



**Popular Democratic of Algeria**  
**Ministry of Higher Education and Scientific Research**  
**Abbes Laghrour University Khenchela**



## **Studies identity sheet**

**Domain: Natural and Life Sciences**

**Branch: biological sciences**

**Specialty: microbiology**

**Cycle: Bachelor**

**Type: Academic.**

**Attachment structure: Faculty of Natural and Life Sciences,  
Department of Molecular and Cellular Biology (B.M.C)**

### **1. Context**

The Microbiology license offered within the framework of higher education (LMD system) is motivated by the importance of this subject and its multidisciplinary nature, which encompasses many fields (fundamental, medical, environmental, industrial, agronomic, etc.). So, this training will cover many different aspects of microbiology, both basic and applied, so that the student can meet the needs of other parts of the country's economy.

### **2. Conditions of access**

A student who has obtained a 2nd-year bachelor's in Nature and Life Sciences or equivalent. Acceptance is not automatic: it is decided on file by a pedagogical committee. Our capacity (logistical and human resources) is 60 students in the third year of the bachelor's degree in Microbiology.

### **3. Objectives**

The objectives of this training are the knowledge of all the microorganisms that surround us (bacteria, fungi, algae, and viruses), the understanding and control of their activities when they are harmful (microbiological examination of samples and biological liquids, antibiotic therapy, etc.), the use and improvement of their properties when they are beneficial (yeasts, yogurt, antibiotics, etc.).

### **4. Profiles and skills targeted**

The skills acquired at the end of the training enable graduates to:

- Continue studies (academic or professional Masters) in Microbiology or in fields such as health, agronomy, bio-industry, etc., where Microbiology plays a dominant role in problem-solving.
- Direct integration into working life: hospital or private medical analysis laboratories where the graduates' students can effectively participate in various diagnostic activities, characterization of pathogenic germs, and antibiotic resistance besides the pharmaceutical field and controlling drugs (SAIDAL), also water analysis (EPEAL), health and safety services, fraud services, and the agro-food sectors (canned goods, beverages, ERIAD, confectionery and ice cream, meats and derivatives, and so on).

## **5. Regional and national employability potential**

After completing the program, the graduate student in microbiology will have the option of pursuing a career in one of the following fields:

- Research and teaching positions in academic institutions and research organizations.
- Facilitate the integration of the graduates into the labor field: industrial companies, municipalities, and so on.
- Education (national education) at the secondary, postsecondary, and university.
- University research laboratories, research centers, and teaching centers in higher education.
- Laboratories for medical diagnostics and analysis
- Establishment of one's own business within the "house of entrepreneurship," in collaboration with the A.N.S.E.J. and other natural and life sciences specialists (geneticists, biochemists, and biotechnologists) as specialists in other fields such as economics, law, and social sciences.

## **6. Gateways to other specialties**

The graduate in Microbiology degree will have the choice of:

- Enroll in an Academic Master's degree at the Faculty of Natural and Life Sciences of the Abbes Laghrou University of Khenchela in one of the available specialties: - Applied Microbiology - Applied Biochemistry - Genetics - Biotechnology and Plant Breeding.
- To continue his studies in Master Microbiology at another institution of higher education on the national territory.

## **7. Training Partners**

❖ Other partner institutions include:

- Constantine I University (Faculty of Natural and Life Sciences);
- ENS Constantine

❖ Organizations and other socioeconomic partners

✚ The health sector:

- The health directorate at the wilaya of Khenchela: Public establishments (hospitals, clinics, and analysis laboratories) (co-supervision, practical training, research)
- Analytical laboratories and private clinics (co-supervision and hands-on experience)
- Support for hereditary diseases through bachelor degree and master's theses: the wilaya of Khenchela is a region with high inbreeding coefficients.

✚ Forest conservation at the wilaya of Khenchela level (field trips, practical training, and co-supervision)

- The Directorate of Agricultural Services (D.S.A) at the wilaya of Khenchela (reception of student trainees, co-supervision, trial installation at pilot farms, supply of "sample" biological material)
- Improvement of agro-economically important species (plants and animals)
- Sagrodev (Sétif): Student intern reception and co-supervision

✚ Quality control laboratories (public and private) (co-supervision, practical training)

❖ International partners:

- El Manar Tunis University (Tunisia) "ongoing project"
- Regional Center for Agronomic Research (C.R.R.A) at the Institute of Agronomic Research (I.N.R.A) Rabat (Morocco) "ongoing project"
- Lyon Hospices Hospital (France)

## 8. Semester organization of lessons (one table per semester)

### Semester 5

Teaching units		Study hours per week			other
		14-16 weeks	courses	tutorials	practical courses
<b>Fundamental U</b>					
Systématique des procaryotes (Bactéries et Archaea)	67h30	3h00	-	1h 30	82h30
Mycologie-Algologie-Virologie	67h30	3h00	-	1h 30	82h30
Biologie moléculaire et génie génétique	67h30	3h00	1h30		82h30

<b>Methodology U</b>					
Génétique microbienne	60h00	3h00	1h00		65h00
Parasitologie	45h00	1h30	1h30		55h00
<b>Transversal U</b>					
Biostatistiques	45h00	1h30	1h30		05h00
<b>Discovery U</b>					
Anglais scientifique	22h30	1h30			02h30
<b>Total Semester 5 (14-16 weeks)</b>	<b>375h00</b>	<b>247h30</b>	<b>82h30</b>	<b>45h00</b>	<b>375h00</b>

## Semester 5

Teaching units		Study hours per week			other
	14-16 weeks	courses	tutorials	practical courses	
Fundamental U					
Industrial Microbiology	67h30	3h00	-	1h30	82h30
Environmental Microbiology	67h30	3h00	-	1h30	82h30
Food microbiology	67h30	3h00	-	1h30	82h30
Methodology U					
Microbial biochemistry	60h00	3h00		1h00	65h00
Microbiological analysis techniques	45h00	1h30		1h30	55h00
Transversal U					
Bioinformatics	45h00	1h30	1h30		05h00
Discovery U					
Scientific writing methodology	22h30	1h30			02h30
Total Semester 6 (14 -16 sem)	375h00	247h30	22h30	105h00	375h00

Teaching language: French

## 9. Evaluation method

Continuous evaluation exams and six-monthly exams.