



## Branch: Biological Sciences

### 1-Identification of the Education Offer

Level : Master

Field : Natural and Life Sciences

Branch : Biological Sciences

Speciality : Biochemistry

### 2-Educational Establishment :

Faculty/Institute: Faculty of Natural and Life Sciences, Earth and Universe Sciences

Department: Biology

### 3-External partners

Algerian Academic partners:

- Belhadj Bouchaib University-Ain Témouchent
- Ahmed Salhi University Center-Naama
- Badj Mokhtar University-Annaba

Companies and other socio-economic partners:

- University Hospital Center-Tlemcen

International partners :



## 4-Context and objectives of the training:

The Master's Degree in Biochemistry is a multidisciplinary training in life sciences at the interface of chemistry and biology. One of the objectives of biochemistry is to integrate the data obtained at the molecular level at a higher level of complexity, that of the cell.

The Master's training enables students to acquire practical and theoretical knowledge of molecular and cellular approaches in life sciences (Biochemistry, Molecular Biology, Cellular Biology, Molecular Structures, Microbiology, Biotechnologies, etc.).

The student holding a Master's Degree in biochemistry, will have acquired theoretical and practical knowledge in biochemistry and molecular biology. In addition, this training is accompanied by cross-disciplinary training (communication, legislation, entrepreneurship, etc.) which will allow better professional integration.

In the different units, a significant part of the teaching is carried out in the form of practical work and tutorials which are organized in such a way to develop personal and group work (individual and team) and the capacities of autonomy and communication.

## 5-Facilities, Equipment and Laboratoires

The Master's Degree in Biochemistry is supported by LapSab "Antifungal antibiotics: physico-chemistry, synthesis and biological activity" research laboratory in addition to five pedagogic laboratories aiming to support all the students following their graduation in Natural and Life Sciences, Earth and Universe Sciences.

## 6-Profiles and Competencies Targeted

The training offered in the research path of the Master's Degree in Biochemistry is organized so that students can acquire, on the one hand, the theoretical and experimental skills essential to integrate



into the research teams of national and foreign universities and, on the other hand, be able to develop a scientific project independently, analyze and criticize its results, compare them with the literature, summarize the results and plan for the future.

This training will allow students to acquire as much a global vision of the fundamental mechanisms of life as solid bases, both theoretical and practical, in Biochemistry, Molecular Biology and Microbiology.

The main objective of the Master's training is to pave the way for further studies at Doctorate level or for the search for a job in the academic or industrial field.

## 7-Development Prospects and Employability

The Master's Degree in Biochemistry prepares students to:

- Public sector (recruitment competition at the University, Research Centers (researchers, teacher-researchers), secondary education, etc.)
- Research and development in large industrial plants and SMEs
- Agri-food, biotechnology, biomedical, environment industries, etc.
- Analysis laboratories
- Quality assurance and training activities
- Pursue doctoral training in the biological sciences sector (biochemistry, immunology, microbiology, molecular biology, physiology, etc.)



## 1-Identification of the Education Offer

Level : Master

Field : Natural and life sciences

Branch : Biology

Speciality : Immunology

## 2-Educational Establishment :

Faculty/Institute: Faculty of Natural and Life Sciences, Earth and Universe Sciences. University of Tlemcen

Department: Biology

## 3-External partners

Algerian Academic partners: Laboratory of applied molecular biology and immunology. W0414100, University of Tlemcen.

Companies and other socio-economic partners:

- Centr of Biotechnologyof Constantine, CRBt
- Hematology department, Tlemcen University and Hospital Center.
- Neonatology Department of the Hospital and University Center of Tlemcen
- Laboratory of Molecular Immunogenetics, CNRS UPR 1142, University Montpellier 2 Cedex 5, France

International partners :

- Research Center of the Biomedical Network on Rare Diseases, Carlos III Health Institute, Valencia, Spain.
- IGMM UMR5535, CNRS and University of Montpellier, France.



## 4-Context and objectives of the training:

Immunology is now a major discipline, in its own right, both in science and in medicine, in the same way as Microbiology or Hematology with which it was often associated in the past.

Concepts, mechanisms and techniques of Immunology occupy, in fact, a growing place in the biological sciences and in all sectors of Medicine. There are few (or none) organs that cannot be affected by favorable immune responses or, sometimes, unfortunately, unfavorable in the case of autoimmunity or transplants. Infectious diseases activate the cells and molecular effectors of immunity which generally slow down and defeat the infection. Tumors also solicit the actors of immune responses, even if the effectiveness of these is not always sufficient.

Educational and scientific objectives to be achieved:

- A good understanding of the fundamental mechanisms involved in the development of the immune system and its normal or pathological activation.
- Mastery of the mechanisms underlying immunopathologies and associated immunotherapies.

## 5-Facilities, Equipment and Laboratoires

Our specialty is supported by the laboratory of applied molecular biology and immunology, who has a lot of material and equipment.

## 6-Profiles and Competencies Targeted

- Good progress of the student's personal work, practical work, tutorials and internships.
- Integration into research projects with economic and health impacts



## 7-Development Prospects and Employability

This training will allow:

- Employment in Laboratories and Research Centers
- Employment in University Hospital Laboratories
- Employment in private medical analysis laboratories
- The pursuit of specialized studies in Doctorate

## 8-Organisation of the Semesters Teaching

**Semester 1:**

Innate immunity  
human virus  
Microbial ecology  
Immuno Experimentation  
Immunotechnology  
Research methodology  
Animal experimentation  
Bioethics  
Communication

**Semester 2:**

Cell imaging  
Adaptive and dynamic immunity of the response  
Immunopharmacology  
Immunity and cell signaling  
Ontogeny and phylogeny  
Oncogenetics and onco-immunology  
CD concept  
Legislation

**Semester 3:**

Immunoinformatics and Computational Immunology  
Immunogenetics  
Immunometabolism and immunopathology  
Biostatistics  
Cytokines  
Senescence and cell death  
Practical internship  
Entrepreneurship and business management  
Projects



## 1-Identification of the Education Offer

Level: Master

Field : SNV/STU

Branch : Life sciences

Speciality : Genetic

## 2-Educational Establishment :

Faculty/Institute: SNV/STU

Department: Biology

## 3-External partners

Algerian Academic partners:

PpBioNut Laboratory,

GenApAgiELaboratory

University of Science and Technology of Oran USTO,

National Institute of Agronomy (INA),

National school of veterinarian sciences (ENSV),

Algerian national institute of agronomic research (INRAA).

Companies and other socio-economic partners:

ITELV (Technical Institute of Livestock)

DSA (Directorate of Agricultural Services)

HCDS (High Commission for the Defense of the Steppe)



ITDAS (Technical Institute for the Development of Saharan Agriculture)

CNIAG (national center for insemination and genetic improvement)

ONIL (National Interprofessional Office for Milk and Dairy Products)

Algerian National Institute of Agronomic Research (INRAA),

Technical Institute of fruit and vine arboriculture (ITAFV),

camelinterprofessional committee (CNIF)

Confederation of Algerian Producers and Industrialists (CIPA)

national association of agricultural engineers.

#### **International partners :**

INRA jouy en josas, Paris, France,

University of Limoges, France,

University of Barie, Italy,

Arid Zone Research Center, Medenine, Tunisia,

HamdiBango Center for BiotechnologyResearch, Amman, Jordan.

ARBOR ACRES,

Agricultural Biotechnology and Food Security Application and Research Center (AgBioCenter, Türkiye),

IstitutoZooprofilatticoSperimentaledellaSicilia,

Istitutosuperior di sanita (Rome),

## **4-Context and objectives of the training:**

Algeria is a great center of biological diversity, its geographical and bioclimatic position makes it a relatively important deposit of genetic resources. However, the poor management of these resources and the constant degradation of the soil have greatly diminished food self-sufficiency, leading to overexploitation of natural resources and unsuitable breeding practices such as overgrazing and uncontrolled crossbreeding.



The pressures exerted by the development of human activities and socio-economic transformations are the cause of the acceleration of the disappearance of plant and animal varieties, which induces a natural imbalance, a degradation of biotopes and the genetic erosion of many 'species'.

Genetics is currently one of the engines of discoveries in the field of Biology is a discipline which can be an answer to the problem evoked. Very few courses in Algeria are specialized in it.

From a pedagogical point of view, we offer students of the master's in genetics: management and improvement of biological resources, lessons in developmental genetics, quantitative genetics, bioinformatics, biometrics, cytogenetics and proteomics, among others.

The proposed training is characterized by the search for a certain versatility in the ability to implement tools and methodologies for the study of biological diversity.

For example, students graduating from this training should be able to independently:

- Create and manage a selection plan,
- Manage a semen and insemination center,
- Perform and interpret polymorphism analyzes (at the molecular and phenotypic level),
- Designing strategies for the collection and conservation of biological material in relation to their use value (bank of biological material and database),
- Participate in relation with researchers or industrialists in the exploitation of data on diversity with a view to a reasoned valuation of resources.

## 5-Facilities, Equipment and Laboratoires

Our specialty is supported by GenApAgiE research laboratory and also by five pedagogic laboratory destined to support all the students following their graduation in SNV/STU faculty.

## 6-Profiles and Competencies Targeted

The Master's training program in this specialty covers several areas of activity such as:

- Animal production;

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- Vegetable production ;

- Genetic improvement of genetic resources;

- Genetic selection;

- Varietal creation;

- Biodiversity management,

- Public health genetic investigation.

This training will allow graduates to access training and obtain a doctorate and to initiate projects of socio-economic interest in the field of medicine (pre-symptomatic diagnosis, paternal identity, etc.), the field crime (scientific police), the pharmacological field (creation of bacterial strains capable of producing certain drugs), in archaeology, in ethnology and above all in the sensitive field of agronomy.

## 7-Development Prospects and Employability

- agricultural regions: private farms,
- Design offices: experts in production management and improvement,
- ITELV,
- CNIAG,
- Laboratories,
- Universities.

