

University of Oum El Bouaghi

Faculty of exact sciences, nature sciences and life

Department of nature sciences and life

Program name: Bachelor's degree in applied microbiology

- **Level: Master**
- **Domain: natural sciences life and nature**
- **Field: biological sciences**
- **Specialty: applied microbiology**

1. Program Description:

Microbiology is considered a developing science at the heart of many applications resulting from the biological revolution. It has a significant economic impact and is considered a strategic discipline in research and development policies. it is a discipline that has many applications in the food and bio-product industries, nutrition, health and the environment. The societal challenges related to the control of microorganisms in the food, water, environment, cosmetics and health sectors require the training of competent managers in the field of microbiology.

2. Entry Requirements

Students holding a license in Biology with an orientation in Microbiology, Students must acquire a specific mastery of the strategies, approaches and methods to be implemented, validated or under development, to allow the prevention of health accidents. or exploit the properties of microorganisms.

3. Program Units and modules

Semester 1

fundamental teaching units

UF1 Microorganisms and health

Subject 1: Medical bacteriology

Subject2: Medical virology

UF2

Subject 1: Microbiology of fermentations

Methodology teaching units

MU1

Subject 1: Food microbiology

Subject 2: Reading practicals

DISCOVERY UNITS

Subject 1: General microbiology techniques

TRANSVERSAL UNITS

Subject 1: Communication

Semester 2:

fundamental teaching unit

UF1

Subject 1: Microbial interaction

UF2

Subject 2: enzymatic technology

methodology teaching units

MU1

Subject 1: Biochemical Purification Processes

Subject 2: reading practicals

EU D1

Subject 1: Bioinformatics

transversal teaching units

UET1

subject1 : legislation

SEMESTER3

fundamental teaching units

UF1

Subject 1: Environmental Biotechnology

UF2

Subject 1: Control of industrial microbiology products

UF3

subject1: plasticity of the microbial genome

methodology teaching units

MU1

Subject 1. Genetic engineering applied to microbial biotechnology

UM2

Subject 1 Analysis of experimental data in biology

discovery teaching units

UD1

Subject 1 Bibliographic research and analysis of articles

UT1

Subject 1: Scientific and technical English

Subject 2: Entrepreneurship and project management

Semester 4:

Internship in a company sanctioned by a thesis discussion.

1. Other

The deepening of knowledge of micro-organisms in view of their importance for biotechnology and medicine;

-the understanding and control of their activities when they are harmful (microbiological examination of samples and biological fluids, antibiotic therapy, etc.),

- the use and improvement of their properties when they are beneficial (yeasts, yogurt, antibiotics, etc.).

- Industrial applications of microorganisms (fermentation, production of enzymes, amino acids, vitamins, food supplements, bioremediation, biotransformation, production of pesticides, biofuel); -

The development of new health food products (probiotics);

- Factors involved in "micro-organism-animal host" interactions, - The role of micro-organisms in ecosystems; - Symbiotic associations between micro-organisms and plants; - The place of micro-organisms in the development of biogeochemical cycles; - Optimization of treatment of pollution by microbiological means.

The theoretical and practical lessons provided will allow the training of Microbiologists directly operational in the analysis and quality control laboratories (water, food, health, etc.) or in the production sectors (medicines, dairy products and derivatives). , yeasts,...

The training aims to train executives with multidisciplinary skills in applied microbiology. It allows students to acquire different skills required in different fields: -Agro-food industries

-Biological and pharmaceutical industries-Hygiene laboratories and veterinary services (laboratories for control and repression of fraud)-Research and development laboratories-Water treatment industries, Students could also pursue higher education: PhD.