



# University of Oum El Bouaghi

## Bachelor's degree in Biological Sciences

Program Name\*: Microbiology

### 1. Program Description:

The Microbiology course offers students the opportunity to discover in greater depth the world of microorganisms that surround us and which play an essential role in all forms of life on earth and in our environment. A solid education in the fields of cell biology, genetics, ecology, molecular biology and biochemistry is first necessary to understand and study the roles of microorganisms. It is only at the level of the 3rd year (S5 and S6) that a more specific teaching is offered. The study of the structures and functions of microorganisms, the extraordinary genetic plasticity of microorganisms to adapt to their environment, their varied metabolism, their uses in biotechnology, their impact on animal and plant pathology and their interactions with the mechanisms of immune defences, are deepened.

The objectives of this training are:

- Knowledge of all the microorganisms that surround us;
- Mastery of laboratory techniques for handling microorganisms (isolation, culture, identification, etc.);
- Understanding and controlling the activities of harmful microorganisms;
- Understanding the impact of microorganisms on their environment and the influence of environmental factors on the behavior of microorganisms;
- The design of treatments and biotechnological processes taking into account economic, industrial and environmental imperatives;
- The influence of microorganisms and microbiological applications on daily life;
- The development of scientific projects (state of the art, description of the hypotheses adopted, structuring and organization, experimental approaches, technical and human resources) in various applied or fundamental fields.

### 2. Modules studied

#### Total Semester 1

- General and organic chemistry
- cellular biology

- Mathematics Statistics Computer Science
- Communication and Expression Techniques 1 (in French)
- Geology
- Universal History of Biological Sciences

### **Total Semester 2**

- Thermodynamics and chemistry of solutions
- Plant's biology
- Animal Biology
- Physical
- Communication and Expression Techniques 2
- Work methods

### **Total Semester 3**

- Zoology
- Environment
- Sustainable development
- Genetic
- Communication and Expression Techniques
- Work methods
- Biophysics

## **Total Semester 4**

- Botanical
- Microbiology
- Study methods and inventory of fauna and flora
- General ecology
- Biostatistics

## **Total Semester 5**

Material1:

Systematics of prokaryotes (Bacteria and Archaea)

Material2:

Mycology-Algology-Virology

UEF 3.1.2 (O/P): Molecular microbiology

Material1:

Microbial biochemistry

Material 2:

Molecular biology and genetic engineering

Matter 3:

Microbial genetics

EU discovery

UED 3.1.1 (O/P): Microbial biotechnology

Subject 1: Microbial biotechnology

transversal teaching units

UET 3.1.1 (O/P): Scientific English

Subject 1: Scientific English

Total Semester 6

Fundamental EU

UEF 3.2.1 (O/P):

Applied Microbiology

Material1:

Industrial Microbiology

Material2:

Environmental Microbiology

Material3:

Food microbiology

EU methodology

UEM 3.2.1 (O/P): Biostatistics

Topic1: Biostatistics

EU methodology

UEM 3.2.2 (O/P): Enzymology

Subject 1: Enzymology

EU discovery

UED 3.2.1 (O/P): Microbiological control techniques

Subject 1: Microbiological control techniques

### **3. Entry Requirements (Other) :**

The minimum baccalaureate rates accepted at Algerian universities are used to establish the rate at which a student must have earned their degree in order to enter the program.