## **8-Organisation of the Semesters Teaching**

1- Semestre 1 :

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Gestion des ressources biologiques	45h	1h30		1h30	5h	2	2	/	/
<b>UE transversales</b>									
<b>UET1(O/P)</b>									
Communication	22h30	1h30	/	/	2h30	1	1	/	/
<b>Total Semestre 1</b>	<b>407h30</b>	<b>14h00</b>	<b>9h00</b>	<b>7h00</b>	<b>442h30</b>	<b>17</b>	<b>30</b>		

## 2- Semestre 2 :

Unité d'Enseignement	VHS	V.H hebdomadaire				Coeff	Crédits	Mode d'évaluation	
	14-16 sem	C	TD	TP	Autres			Continu 40%	Examen 60%
<b>UE fondamentales</b>									
<b>UEF1(O/P)</b>									
Génétique quantitative II	60h	3h	1h30	/	80h	3	5	/	/

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Apprentissage par le service II	45h	1h30	1h30	/	55h	2	4	/	/
Génétique des populations II	60h	3h	1h30	/	80h	3	5	/	/
<b>UEF2(O/P)</b>									
Biométrie et Bioinformatique	45h	1h30	1h30	/	50h	2	2	/	/
Contrôle de l'expression des gènes chez les eucaryotes	45h	1h30	1h30	/	20h	2	2	/	/
<b>UE méthodologie</b>									
<b>UEM1(O/P)</b>									
Biotechnologie appliquée à la reproduction	60h	3h	1h30	/	<b>65h</b>	3	5	/	/
Phytotechnie	45h	1h30	1h	/	<b>55h</b>	2	4	/	/
<b>UE Découverte</b>									
<b>UED1(O/P)</b>									
Anglais scientifique II et communication	45h	3h	/	/	<b>5h</b>	2	2	/	/

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<b>UE Transversale</b>									
<b>UET1(O/P)</b>									:
Législation	22h30	1h30	/	/	<b>2h30</b>	1	1	/	/
<b>Total Semestre 2</b>	427h30	<b>19h30</b>	<b>10h00</b>	/	412h30	17	<b>30</b>		

### 3- Semestre 3 :

Unité d'Enseignement	VHS	V.H hebdomadaire				Coeff	Crédits	Mode d'évaluation	
	14-16 sem	C	TD	TP	Autres			Continu 40%	Examen 60%
<b>UE fondamentales</b>									
<b>UEF1(O/P)</b>									
Cartographie des génomes	50h	1h30	1h30	1h	75h	2	4	/	/
Gestion et amélioration de la biodiversité	50h	1h30	1h	1h	75h	2	4	/	/

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Bioinformatique	45h	1h30	1h30	/	55h	2	4	/	/
<b>UEF2(O/P)</b>									
Apprentissage par le service III	60h	1h30	1h30	/	82h30	3	6	/	/
<b>UEM1(O/P)</b>									
Génomique et transcriptomique	60h	3h	/	1h30	65h	3	5	/	/
Protéomique	45h	1h30	1h	/	55h	2	4	/	/
<b>UE découverte</b>									
<b>UED1(O/P)</b>									
Génétique du développement	20h	1h30	/	/	2h30	1	1	/	/
Anglais scientifique III	30h	3h	/	1h30	2h30	1	1	/	/
<b>UE transversales</b>									
<b>UET1(O/P)</b>									
Entreprenariat	25h	1h30	/	/	2h30	1	1	/	/
<b>Total Semestre 3</b>	<b>385h</b>	<b>16h30</b>	<b>6h30</b>	<b>5h00</b>	<b>415h</b>	<b>17</b>	<b>30</b>		

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#### 4- Semestre 4 :

**Domaine** : Sciences biologiques

**Filière** : Biologie

**Spécialité** : Génétique

Internship in a company (Learning through service) sanctioned by a dissertation, an article, a patent (or label or SME/SMI) and a defense.

	VHS	Coeff	Crédits
<b>Travail Personnel</b>	200h	11	18
<b>Stage en entreprise</b>	100h	4	8
<b>Séminaires</b>			
<b>Autre (Mémoire)</b>	75h	2	4
<b>Total Semestre 4</b>	375h	17	30



## 1-Identification of the Education Offer

Level: Master 1 and 2

Field : Natural and life sciences

Branch : Biology

Speciality : Master Microbiology and quality control

## 2-Educational Establishment :

Faculty/Institute: Faculty of Natural and Life Sciences, Earth and Universe Sciences

Department: Biology

## 3-External partners

### Algerian Academic partners:

- Tlemcen University Hospital Center
- Applied microbiology laboratory Séria University (Oran)
- Laboratory of Biofilms and Biocorruption of Materials, University from Annaba
- Laboratory of Cellular and Molecular Biology, USTHB, Algiers

### Companies and other socio-economic partners:

- The El Mansourah dairy subsidiary of Giplait
- The dairy SARL Maison du lait (Remchi)
- Mansourah Veterinary Center (Tlemcen)
- Potabilisation treatment station for the waters of the Barrage de Hammam Bougrara, West of Tlemcen)
- Wastewater treatment plant (Ain EL Houtz and Maghnia, Tlemcen)

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### **International partners:**

- Laboratory of Biotechnology and valorization of bio georesources,
- Higher Institute of Biotechnology of Sidi Thabet, University of Manouba, Tunisia.
- Unit 408, Safety and quality of foods of plant origin, Agropark, INRA of Avignon, France.
- University Laboratory of Biodiversity and Microbial Ecology (LUBEM), University of Brest, France.

### **4-Context and objectives of the training:**

- This master will allow a disciplinary deepening in applied microbiology in the different fields covered by the specialty. The management of microbiological risk in food, water, and the environment is one of the major priorities of training in applied microbiology.
- Offer to students training and a Master's degree in Applied Microbiology.
- The teaching will allow a disciplinary deepening through several axes of competence of microbiology and other disciplines such as biochemistry, molecular biology and microbial biotechnologies

### **5-Facilities, Equipment and Laboratoires**

- Four Microbiology educational laboratories and one Microbiology research laboratory (LAMAABE)
- A warehouse for glassware and chemical products.
- Library of the Faculty of Life and Natural Sciences, Earth and Universe Sciences
- Central library of the university.
- SNDL database
- Wi-Fi connection available in the faculty area.



## 6-Profiles and Competencies Targeted

Microbiology is a discipline that has many applications in food and bio-products as well as in health and the environment. The Microbiology and Quality Control Master's offers an integrated vision of the different disciplines. Provide specialized training in Microbiology mainly focused on the Management of microbiological risk and the control of microorganisms in:

- Food industries,
- Feed water
- The field of health
- And the environment , allowing to make the most of microorganisms or provide solutions to the many problems they can cause. It is therefore a multidisciplinary training offering a wide field of activities.

## 7-Development Prospects and Employability

- Access to the preparation of a University doctorate.
- Preparation for careers in higher education.
- Careers of researchers and teacher-researchers specializing in research in the fields of health, agri-food and the environment (water soil)
- Admission to competitions in the body of engineers and research technicians in university, hospital-university and industrial laboratories, or to management positions in national research organizations.
- Research in university, hospital-university or private laboratories specializing in biomedical, food and environmental research
- Higher Education

## 8-Organisation of the Semesters Teaching

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**Modules taught in semester 1 :** Prokaryotic metabolism, Dairy Technology, Microbiology and process engineering, Molecular Biology II, Biological and microbiological analysis methods, Biostatistics II, Communication

**Modules taught in semester 2 :** Infectious bacteriology, Microbiological food safety, Microbiology and water quality, microbial biofilms and material hygiene, Applied mycology, Legislation.

**Modules taught in semester 3 :** Environmental Microbial Biotechnology, Microbial ecology and plant pathology, Natural substances and antimicrobial power, Working method and documentary analysis, English and science communication, Entrepreneurship

**Semester 4:** Memory defense.



## 1-Identification of the Education Offer

**Level : Master**

**Field : SNV**

**Branch : Biological sciences**

**Speciality : fundamental microbiology**

## 2-Educational Establishment :

**Faculty/Institute:Tlemcen University**

**Department: Biology**

## 3-External partners

**Algerian Academic partners: other university establishments**

**Companies and other socio-economic partners:** Tlemcen University Hospital Centre

**International partners :**

## 4-Context and objectives of the training:

The main aim of the Fundamental Microbiology Master's program is to train training students in current microbiology issues. The course is designed to deepen students' knowledge of all aspects of microbiology, including the physiology, biochemistry and genetics of microorganisms. Emphasis is placed on the study of bacterial growth, metabolic potential and the regulation of gene expression of microorganisms, as well as techniques for their identification, characterization, control and utilization.

On completion of the course, graduates will be able to contribute to the resolution of microbiological problems as a senior manager or as part of a research team.



The Master's program in Fundamental Microbiology comprises several courses:

- Fundamental: Food microbiology, environmental microbiology, gene expression, microbial biochemistry and virology
- Methodological: microbiological control techniques, molecular analysis Biometrics, computer science and bioinformatics.
- Discovery: physiology, enzyme engineering and English.
- Cross-disciplinary: communication, legislation and entrepreneurship.

## 5-Facilities, Equipment and Laboratoires

Pedagogical Laboratories and Equipment: List of existing teaching for the practical work involved in the proposed training course:

### Equipment:

N°	Equipment name	Number	Observations
1	Oven	10	good condition
2	Distilled water apparatus	2	good condition
3	Shaker	5	good condition
4	Centrifuge	2	good condition
5	Refrigerator	6	good condition
6	Balances	4	good condition
7	Microscopes	12	good condition
8	Water bath	2	good condition
9	Vortex	5	good condition
10	Microplate reader	1	good condition
11	Agarose gel electrophoresis apparatus	2	good condition
12	Gel reader	1	good condition
13	ATP meter	1	good condition
14	PH Meter	1	good condition
15	Thermal cycler	1	good condition
16	PFGE system	1	good condition
17	Thermoresistometer	1	good condition

### Laboratories:

- Microbiology Laboratory
- Quality Control and Analysis Laboratory
- Central Laboratory



- Biochemistry Laboratory
- Research Laboratory for Applied Microbiology
- Biomedical and Environmental Microbiology Research Laboratory (LAMAABE)

## 6-Profiles and Competencies Targeted

The course provides knowledge of the systematics, biochemistry, physiology, virology and genomics of microorganisms, enabling students to work in the field of microbiology, physiology, virology and genomics of microorganisms to enable the development of skills in the techniques used for the identification, characterization, control and manipulation of microorganisms.

