PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA

MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

Yahia Farès University of Médéa

Faculty of Sciences

PhD PROGRAM OFFER

FOR THE ACADEMIC YEAR 2024/2025

Field: Biology and cellular pathology

1- Global Objective of the Doctoral Project

The field of biology, cellular pathology, and applied microbiology involves studying living organisms from a detailed perspective, focusing on understanding how microorganisms such as bacteria and viruses affect human health and the environment. The program aims to analyze the mechanisms that cause cellular diseases and how living organisms interact with each other.

Students in this specialization learn how to diagnose and treat diseases caused by microorganisms, enhancing their ability to develop preventive and therapeutic strategies. The program also includes aspects of biochemistry to understand chemical interactions within cells.

Upon completing the program, students are equipped with the knowledge and skills necessary to understand the complex interactions between living organisms, enabling them to contribute to fields such as medicine, scientific research, and environmental protection. Additionally, they learn to combat diseases using sound biological methods by utilizing extracts and essential oils from medicinal plants as alternatives to chemical medications, which can cause side effects over time.

2-Curriculum Highlights

This doctoral program aims to enhance community health by providing students with comprehensive knowledge about infectious diseases. The program explores vital areas such as

epidemiology, where researchers learn how to analyze the spread of diseases and their impacts on public health. The content also includes pharmacology, facilitating an understanding of available treatments. Additionally, the program addresses toxicology to study the effects of toxic substances on living organisms. Through this methodology, the course prepares researchers to face current and future health challenges, thereby enhancing strategies for prevention and healthcare.

2- Access to Doctoral Training

Candidates must meet the following requirements and submit the following documents:

1-Master's Degree (or equivalent) in Biological Sciences or Life Sciences.

2-Curriculum Vitae.

3-Transcripts and graduation certificates.

4-Academic Letters of Recommendation.

3- Core Courses

During the initial years of training, the PhD student is required to attend advanced courses that support their scientific research and provide them with modern methodological and technical tools. The core courses include:

- ✓ Parasitology
- ✓ Molecular Biology
- ✓ Applied Microbiology
- ✓ Medical Physiology
- ✓ Secondary Metabolism and Metabolism
- ✓ Analysis of Experimental Data

4- Advanced Topics

The doctoral program in biology and cell pathology aims to enhance students' skills in the following advanced topics:

- ✓ **Cellular diseases**
- ✓ **Immune response**
- ✓ **Cellular metabolism**

- ✓ **Cellular interactions**

5- Knowledge Enhancement Training Program

Activities	Semester 1	Semester 2
Specialty reinforcement courses related to doctoral training	Parasitology 26h	Biologie moléculaire 26h
	Applied Microbiology 26h	Medical Physiology 26h
	Metabolite and secondary metabolism 26h	Experimental data analysis 26h