	1.5		60	3	5
	Computer science	1.5	1.5		45	2	4
Discovery Unit	Scientific English	1.5	1.5		45	2	2
Transversal Unit	Legislations	1.5			22.5	1	1

Semester 3 (S3)

Teaching units	Title of the subject	Study hours per week			Half-yearly hourly volume	Coeff	Credit
		Courses	Tutorial	Practical courses			
Fundamental Unit		9	4.5	1.5	202.5	9	18
Fundamental Unit 1	Reproduction and environmental stress	3	1.5		67.5	3	6
	Chronobiology (Photoperiodism and biological rhythms)	3	1.5		67.5	3	6
Fundamental Unit 2	Regulation of major functions	3	1.5	1.5	67.5	3	6
Methodology Unit		3	3		105	5	9
Methodology Unit	Functional exploration techniques	1.5	1.5		60	3	5
	Bioethics	1.5	1.5		45	2	4
Discovery Unit	Research methodology	1.5	1.5		45	2	2
Transversal Unit	Entrepreneurship	1.5			22.5	1	1

Semester 4 (S4)

	H-Y H V	Coefficient	Credits
Personal work	125	3	5
Internship in a company	125	3	5
Thesis	500	11	20
Total	750	17	30