Students trained in this way will be able to pursue doctoral studies in one of the microbiology and join research teams in specialized laboratories. They may also be employed as senior managers in sectors as varied in sectors as varied as the agri-food industry, health (human and animal) and the environment. This training will also enable them to enter middle and secondary education.

## 7-Development Prospects and Employability

The wilaya of Tlemcen is home to a number of agri-food industries (dairies, canneries, fruit juice and beverage producers, oil mills, etc.), as well as hygiene laboratories specializing in water and food quality control. fruit juices and drinks, oil mills, etc.), hygiene laboratories specializing in water and food quality control, medical quality control, medical analysis laboratories, a veterinary center, in addition to and a veterinary center, as well as a number of drinking water treatment plants and wastewater treatment plants.

These types of organizations are also located throughout the country. All these require scientific expertise, depending on the field in question. field in question.

Microbiology is at the heart of all these fields, and a sound knowledge of this whether it's a question of water, food or health.

## 8-Organisation of the SemestersTeaching

VH \ UE	UEF	UEM	UED	UET	Total
<b>Course</b>	337h30	135	67 h30	67 h30	607 h30
<b>TD</b>	112 h30	45	45	0	202 h30
<b>TP</b>	157 h30	135	22 h30	0	315
<b>Personal work</b>	742 h30	360	15	7 h30	1125
<b>Other (Dissertation)</b>	600	150			375

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Total	1950	825	150	75	3000
Credits	74	37	6	3	<b>120</b>
% in credits for each EU	61.67%	30.83%	5%	2.5%	100%



## 1-Identification of the Education Offer

Level: Master

Field :Nature and life sciences

Branch : Biological sciences

Speciality : Cellular and Pathophysiology

## 2-Educational Establishment :

Faculty/Institute:Nature and life sciences/ Earth and universe sciences

Department:Biology

## 3-External partners

Algerian Academic partners:University hospital of Tlemcen

Companies and other socio-economic partners:

International partners:University of Paris Evry (France)

University of Nancy (France)

University of Strasbourg (France)

## 4-Context and objectives of the training:

The aim is to offer students training and a Master's degree in cellular pathophysiology. The teaching is not only centered on cellular physiology,



biochemistry and molecular biology, but also on everything related to the approach to the study of the organisms' dysfunctions.

Trained students will have scientific and technical skills allowing them to master concepts and methods in cellular and molecular research, to explain each of the levels of integration that any living organism has and the dysfunctions associated with it. To develop experimental schemes, critical analyzes and to have an integrated vision of cellular pathology in the broad sense, all necessary for their future research activity.

It is therefore a complete training (theory and practice) linked to research learning through research. This theoretical and practical training allows the acquisition of scientific knowledge necessary for the conduction of research in the field of human pathophysiology.

The courses offered correspond to the members of the teaching and scientific team areas of expertise who support this research master's degree, and are ready to welcome and supervise students during internships.

## 5-Facilities, Equipment and Laboratoires

- Three educational laboratories (Histology, Biochemistry, and Physiology) plus the research one of Pathophysiology and biochemistry of nutrition (PpaBioNut)
- A warehouse for glassware and chemical products.
- Library of the Faculty of Life and Natural Sciences, Earth and Universe Sciences
- Central library of the university.
- SNDL database
- Wi-Fi connection available in the faculty area.



## 6-Profiles and Competencies Targeted

- Obtaining the Master's degree in "Cellular Physiology and Pathophysiology" specializes in preparing for a University doctorate
- Preparation for careers in higher education.
- Careers of researchers and teacher-researchers specializing in biomedical research.
- The training must also allow the prerequisites' acquisition for accession to the ministry's opened competitions in the corps of engineers and research technicians in the university and hospital-university laboratories, or for executive positions in the national organizations of research.

## 7-Development Prospects and Employability

- Research in university, hospital-university or private laboratories specialized in biomedical research
- Higher education (in the various Algerian universities)

## 8-Organisation of the Semesters Teaching

### Modules taught in semester 1

#### *Fundamental teaching units*

- Cellular and Molecular Physiology
- Physiology of major functions
- Anatomy Physiology

#### *Methodology teaching units*

- Structure and Physico-chemistry of biological molecules
- Molecular Biology and Genetic Engineering



### ***Discovery teaching units***

- Scientific English

### ***Transversal teaching units***

- Communication

### **Modules taught in semester 2**

#### ***Fundamental teaching units***

- Endocrine and metabolic regulations
- Immuno-pathology
- Nutrition and food hygiene

#### ***Methodology teaching units***

- Physical methods for studying biological molecules
- Experimental research techniques (ERT)

### ***Discovery teaching units***

- Biostatistics / Informatics

### ***Transversal teaching units***

- Legislation

### **Modules taught in semester 3**

#### ***Fundamental teaching units***

- Metabolic Dysfunctions
- Oxidative stress
- Cell signaling and pathologies



### ***Methodology teaching units***

- Models for study and experimentation in physiology
- Cellular Neurophysiology

### ***Discovery teaching units***

- Food health values

### ***Transversal teaching units***

- Entrepreneurship and Project Management
- English

### **Semester 4**

- Graduation thesis



## 1-Identification of the Education Offer

Level : Master

Field : Natural and Life Sciences

Branch : Biology

Speciality : Bioactivities, Analysis and Control of Essential and Vegetable Oils (BAACHEV).

## 2-Educational Establishment :

Faculty/Institute: Faculty of Natural and Life Sciences, Earth and Universe Sciences

Department: Biology

## 3-External partners

Algerian Academic partners:

Pharmaceutical Development Research Laboratory, Department of Pharmacy,  
Oran 1 Ahmed Ben Bella University, Algeria.

Companies and other socio-economic partners:

Industry Sarl ZIPHEE BIO, Bouyagra Cne Bouderbala Daira de Lakhdaria Bouira,  
Algeria.

International partners:



## 4-Context and objectives of the training:

The objective of this training is to train specialist managers capable of mastering all the industrial aspects involved in the process of valorization of essential and vegetable oils which are an integral part of the food industry. Indeed, this training offers students skills and multidisciplinary knowledge upstream, during and downstream of the route of the production of these oils and essentially concerns:

- Botany with its diverse floristic composition
- The methods of harvesting the raw material (leaves, flowers, fruits, seeds, stems, roots, bark, etc.).
- Extraction, fractionation and purification and analysis techniques
- Statistical methods and applications as well as data processing
- Legislation, bioethics and the application of regulatory texts
- The qualitative aspect and standardization of the production chain
- Management methods and business creation
- Marketing and product marketing approaches
- Linguistic tools and communication arts.

## 5-Facilities, Equipment and Laboratoires

Managers trained in this field can be inserted in several sectors, namely:

- Company producing essential and/or vegetable oils
- Food industry
- The cosmetics industry, perfumes,
- The pharmaceutical and parapharmaceutical industry,
- Control and expertise study offices
- Agrochemical companies;
- Quality control laboratory
- In parapharmacy



## 6-Profiles and Competencies Targeted

This master is multidisciplinary, it is based on knowledge of botany, plant physiology, biochemistry and chemistry. It makes it possible to acquire the knowledge essential to the professions concerned in the fields:

- valorization of agroresources,
- agri-food,
- quality control
- extraction of molecules of interest
- chemical industries
- cosmetics,
- pharmaceuticals,
- phytochemicals

## 7-Development Prospects and Employability

The level trades targeted at the end of the training are:

- Producer of essential and vegetable oils
- Manager in the oil technology sector
- Technical framework in oil production
- Specialist in the analysis of agri-food products
- Parapharmacist in the field of oil and plant therapy
- Expert in the field of vegetable and essential oils
- In charge of marketing aspects and commercial procedures.

## 8-Organisation of the Semesters Teaching

The modules in four semesters are mentioned below:



## **SEMESTRE 1 :**

### **Fundamental teaching unit**

1. Plant genetic resources
2. Primary and secondary metabolites
3. Essential Oils and Vegetable Oils

### **Methodology teaching unit**

1. Applied statistics and experimentation
2. Instrumental techniques of analysis

### **Discovery teaching unit**

1. Research and bibliographic analysis

### **Cross-curricular teaching unit**

1. Communication

## **SEMESTRE 2 :**

### **Fundamental teaching unit**

1. Analysis and control of oils
2. Interests and uses of oils
3. Pharmacognosy

### **Methodology teaching unit**

1. Stage
2. Analysis of investment projects

### **Discovery teaching unit**

1. Applied biotechnology

### **Cross-curricular teaching unit**

1. Legislation

## **SEMESTRE 3 :**

### **Fundamental teaching unit**

1. Biological activities of oils
2. Risk management and standardization
3. Modeling of bioactive molecules

### **Methodology teaching unit**

1. Data processing and modeling
2. Packaging and marketing

### **Discovery teaching unit**

Marketing Strategies

### **Cross-curricular teaching unit**

Entrepreneurship

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## SEMESTRE 4

Internship in a company sanctioned by a dissertation (an article, a patent, or label or SME/SMI) and a defense.



## 1-Identification of the Education Offer

Level : Master

Field : Natural and life sciences

Branch : Biological sciences

Speciality : Molecular and cellular biology

## 2-Educational Establishment :

Faculty/Institute: Faculty of Natural and Life Sciences, Earth and Universe Sciences

Department: Biology

## 3-External partners

Algerian Academic partners:

1/ Analytical Chemistry and Electrochemistry Laboratory

2/ Laboratory of physiology, physiopathology and biochemistry of nutrition

Companies and other socio-economic partners:

International partners:

## 4-Context and objectives of the training:

Molecular and cellular biology has taken a big boom in the field of science due to the development of advanced techniques, which have allowed a better understanding of the different biological mechanisms involved in the different pathological processes.



