

University of Oum El Bouaghi

Faculty of exact sciences and natural and life sciences.

Department of natural and life sciences

Program name: Master's degree in applied biochemistry

- **Level: Master.**
- **Domain: Natural and life sciences**
- **Field: Biological sciences**
- **Specialty: Applied Biochemistry.**

1. Program Description:

The objective of this master's degree is to deepen the basic knowledge already acquired in the licenses of fundamental and applied biochemistry and molecular biology opened in our department.

This Master thus aims to train a human potential at the forefront of fundamental and applied knowledge in the field of biochemistry, molecular biology and biomolecule engineering (a field currently booming in the world).

Its main purpose will be to train student biochemists and biotechnologists specialized in the research, development, control and analysis of biomolecules.

The topics covered in this master will cover aspects of biochemistry and biotechnology. They will focus on the study of metabolic and physiological processes, molecular biology tools and bio-engineering (production of molecules for therapeutic or immunodiagnostic use).

The proposed program aims to provide the student with specialized training, an introduction to research, development and its application in analysis and control laboratories related to human health, but also in the pharmaceutical industry.

Through this training, we will cover all aspects covering the development, production and evaluation of secondary metabolites and bioactive molecules.

The main axes of this program will be linked by fundamental aspects relating to biochemistry, immunology and the pharmacology of fundamental mechanisms at the cellular and molecular level with orientations in bioengineering, control and laboratory management.

2. Entry Requirements

Bachelor's degree in Biochemistry, applied Biochemistry, Molecular and Cellular Biology, quality control and Higher education diploma (D.E.S) in Biochemistry.

3. Program Units and modules

Total Semester 1

Unit	Subjects
Fundamental unit UEF1	1.Bioactive molecules of procaryotic origin (MBOP)
Fundamental unit UEF2	1.Regulation and Cellular Communication (RCC)
	2.Cell Culture and Application (CCA)
Methodological unit UEM	Analysis of Experimental Data in Biology 1 (ADBE1)
Cross unit UET	1.English
	2. Communication

Total Semester 2

Unit	Subjects
Fundamental unit UEF1	1.Molecular Biology (BM)
	2.Structure and Function of Proteins (SFP)
Fundamental unit UEF2	1.Bioactive Molecules of Eucaryotic Origin (MBOE)
Methodological unit UEM1	1.Analysis of Experimental Data in Biology 2 (ADBE2)
Methodological unit UEM2	1.Molecules of Pharmaceutical Interest (MIP)
Discovery unit UED1	1.PharmacoDynamics and Kinetics (PDC)
	2.Pharmaco-Technology (PT)
Cross unit UET1	1.Creation of Start-ups and Entrepreneurship (CSGE)

Total Semester 3

Unit	Subjects
Fundamental unit UEF1	1.Genomics and Bioinformatics (GBI)
	2.Molecular Biology Analysis Techniques (TABM)
Methodological unit UEM1	1.Laboratories management (GL)
	2.Quality assurance (HS)

Cross unit UET1	1. Writing and Analysis of Articles (RAA)
Cross unit UET2	1. Legislative Aspects of Quality Control (ALCQ)

Total Semester 4

This semester is reserved for an internship or an initiation to the research, sanctioned by a thesis and a defense presented in seminar sessions. The thesis is considered a fundamental unit.

4. Other

The training delivered in the Master's in Applied Biochemistry is organized so that students can acquire the essential theoretical and experimental skills enabling them to:

- Join the research teams of universities and research centers working in basic and medical biochemistry.
- Focus on medical research or in medical analysis laboratories.
- Carry out research or development activities in the industrial sector: pharmaceutical industry, biotechnologies, agrochemicals, depollution, medical analysis laboratories