This is able to provide explanations for the occurrence of human metabolic and genetic diseases, which have become a real burden for society. In order to meet the multiple needs both in terms of fundamental and applied research and in terms of training, it has become necessary to undertake the development of research in molecular biology in our university and to apply it to the study of genetic pathologies and human metabolism. So, the main objective of the training is to acquire the different molecular mechanisms involved in cellular functioning.

## 5-Facilities, Equipment and Laboratoires

Two main laboratories are available for this training: the central laboratory and the laboratory of molecular biology and genetics as well as a library rich in books.

## 6-Profiles and Competencies Targeted

- Obtaining the Master's degree specializing in "Molecular and Cellular Biology" gives access to the preparation of a University doctorate.
- Preparation for teaching professions.
- Careers of researchers and teacher-researchers specializing in biomedical research.
- The training must also allow the acquisition of the prerequisites for accession to the competitions opened by the ministry in the corps of engineers and research technicians in the university and hospital-university laboratories, or for management positions in the organizations research nationals

## 7-Development Prospects and Employability

- Research in university, hospital-university or private laboratories specializing in biomedical research.
- Higher education (in the various Algerian universities).
- Research and development in large industrial groups and SMEs - Agri-food, biomedical industries...
- Medical analysis laboratories

## 8-Organisation of the Semesters Teaching

Semester 1 includes:

- 3 fundamental units which are:

Molecular Biology; Human Molecular Genetics and Genetic diseases of metabolism and metabolomics

- Subjects of the methodology units: human physiology anatomy; Epidemiology
- Discovery unit: Bioinformatics applied to genetics.
- Transverse unit: Communication.



Semester 2 includes, in this order:

- Cell and Gene Therapy; Proteomics; Molecular immunology
- Molecular mechanisms of cell signaling ; Pharmacology.
- Bioinformatic
- Legislation.

Semester 3 includes, in this order:

- Molecular bases of oncogenesis ;Cytogenetics ; Molecular embryology.
- Molecular Endocrinology; Mathematical modeling techniques
- Analysis of articles and methodology of scientific writing in English
- Entrepreneurship.

## 8- Organisation of the Semesters Teaching

Semester 1	Semester 2	Semester 3	Semester 4
UEF1: Protein Engineering and Enzymology	UEF1 : Medical biochemistry and cellular and molecular physiology	UEF1 : Vectorization: new therapeutic approaches	Project Graduation
Matter 1 : Protein Engineering	Matter 1 : Medical biochemistry	Matter 1 : Recombinant DNA Technology	
Matter2 : Enzymology	Matter 2 : cellular and molecular physiology	Matter2 : Gene therapy and vectorization	
UEF2 : Dynamics and structure of biological membranes	UEF2 : Structure-function relationship of lipids and membrane proteins	UEF 2 : Molecular and Applied Pharmacology	
UEM1: Physico-chemical methods of analysis	UEM1 : Bio-analysis and Data processing	UEM1 : Microbiology and physico-chemistry of biofilms	
Matter 1 : Preparative techniques in biochemistry	Matter 1 : Bio-analysis	Matter 1 : Physico-chemistry of biological interphases	
Matter2 : Spectral methods	Matter 2 : Processing of experimental data	Matter2 : Molecular mechanisms of microbial interactions in a biofilm	
UED1 : Clinicalmicrobiology	UED1 : MolecularMicrobiology	UED1 : Practice of bibliographic research	
UET1 : Communication	UET1 : Legislation	UET1 : Entrepreneurship	

## 1- Identification of the Education Offer

Level: Master

Field: SNV/STU

Branch : Life sciences

Speciality : Applied Biochemistry

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## 2- Educational Establishment :

Faculty/Institute: SNV/STU

Department: Biology

## 3- External partners

## 4- Context and objectives of the training:

This Master's degree provides students with multidisciplinary training in applied biochemistry. It offers highly qualified, multi-disciplinary teaching at the cutting edge of current research in life sciences, covering several areas of expertise: biochemistry, cell biology, molecular biology, phytochemistry, pharmacology and the development of bioactive molecules. Its main aim will be to train students specializing in these fields, who can contribute to the development of university research and biochemical, microbiological and medical analysis control laboratories. They will also be called upon to apply

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their know-how in pharmaceutical laboratories and in the regional and national drug industry. This Master's degree will also prepare them for doctoral and post-doctoral training.

## 5- Facilities, Equipment and Laboratoires

Applied Biochemistry master's degree is supported by Laboratory of Antibiotic, Antifungal: Physico-Chemistry, Synthesis, and Biological Activity.

Department of Biology, SNV-STU Faculty, Abou Bekr Belkaïd University

## 6- Profiles and Competencies Targeted

This degree opens the way to management positions in research and development or basic research, as well as to professional activities in public structures or companies whose activities are related to health, the environment or the pharmaceutical industry, and in which the biological sciences play an important role. The biology specialties grouped together in this Master's program are based on the scientific and technical skills of the various members of the training team. The aim of the courses is not only to provide solid training in this field of research, but also to help students acquire the know-how they need to become operational in future laboratories or companies.

The program offers students the opportunity to :

- Understanding the structure/function relationship of biological molecules and the mechanisms of action underlying their biological activities.



- Understanding the cellular and molecular mechanisms of interaction between bioactive molecules and their targets: cell type, cellular processes and biological molecules (enzymes, receptors, DNA, etc.).
- Mastering the analytical techniques used to extract, purify and identify bioactive molecules identification of bioactive molecules and methods for assessing their biological activities.

In addition, this degree program offers the possibility of integrating into the classroom teaching of certain modules the " competence-based teaching approach " through project-based learning and workshops. will be led by one or more teachers from the course team.

## 7- Development Prospects and Employability

Students trained in the Applied Biochemistry master's program will be able to choose between scientific research and professional careers.

or professional insertion:

- Further study: university doctoral studies
- Branches of activity
  - Pharmaceutical industry
  - Biomedical
  - Biotechnology

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- Cosmetics
- Education
- Research & Development

## 8- Organisation of the Semesters Teaching

### 1- Semestre 1 :

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Unité d'Enseignement	VHS	V.H hebdomadaire				Coeff	Crédits	Mode d'évaluation	
	14-16 sem	C	TD	TP	Autres			Continu	Examen
<b>UE fondamentales</b>						<b>9</b>	<b>18</b>		
<b>UEF1(O/P)</b>									
Biochimie fonctionnelle	60h00	03h00	1h30		67h	3	5	x	x
Biochimie des microorganismes	45h00	1h30	1h30		57h	2	4	x	x
<b>UEF2(O/P)</b>									
Pharmacognosie et plantes médicinales	60h00	1h30	1h00	1h30	67h	2	5	x	x
Biochimie Végétale	45h00	1h00	1h00	1h00	57h	2	4	x	x
<b>UE méthodologie</b>						<b>5</b>	<b>9</b>		
<b>UEM1(O/P)</b>									
Méthodes d'analyses en biochimie	60h00	1h30	1h00	1h30	65h	3	5	x	x
<b>UEM2(O/P)</b>									
Méthodes de recherche bibliographique	45h00	1h30		1h30	55h	2	4	x	x
<b>UE découverte</b>						<b>2</b>	<b>2</b>		
<b>UED1(O/P)</b>									
Physiologie des grandes fonctions	38h00	1h30	00h30	00h30	5h	2	2	x	x
<b>UE transversales</b>						<b>1</b>	<b>1</b>		
<b>UET1(O/P)</b>									
Communication	22h00	1h30			2h	1	1		x
<b>Total Semestre 1</b>	<b>375h</b>	<b>13h00</b>	<b>06h00</b>	<b>06h00</b>	<b>375h</b>	<b>17</b>	<b>30</b>		

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نيابة مديرية الجامعة

Unité d'Enseignement	VHS	V.H hebdomadaire				Coeff	Crédits	Mode d'évaluation	
	14-16 sem	C	TD	TP	Autres			Continu	Examen
<b>UE fondamentales</b>						<b>9</b>	<b>18</b>		
<b>UEF1(O/P)</b>									
Biologie cellulaire et signalisation	60h	3h00	1h00		66h	3	5	x	x
Régulation métabolique et pathologies	60h	1h30	1h30	1h00	65h	2	5	x	x
<b>UEF2(O/P)</b>									
Mécanisme moléculaire et applications des enzymes	60h	1h30	1h00	1h30	66h	2	5	x	x
Pathologies infectieuses	45h	1h30		1h30	55h	2	3	x	x
<b>UE méthodologie</b>						<b>5</b>	<b>9</b>		
<b>UEM1(O/P)</b>									
Méthodes d'identification et d'analyse structurale	60h	1h30	1h30	1h00	65h	3	5	x	x
<b>UEM2(O/P)</b>									
Analyse des articles scientifiques	45h	1h30		1h30	55h	2	4	x	x
<b>UE découverte</b>						<b>2</b>	<b>2</b>		
<b>UED1(O/P)</b>									
Biodiversité	22h30	1h30			5h	2	2	x	x
<b>UE transversales</b>						<b>1</b>	<b>1</b>		
<b>UET1(O/P)</b>									
Législation	22h30	1h30			2h	1	1		x
<b>UET2(O/P)</b>									
<b>Total Semestre 2</b>	<b>374h30</b>	<b>13h30</b>	<b>5h00</b>	<b>6h30</b>	<b>375h</b>	<b>17,00</b>	<b>30,00</b>		

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Unité d'Enseignement	VHS					V.H hebdomadaire		Coeff	Crédits	Mode d'évaluation	
	14-16 sem	C	TD	TP	Autres	Continu	Examen			Continu	Examen
<b>UE fondamentales</b>								<b>9</b>	<b>18</b>		
<b>UEF1(O/P)</b>											
Phytochimie et substances naturelles	67h30	3h00		1h30	82h	3	6	x	x		
<b>UEF2(O/P)</b>											
Pharmacologie générale	60h00	1h30	1h30	1h00	65h	3	6	x	x		
Toxicologie	67h30	1h30	1h30	1h00	82h	3	6	x	x		
<b>UE méthodologie</b>											
<b>UEM1(O/P)</b>											
Valorisation des molécules bioactives	67h30	3h00		1h30	82h	3	5	x	x		
<b>UEM2(O/P)</b>											
Traitement statistique des données en Biologie	45h	1h30		1h30	55h	2	4	x	x		
<b>UE découverte</b>											
<b>UED1(O/P)</b>											
Recherche bibliographique et travaux de recherche	45h	1h30		1h30	7h	2	2	x	x		
<b>UED2(O/P)</b>											
<b>UE transversales</b>						<b>1</b>	<b>1</b>				
<b>UET1(O/P)</b>											
Entreprenariat	22h30	1h3			2h	1	1			x	
<b>Total Semestre 3</b>	<b>375h</b>	<b>13h30</b>	<b>3h00</b>	<b>8h30</b>	<b>375h</b>	<b>17</b>	<b>30</b>				

الجمهورية الجزائرية الديمقراطية الشعبية  
République Algérienne Démocratique Et Populaire

وزارة التعليم العالي والبحث العلمي  
Ministère De L'enseignement Supérieur Et De La Recherche Scientifique

Université Abou Bekr Belkaid Tlemcen  
جامعة أبو بكر بلقايد تلمسان

Vice Rectorat de la Formation Supérieure de Graduation, de la  
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للتقوين العالي في التدرج والتقوين  
المتواصل والشهادات

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Semestre 4

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Université Abou Beker Séâdane

الجامعة

البلديات

Vice Rectorat de la Formation Continue  
Formation Continue

Domaine : SNV

Filière : Sciences biologiques

Spécialité : Biochimie Appliquée

[vrp.tlemcen@gmail.com](mailto:vrp.tlemcen@gmail.com)

Télé/fax 043

Stage en entreprise sanctionné par un mémoire et une soutenance.

	VHS	Coeff	Crédits
Travail Personnel	375h	17	30
Stage en entreprise			
Séminaires			
Autre (préciser)			
<b>Total Semestre 4</b>	<b>375h</b>	<b>17</b>	<b>30</b>

**5- Récapitulatif global de la formation :** (indiquer le VH global séparé en cours, TD, pour les 04 semestres d'enseignement, pour les différents types d'UE)

UE	UEF	UEM	UED	UET	Total
<b>Cours</b>	<b>307,5</b>	<b>157,5</b>	<b>67,5</b>	<b>67,5</b>	<b>600</b>
<b>TD</b>	<b>165</b>	<b>37,5</b>	<b>22,5</b>	<b>0</b>	<b>225</b>
<b>TP</b>	<b>157,5</b>	<b>120</b>	<b>22,5</b>	<b>0</b>	<b>300</b>
<b>Travail personnel</b>	<b>705</b>	<b>365</b>	<b>27</b>	<b>19</b>	<b>1116</b>
<b>Autre (préciser)</b>	<b>375</b>				<b>375</b>
<b>Total</b>	<b>1710</b>	<b>680</b>	<b>139,5</b>	<b>86,5</b>	<b>2616</b>
<b>Crédits</b>	<b>84</b>	<b>27</b>	<b>6</b>	<b>3</b>	<b>120</b>
<b>% en crédits pour chaque UE</b>	<b>70%</b>	<b>22,50%</b>	<b>5%</b>	<b>2,50%</b>	



## Branch: Food Sciences

### 1- Identification of the Education Offer

Level : Master

Field : SNV/STU

Branch : food sciences

Speciality : Nutrition and Dietetic

### 2- Educational Establishment :

Faculty/Institute: SNV/STU

Department: Biology

### 3- External partners

#### Algerian Academic partners:

Naturel Product laboratory

Tlemcen hospital center (CHU)

University of Mostaganem

University of Adrar

#### Companies and other socio-economic partners:

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المتواصل والشهادات

Dr Bouhamed Nutritionist

BOUBLENZA Company

#### **International partners :**

Borj Cédria Biotechnology Center

University of Bourgogne, Dijon France

University of Avignon, France

## **4- Context and objectives of the training:**

### **Access conditions**

- Holder of a Food, Nutrition and Pathologies license;
- Holder of a license: Molecular biology; or equivalent diploma for those who wish to update or deepen their knowledge in Nutrition and Dietetics.

The Master in Nutrition and Dietetics is an ideal complement to enrich any undergraduate and postgraduate training for anyone wishing to specialize in the field of health and nutrition.

### **Training aims**

- Being able to distinguish between food beliefs and adequate food for each individual or for groups, through the pedagogical articulation of theoretical foundations based on scientific reality.
- Apply adequate nutritional standards through the nutritional assessment of the patient and the latest advances and developments in the field of nutrition, food and dietetics.
- Organize and design nutritional education programs adapted to specific needs.
- Transmit to the student with prior knowledge, the latest scientific advances in nutrition and dietetics such as nutrigenomics, eating disorders, diet in physical activity or clinical nutrition.
- Promote students' critical thinking on issues related to health and nutrition.

## **5- Facilities, Equipment and Laboratoires**



#### - Educational laboratories

Distillation apparatus, spectrophotometer, Water bath , grinder, Soxhlet app, Kjeldhal app, Muffle Furnace, refractometer, Centrifuge, Electrophoresis, colorimeter

### 6- Profiles and Competencies Targeted

- Being able to distinguish between food beliefs and adequate food for each individual or for groups, through the pedagogical articulation of theoretical foundations based on scientific reality.
- Apply adequate nutritional standards through the nutritional assessment of the patient and the latest advances and developments in the field of nutrition, food and dietetics.
- Organize and design nutritional education programs adapted to specific needs.
- Transmit to the student with prior knowledge, the latest scientific advances in nutrition and dietetics such as nutrigenomics, eating disorders, diet in physical activity or clinical nutrition.
- Promote students' critical thinking on issues related to health and nutrition.

### 7- Development Prospects and Employability

- Schools and colleges;
- Collective catering;
- University residences;
- Pharmaceutical or food industry;
- Hotels, hospitals and geriatric residences

### 8- Organisation of the Semesters Teaching

- Presentations and oral communication



- Continuous tests
- Synthesis test
- Internship in the socio-economic sectors.
- End of cycle projects.

## 1-Identification of the Education Offer

Level: Master

Field : SNVSTU

Branch : Life Sciences

Speciality : Nutrition and pathology

## 2-Educational Establishment :

Faculty/Institute: SNVSTU

Department: Biology

## 3-External partners

Algerian Academic partners:

PpBioNut Laboratory, Physiologie, physiopathologie et biochimie de la nutrition.

Laboratoire de Recherche Spectrochimie et Pharmacologie Structurale

Companies and other socio-economic partners:



### **International partners:**

## **4-Context and objectives of the training:**

The aim of this formation is to train specialists in Nutrition and Health for the purposes of research and/or higher education and/or the development of nutritional formulations applied to the general population and/or specific populations (the elderly, sportspeople, etc.) and to certain clinical situations (malnutrition, undernutrition, etc.). It incorporates the latest knowledge in the study of metabolisms, dietary behaviour and the prevention of pathologies directly or indirectly influenced by nutrition. The course is based on invasive and non-invasive techniques for studying metabolisms and on the use of high-throughput techniques applied to specific problems, aimed more specifically at identifying markers of the onset of pathologies. Among the conditions most dependent on this option are metabolic diseases and digestive pathologies, not forgetting anaemia and eating disorders. The various nutrients are characterised by specific bio-dynamics, both the cause and consequence of gene regulation processes, introducing the concepts of nutrigenomics. The aspect of nutrition that is addressed concerns the modulation of the frequency of occurrence and development of certain pathologies, which are on the increase in developing countries, including Algeria. The study of these aspects leads to the notion of preventive nutrition, which is considered to be adequate for good health. One of the aims of the course is to highlight the importance of the interaction between nutrition and health and to guide students towards this concept. In addition, the agri-food industry is currently witnessing the emergence of new foods known as 'Alicaments', which form part of the new Nutraceuticals concept. These carry nutritional or health claims. These nutrients have bioactive and protective properties on vascular endothelial function and cells in tissues exposed to oxidative stress, such as cancers and neurodegenerative diseases. Other nutrients have been shown to benefit muscle tone, venous microcirculation during the development of varicose veins (flavonoids, vitamin B12 and folates) and post-menopause (phyto-oestrogens).

## **5-Facilities, Equipment and Laboratoires**

Our specialty is supported by local partner laboratories and also by five pedagogic laboratory destined to support all the students following their graduation in SNV/STU faculty.



## 6-Profiles and Competencies Targeted

This Master's degree culminates in a dissertation prepared in the laboratory over a 6-month period, with an oral presentation. These students must acquire strong scientific and technical skills in the field of Nutrition and Health, be able to master concepts and methods, draw up experimental schemes and develop a critical analysis of experimental situations. This new niche prepares learners for the various specialities in biomedical and fundamental research, whether in a university hospital, school or industrial context. A job market is developing for this training. For the agri-food industry, this course can be a major source of innovation. For this reason, they have, and will continue to have, a constant need in their research and development structures for expertise in nutrition and health that can help them in their policy of innovation or product enhancement. Students of this Master's degree who have acquired their diploma in Nutrition and Health will find their place in the above-mentioned sectors. The pharmaceutical industry is also involved in this training via the design of 'nutraceutical' products for enteral and parenteral nutrition in various hospital departments (paediatrics, gastroenterology, surgery, intensive care, cancerology, etc.). These products come in capsule, tablet, liquid or powder form. Examples include flour-milk preparations for infants, basic sterile diets given via gastric or jejunal tubes (Nestlé products, Nutrigil products, Nutridrink), Reabilan (whey-based preparation for post-operative or intensive care patients). It is also at this level that these Masters will contribute to the development of nutraceuticals in Algeria, which our pharmaceutical sector is suffering from. This discipline is also closely linked to geriatrics, which deals, among other things, with physiological functions during senescence that require additional nutrients that can be directly assimilated by the body. In the same context, the parapharmaceutical and herbal industries are making their mark in nutrition and health with the appearance of new 'products' extracted from plants and algae that have proven their effectiveness.

## 7-Development Prospects and Employability

- ☒ Implementation of an experimental research project, analysis of results (ANVREDET, etc.)
- ☒ Analysis and resolution of problems in the various fields of nutrition and health
- ☒ Design and development of new nutraceuticals for health purposes
- ☒ Consultancy for the development of nutritional or functional claims
- ☒ Sale of scientific reagents and functional ingredients
- ☒ Production of patentable prototypes.

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## 8-Organisation of the SemestersTeaching

### SEMESTRE 1

Unité d'Enseignement	VHS	V.H hebdomadaire				Coeff	Crédits	Mode d'évaluation	
	14-16 sem	C	TD	TP	Autres			Continu 40%	Examen 60%
UE fondamentales	202h30	6h	1h30	03h	247h30	09	18		
UEF1(O/P)									
Immunologie fondamentale	67h30	3h	1h30	-	82h30	3	6	✓	✓
Alimentation, nutrition et Immunité	67h30	3h	-	1h30	82h30	3	6	✓	✓
UEF2(O/P)									

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Niveaux de régulation cellulaire et métaboliques	67h30	3h	-	1h30	82h30	3	6	✓	✓
<b>UE méthodologie</b>	<b>90h</b>	<b>3h</b>	<b>03h</b>	<b>03h</b>	<b>124h</b>	<b>05</b>	<b>09</b>		
<b>UEM 1(O/P)</b>									
Agents antimicrobiens	45h	1h30	1h30	1h00	65h	3	5	✓	✓
<b>UEM 2(O/P)</b>								✓	✓
Analyse Instrumentale	45h	1h30	1h30	1h30	55h	2	4	✓	✓
<b>UE découvertes</b>	<b>45h</b>	<b>1h30</b>	<b>-</b>	<b>1h30</b>	<b>5h</b>	<b>02</b>	<b>02</b>		
<b>UED1 (O/P)</b>									
Plantes médicinales d'intérêt nutritionnel	45h	1h30	-	1h30	5	2	2	✓	✓
<b>UE transversales</b>	<b>37h30</b>	<b>1h30</b>	<b>-</b>	<b>-</b>	<b>2h30</b>	<b>01</b>	<b>01</b>		
<b>UET1(O/P)</b>									
Communication	37h30	1h30	-	-	2h30	1	1		100%
<b>Total Semestre 1</b>	<b>375</b>	<b>12h</b>	<b>4h30</b>	<b>7h30</b>	<b>375</b>	<b>17</b>	<b>30</b>		

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المتواصل والشهادات

SEMESTRE 2

Unité d'Enseignement	VHS	V.H hebdomadaire				Coeff	Crédits	Mode d'évaluation	
	14-16 sem	C	TD	TP	Autres			Continu 40%	Examen 60%
<b>UE fondamentales</b>	<b>202h30</b>	<b>09h</b>	<b>00</b>	<b>03h</b>	<b>247h30</b>	<b>09</b>	<b>18</b>		
<b>UEF1(O/P)</b>									
Nutrition, Flore Intestinale et Immunité	67h30	3h	-	-	82h30	3	6	✓	✓
Physiologie de la digestion	67h30	3h	-	1h30	82h30	3	6	✓	✓
<b>UEF2(O/P)</b>									
Pharmacologie cellulaire, pharmacogénétique et pharmacocinétique	67h30	3h	-	1h30	82h30	3	6	✓	✓
<b>UE méthodologie</b>	<b>105h</b>	<b>03h</b>	<b>-</b>	<b>03h</b>	<b>120h</b>	<b>05</b>	<b>09</b>		

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UEM1 (O/P)									
Biochimie Clinique	60h	1h30	-	1h30	65h	3	5	✓	✓
Histopathologie et cytologie	45h	1h30	-	1h30	55h	2	4	✓	✓
<b>UE découverte</b>	<b>45h</b>	<b>1h30</b>	<b>1h30</b>	<b>-</b>	<b>5h</b>	<b>02</b>	<b>02</b>		
UED1 (O/P)									
Interactions Moléculaires	45h	1h30	1h30	-	5h	2	2	✓	✓
<b>UE transversale</b>	<b>22h30</b>	<b>1h30</b>	<b>-</b>	<b>-</b>	<b>2h30</b>	<b>01</b>	<b>01</b>		
UET1 (O/P)									
Législation	22h30	1h30	-	-	2h30	1	1		100%
<b>Total Semestre 2</b>	<b>375h</b>	<b>15h</b>	<b>1h30</b>	<b>06h</b>	<b>375h</b>	<b>17</b>	<b>30</b>		

SEMESTRE 3

Unité d'Enseignement	VHS	V.H hebdomadaire	Coeff	Crédits	Mode d'évaluation

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المتواصل والشهادات

	14-16 sem	C	TD	TP	Autres			Continu 40%	Examen 60%
<b>UE fondamentales</b>	<b>202h30</b>	<b>09h</b>	<b>1h30</b>	<b>03h</b>	<b>247h30</b>	<b>09</b>	<b>18</b>		
<b>UEF1(O/P)</b>									
Phytonutriments, intérêts nutri metabo	67h30	3h	-	1h30	82h30	3	6	✓	✓
Nutrition Avancée et Pathologies	67h30	3h	1h30	-	82h30	3	6	✓	✓
<b>UEF2(O/P)</b>									
Nutraceutique et bénéfice santé	67h30	3h	-	1h30	82h30	3	6	✓	✓
<b>UE méthodologie</b>	<b>105h</b>	<b>1h30</b>	<b>4h30</b>	<b>-</b>	<b>120h</b>	<b>05</b>	<b>09</b>		
<b>UEM1(O/P)</b>									
Génétique Moléculaire et Epigénétique	60h	1h30	1h30	-	65h	3	5	✓	✓
<b>UEM2(O/P)</b>									
Biostatistiques	45h	-	3h00	-	55h	2	4	✓	✓
<b>UE découverte</b>	<b>45h</b>	<b>1h30</b>	<b>1h30</b>	<b>-</b>	<b>5h</b>	<b>02</b>	<b>02</b>		

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UED1(O/P)									
Séminaires Internes	45h	1h30	1h30	-	5h	2	2	✓	✓
UE transversales	22h30	1h30	-	-	2h30	01	01		
UET1(O/P)									
Entrepreneuriat	22h30	1h30	-	-	2h30	1	1		100%
<b>Total Semestre 3</b>	<b>375h</b>	<b>13h30</b>	<b>7h30</b>	<b>3h</b>	<b>375h</b>	<b>17</b>	<b>30</b>		

#### SEMESTRE 4

Domaine : SNV

Filière : Sciences Biologiques

Spécialité : Nutrition et Pathologie

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Télé/fax 043216198



جامعة أبو بكر بلقايد تلمسان  
نيابة مديرية الجامعة

للتكون العالي في الترجم والتكون

المتواصل والشهادات

Internship in a Laboratory, Hospital or company sanctioned by a dissertation (viva voice), an article or a patent .

	VHS	Coeff	Crédits
<b>Travail Personnel</b>	300	7	12
<b>Projet de fin d'étude (Mémoire)</b>	75	10	18
<b>Séminaires</b>			
<b>Autre (préciser)</b>			
<b>Total Semestre 4</b>	375	17	30



## 1- Identification of the Education Offer

Level : Master

Field : Natural and life sciences

Branch : Biology

Speciality : Biology of Nutrition

## 2- Educational Establishment :

Faculty/Institute: Faculty of Natural and Life Sciences, Earth and Universe Sciences

Department: Biology

## 3- External partners

Algerian Academic partners:

Companies and other socio-economic partners: teaching hospital of Tlemcen, ISTA institute.

International partners :

## 4- Context and objectives of the training:

It should be noted that major pathological syndromes related to nutrition are the leading cause of death in the world. Curbing the increase in their incidence is a priority issue that involves progress in research areas integrating the influence of eating habits, food quality, and the development of nutritional prevention trials. Hence the interest of the implementation of this Master whose teachings provide students theoretical and practical training so that they understand the problems posed by nutrition. It will provide them with the essential elements to know how to manage the



nutritional aspects of public health issues. This Master is part of this perspective and relies on a team with strong concerns in cellular and molecular research. The courses offered correspond to the areas of competence of the members of the pedagogical and scientific team who support this research master's degree, and ready to welcome and supervise students during internships.

## 5- Facilities, Equipment and Laboratoires

- Physiology, physiopathology and biochemistry of nutrition educational and research laboratory (PPABIONUT)
- A warehouse for glassware and chemical products.
- Library of the Faculty of Life and Natural Sciences, Earth and Universe Sciences
- Central library of the university.
- SNDL database
- Wi-Fi connection available in the faculty area.

## 6- Profiles and Competencies Targeted

- 1-Understand the concepts and approaches of nutrition biology.
- 2- Master the systematics human metabolism and the food impact on the health.
- 3- Understand the role of food and nutrition and their power to meet or control human health.
- 4-Understanding the functioning of human body and proposing dietary or medical recommendation to keep it healthy.

## 7- Development Prospects and Employability

- Masters studies
- Research Laboratory.



- biochemistry laboratory.
- Quality control laboratory.
- Education.
- Food treatment and analysis
- Food industry.
- Pharmaceutical industry.
- Medical dietary (Hospital, public clinic and private clinic)
- Department of the environment.

## 8- Organisation of the Semesters Teaching

**Modules taught in semester 1:** Nutritional needs, Regulation and cell dynamics, chemical components of food products, Chemical components of food products, Molecular approach and regulations, Analytical methods and techniques, Biostatistics, Microbial function and physiology, Communication

**Modules taught in semester 2 :** Microbiology and Food Biochemistry, Eating Behavior and Regulation physiological, Oxidative stress and nutrients, Immunology and Food Allergology, Food toxicology, Processes of Food preservation, Food quality and biological hazards, Legislation.

**Modules taught in semester 3 :** Biology Molecular and Nutrition Food, Dysfunction and pathology, Preventive food and nutrition, Introduction to Literature search, Neuroscience, Bioethic, Entrepreneurship and project management, Scientific English.

## 1-Identification of the Education Offer



**Level:** Master

**Field :** Natural sciences and Life

**Branch :** Food Science

**Speciality :** Food industry and quality control

## 2-Educational Establishment :

**Faculty/Institute:** Natural sciences and Life/ Sciences of Earth and universe

**Department:** Biology

## 3-External partners

**Algerian Academic partners:**

LAMAABE laboratory

LAPRONA laboratory

CACQE, laboratory of quality control

**Companies and other socio-economic partners:**

ENNADJAH dairy (Maghnia),

Rahmoun Lemonade,

Sakina Flour mill (Maghnia),

Giplait aboutechefine (Tlemcen),

Elwidjdane (chocolate factory),

Belkaid Lemonade.

**International partners:**

## 4-Context and objectives of the training:



The agro-food industry aims to develop new concepts for the valorization of agricultural materials.

The program learning is essentially based on the presentation of the main transformation tools, physical, enzymatic, chemical and microbiological processes in relation with the technological aptitudes of the raw material, on the one hand and is based, on the other hand, on that of specificity and the diversity of the behavior of agricultural materials (biochemical, physico-chemical, rheological aspects, etc.).

The master's student must be made aware during his graduation of the general approach to the problem of the food and human food industries in its new conception linked to technological development on a global scale.

## 5-Facilities, Equipment and Laboratoires

Our specialty is supported by pedagogic laboratory and LAMAABE as mentioned in the outline program. We also depend on the support of the LAPRONA laboratory of our faculty.

## 6-Profiles and Competencies Targeted

The agro-food industry has a large variety of professions. The diversity of professions at all levels of qualification constitute a major strength of the agri-food industry: production, logistics, commerce, R&D, support functions (marketing, IT, etc.)...

The agri-food industry offers a real prospect for development: from production operator to line manager to team leader with ever more responsibilities, autonomy in positions of less painful. Training systems have multiplied internally or externally: management, operation of automated installations, hygiene and quality, gestures and postures.

## 7-Development Prospects and Employability

The master's student will integrate into the world of work in food the industries as:

- Production agent in Dairy industry or other food industries
- fraud enforcement officer
- control officer in the trade department
- be able to develop his own business



Either to continue in the academic side, by applying for recruitment on file in the major National and European scientific schools or to pursue doctoral training.

## 8-Organisation of the SemestersTeaching

### Semester 1:

#### Basic teaching unit:

- Microbiological engineering
- Food microbiology
- Food safety and quality management
- Control of processes in Agri-foods industries

#### Methodology teaching unit:

- Physiological and nutritional biochemistry
- food chemistry
- Technological and statistical quality control

#### Discovery teaching unit:

- Food formulation and concepts of sensory analysis

#### Transversal teaching unit:

- applied statistics

### Semester 2:

#### Basic teaching unit:

- analysis techniques in Agri-food industry
- Biotechnology, research and development
- Food hygiene, behavior and nutritional diseases

#### Methodology teaching unit:

- Health and diet
- Nutritional needs
- Quality approach, good practices and hygiene in TIAA



### **Discovery teaching unit:**

- Packaging and food films

### **Transversal teaching unit:**

- Entrepreneurship and project management
- Scientific English

### **Semester 3:**

#### **Basic teaching unit:**

- Eco-processes and eco-assessment in the food industry
- Deepening in process engineering
- Predictive microbiology and the creation of a new food

#### **Methodology teaching unit:**

- Economics and Management
- Quality approach, accreditation and certification in TIAA

### **Discovery teaching unit:**

- Food risk assessment and management
- Assessment and management of food quality

### **Transversal teaching unit:**

- Communication
- Legislation and consumer rights

### **Semester 4:**

Personal work: bibliographical research, reading of international publications. PowerPoint presentation.

Internship in a company and presentation of the dissertation by the student.



## 1- Identification of the Education Offer

Level : Master

Field : Natural and life sciences

Branch : Biology

Speciality : food safety and quality assurance

## 2- Educational Establishment :

Faculty/Institute: Faculty of Natural and Life Sciences, Earth and Universe Sciences

Department: Biology

## 3- External partners

Algerian Academic partners:

Companies and other socio-economic partners:

International partners :

## 4- Context and objectives of the training:

The course is designed to train "hygienist" middle managers who will be responsible for managing and monitoring food safety within the company and who will work at the interface between quality and production, under the supervision of the company's quality manager.

## 5- Facilities, Equipment and Laboratoires

- Four Microbiology educational laboratories and one Microbiology research laboratory (LAMAABE)



- A warehouse for glassware and chemical products.
- Library of the Faculty of Life and Natural Sciences, Earth and Universe Sciences
- Central library of the university.
- SNDL database
- Wi-Fi connection available in the faculty area.

## 6- Profiles and Competencies Targeted

Trainees will acquire the following skills and abilities:

- be capable of ensuring food safety and controlling hygiene by analysing critical points on the production line and implementing corrective actions to control them, and by choosing appropriate disinfectants and cleaners to build up a hygiene plan
- be capable of setting up a quality department, with knowledge of the company's products, their processes and their specific technological features, and with a command of the legislative and regulatory aspects
- be capable of understanding the different manufacturing processes for the main food production sectors (animal and vegetable products)
- be able to implement the HACCP approach where necessary and/or ensure that it is followed up
- be capable of implementing and validating analyses by establishing or complying with a sampling plan, using metrology and validating measuring instruments
- be capable of managing, communicating, training and working as part of a team by mastering written and oral communication techniques in French and English, by setting up appropriate training modules and following them up.

## 7- Development Prospects and Employability



Regional and national presence of an industry linked to food production (public and private companies: private and public dairies, sheep and cattle breeders, poultry companies in full expansion, etc.); The skills acquired on completion of the course enable graduates to:

- Continuation of studies (academic or professional Masters) in Microbiology or in the fields of health, agronomy, bio-industry. where the role of hygiene and food safety is preponderant in the approach to problems.
- Direct entry into working life: Hospital or private medical analysis laboratories, where you will be able to play an effective part in various diagnostic and risk management activities. It will also be very useful in the field of pharmaceutical biosafety for controlling medicines (SAIDAL, etc.), at ADE or SEOR level for controlling water resources,
- management in local authorities at the level of hygiene and safety departments, fraud departments, in the agri-food sectors (canning factories, beverages, ERIAD, confectionery, ice cream, meat and derivatives, etc.).
- Regional and national industrial fabrics developed and in full expansion (public and private companies using packaging);
- Opportunities for future graduates to set up their own business under government support and assistance programmes (ANSEJ, CNAC, and other investment loans, etc.).

## 8- Organisation of the Semesters Teaching

**Modules taught in semester 5 :** analysis techniques, validation of analytical methods, statistics for quality, food microbiology , tracability, ISO IEC 17025

**Modules taught in semester 6:** HACCP, ISO 22000, ISO 9001, project management, ISO 19011



## Branch: Marine and Continental Hydrobiology

### 1-Identification of the Education Offer

**Level:** Master

**Field :** Natural Sciences

**Branch :** Marine and Continental Hydrobiology

**Speciality :** Marine sciences

### 2-Educational Establishment :

**Faculty/Institute:** Faculty of Natural and Life Sciences and Earth and Universe Sciences

**Department:** Ecology and environment

### 3-External partners

#### Algerian Academic partners:

University of Oran

#### Companies and other socio-economic partners:

Fishing school of BENISAF

Directorate of Fisheries and Fisheries Resources of Tlemcen

Chamber of fishing of Ghazaouet – Wilaya of Tlemcen

#### International partners :

Université Abou Bekr Belkaïd Tlemcen  
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Spanish Institute of Oceanography of A Coruña – Spain

Faculty of Sciences of Bizerte - University of Carthage – Tunisia

## 4-Context and objectives of the training:

The training in Marine Biology and Aquatic Farming aims to train students in the perspective of responsible fishing, sustainable aquaculture, integrated management of coastal zones and aquatic, continental and marine environments, and optimal use of the production of these media.

This is a training multidisciplinary which aims to provide the necessary bases for understanding:

- The dynamics of living aquatic resources in all environments concerned (marine, coastal, estuarine and freshwater environments),
- The functioning of farming systems (fisheries and aquaculture), from upstream to the downstream of the sectors.

## 5-Facilities, Equipment and Laboratoires

Zoology Laboratory

Laboratory: Valorization of human actions for the protection of Environment and Public Health Application.

## 6-Profiles and Competencies Targeted

- Offering leading higher education programmes in the field marine science and studies to meet community needs concerning the various marine organizations.
- Train public and private sector employees in the fields of the sea.
- Conduct quality methodological scientific research, integrated with observation and simulation techniques (modelling) and encourage Research and development in the fields of science and studies Marine.
- Follow an effective methodology to discover marine resources to support the national economy.
- Establish collaborative relationships with regional and in the fields of education and research.



-Establish national and international collaborative relationships in the field improving fishing and aquaculture techniques.

- Stay informed of technological advances.

-Prepare and edit awareness-raising publications.

-Define marine protection programs that would serve the community.

## 7-Development Prospects and Employability

Training of young Algerian executives graduated and specialized in marine sciences, for better management and management of fisheries and future aquaculture farms, or then the creation of their own fisheries, aquaculture or office enterprises specialized expertise.

## 8-Organisation of the Semesters Teaching

Semestre1:

- Population biology Aquatic
- Ecology of marine systems
- Ecophysiology of organisms Marine
- Data processing Biological
- Introduction to Marine Chemistry
- Issues and problems of Marine and coastal sciences
- English

Semestre2:

- Introduction to the ecosystem Marine, to the resources Fisheries and aquaculture
- Population dynamics Exploited
- Fundamental economics and factors of production in Fishing matters
- Physical oceanography
- Introduction to research bibliographic
- Introduction to writing scientist
- English
- Entrepreneurship and management project

Semestre3:



- Trade and processing fishery products
- Elementary biology of bivalves, Operation hatchery: algae culture
- Statistical analysis and Using data
- Maritime law and dimension Sociocultural
- Resource Management Exploited
- Legislation

Semestre4:

Internship in a company sanctioned by a thesis and a defense

**Branch: Ecology and Environments**



## 1-Identification of the Education Offer

**Level:** Biological Sciences

**Field:** Natural and Life Sciences.

**Branch :**Ecology and environment

**Speciality :**plant ecology and environment

## 2-Educational Establishment :

**Faculty/Institute:**Faculty of Natural and Life Sciences and Earth and Universe Sciences

**Department:**Ecology and environment

## 3-External partners

**Algerian Academic partners:**University of Sidi belabes;University Center of Ain Témouchent

**Companies and other socio-economic partners:**

SAF-SAF NURSERY

SEAWATER DESALINATION PLANT (GHAZAOUET)

General Directorate of Forests;

national forest research institute

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المتواصل والشهادات

Tlemcen National Park

moutas hunting reserve -Tlemcen

International partners : /

## 4-Context and objectives of the training:

The "Plant Ecology and Environment" Master's aims to train scientists and professionals who are able to understand and resolve ecological problems on the basis of a good knowledge of the evolution of plants, the interactions between them and the interactions between plants and their environment.

- 1- Ecology and Environment,
- 2- Ecology, Management and Conservation of Biodiversity.

## 5-Facilities, Equipment and Laboratoires

Title of the laboratory: Laboratory of Ecology and Management of Natural Ecosystems

Equipment title:

- DENSIMETER
- BERNARD'S CALCIMETER
- LABORATORY PHMETER
- FIELD PH METER
- PRECISION SCALE
- JEDHAL APPARATUS
- DISTILLER
- UNIVERSAL OVEN
- CONDUCTIVIMETER
- TIMER
- CENTRIFUGE
- THERMOMETER



- MUFFLE FURNACE
- COLORIMETER
- BALL HEATER
- SOIL FERTILITY KIT
- SPECTROPHOTOMETER
- SIEVE
- AUGERS

## 6-Profiles and Competencies Targeted

The field of ecology is changing and requires knowledge of tools and recent concepts that are familiar to the teacher-researchers and researchers of the team pedagogical as well as professional speakers from the Ecology and Environment. At the end of the training, students should have integrated these tools modern and new concepts but also the experimental methods and modeling necessary for professions relating to all the components of Ecology (functional and applied...). They will be able to analyze and critique the results recent scientists in this discipline with a view to later exploitation within the framework of a thesis work or an application and a transfer of these results in the field expertise and management of plant biodiversity.

## 7-Development Prospects and Employability

The specialty "Plant Ecology and Environment" trains students for entryin doctoral training in all sectors of ecology (researchfundamental and applied research in the management of living resources andecosystems, conservation biology or agriculture); specialists andconfirmed and competitive experts able to start a professional career in theareas where excellent training in all aspects of ecology is required: fromfrom the study and conservation of biodiversity to ecological engineering. The mix of research paths will be reinforced by links with various organizations (ONCFS,Protected areas and UNESCO MAB programme).



## 8-Organisation of the Semesters Teaching

The supervision team composed of different grades will be able to supervise 30 students.

- Number of students enrolled in L3 Ecology and Environment.
- Satisfaction rate.
- Recruitment possibilities in several sectors in the field of the environment and possibilities of free trades (opening of design offices and companies).
- Presence of human scientific potential at national, regional and local level capable of supervision.
- The regional environment conducive to ecological studies (coastline, forest, highlands, Sahara, etc.).
- Existence of several research laboratories at faculty level in the field of the environment.

## 1-Identification of the Education Offer

Level: Master

Field : Natural Sciences

Branch : Ecology and Environment

Speciality : Industrial and Environmental Toxicology

## 2-Educational Establishment :

Faculty/Institute: Snv stu

Department: Ecology

## 3-External partners



### National Partners:

- TOXIMED Laboratory, Faculty of Medicine, Abu Bekr Belkaid University
- Occupational Medicine Department, Tlemcen CHU .

### -Businesses:

INATEL
ENTC groupe
Alzinc Ghazaouet

### - International partners:

Lille 2 University, Toxicology Laboratory EA 4483

## 4-Context and objectives of the training:

Training objectives (skills targeted, pedagogical knowledge acquired at the end of the training - maximum 20 lines)

This training at Master's level will benefit from the existing structures at the TOXIMED research laboratory as well as at the research laboratory on industrial and environmental toxins, our partner in the cooperation program with the Catholic University of Louvain in Brussels and Lille 2. The teams involved include three professors, five lecturers and two assistant lecturers. In addition to speakers from UCL and the EA 4483 laboratory (see agreement on page 59).

This Master's program is made in the spirit of innovation in the choice of training and research themes to follow progress in the life and living sciences. It takes into account new data emerging more and more and with strength in improving the quality of life, progress in the field of health and the environment. The health crises of recent



years, Chernobyl, asbestos, dioxin, magnetic fields, Erika, heat wave, have clearly highlighted the close relationship between man and his environment and the sometimes dramatic consequences of a poor assessment of dangers and risks. sanitary. Moreover, the development of new technologies and innovations in the fields of industry and research mean that new substances are constantly being generated and the question of the effects of environments on health is a major concern. This has also resulted in the creation of two government agencies in recent years: the French food safety agency (AFSSA) and the French environmental and occupational health safety agency (AFSSET) and, at European level , by the REACH Directive for the evaluation of 30,000 chemical molecules. Algeria, for its part, is very lacking in high-level experts in these fields where research is still insufficiently developed. Thus, this master intends to train in:

The study of human exposure to environmental pollutants (air pollutants, contaminants in water and food, pollutants in the professional environment)  
§ the understanding of their mechanisms of action, the knowledge of their health impacts at the level of pathologies and on populations by providing the bases of environmental epidemiology

It offers training that takes into account current toxicology and safety concerns (air and water quality, toxicological safety of foodstuffs, safety of professional environments), in order to meet health challenges. of man, while respecting his environment

This program is therefore made with the aim of carrying out research at an international level but also to meet the needs of the country since it leads to concrete applications related to health, industry and the environment.

## 5-Facilities, Equipment and Laboratoires

Biochemistry Laboratory

-Biochemistry laboratory (Lab 01 and 02)  
A-3 Microbiology Laboratory



-Microbiology laboratory (Lab 0 and Lab 02)

A-4 Quality Control and Analysis Laboratory

-Quality Control and Analysis Laboratory (Lab 01)

A-5 Physiology Laboratory

-Animal Physiology Laboratory (lab 01 and 02)

A-6 - Chemistry Laboratory

## 6-Profiles and Competencies Targeted

### Targeted business profiles and skills

Thanks to this multidisciplinary training, the graduate will have solid scientific knowledge on the cellular and molecular mechanisms of action of environmental pollutants and their physio-pathological consequences, on the modes of exposure according to the environments considered (general and professional) and good basics in epidemiology and health risk assessment.

This modular teaching is mainly aimed at students wishing to quickly integrate into a professional environment. ) as well as actors from the professional world to give them skills in different areas of toxicology:

- the practice of analyzing xenobiotics and their transformation products, allowing them to draw up a precise assessment of the state of pollution, their modes of toxic action and their effects.
- the evaluation of these effects in natural or professional environments and their consequences for humans and natural balances, by biological, analytical and epidemiological methods, with the aim of establishing dose-effect relationships for a better understanding of the chemical or physical hazard.
- the establishment of structures for the control and evaluation of the dangerousness

## 7-Development Prospects and Employability

Regional and national employability potential of graduates



## Opportunities

### SECTORS

Basic research, research and development, clinical research, quality control, environmental control, occupational health and safety services.-

- Agencies and public institutes such as IRSN (Institute for Radiation Protection and Nuclear Safety), universities-
- Pharmaceutical, chemical and food industry (occupational doctors and safety engineers)-
- Design offices specializing in the regulation of chemicals, occupational safety and prevention of occupational risks-
- Local communities.

### TYPES OF JOBS ACCESSIBLE

Design engineer, research engineer, engineer in charge of studies in public agencies and institutes, toxicologist, safety engineer, research and development project manager, study project manager.

After a doctorate, researcher (fundamental research or applied research), teacher-researcher.

After medical studies, additional education in occupational medicine, teacher-researcher/hospital practitioner.

## 8-Organisation of the SemestersTeaching

**Modules taught in semester1:** Industrial and Environmental Pollutants Monograph 1, Experimental toxicology for human risk assessment and introduction to general toxicology, Physiology of major functions, Metabolism of xenobiotics, Applied epidemiology in the occupational and peri-industrial environment, Scientific English , Communication

**Modules taught in semester2:** Industrial and Environmental Pollutants Monograph 2, Food toxicology, Forensic toxicology and environmental chemistry, Quality Environment and Safety, Source of contamination in the environment and routes of entry of xenobiotics into humans, Scientific English , legislation

الجمهورية الجزائرية الديمقراطية الشعبية  
République Algérienne Démocratique Et Populaire

وزارة التعليم العالي والبحث العلمي  
Ministère De L'enseignement Supérieur Et De La Recherche Scientifique

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**Modules taught in semester 3 :** Ecotoxicology, Analytical Toxicology , Toxicovigilance, Hygiene and Safety in the laboratory , Clinical cases Carcinogenesis and tumor pathologies , Critical reading of articles, Entrepreneurship

Internship in a company sanctioned by a dissertation and a defence.

	VHS	Coeff	Crédits
Total Semester 4	600	10	20
Personal work	175	07	10
Company internship			
Seminars			
Other (field trips)			
Total Semester 4	750	17	30



## 1- Identification of the Education Offer

**Level**: Biological Sciences

**Field**: Natural and Life Sciences

**Branch** : Ecology and Environment

**Speciality** : Ecology

## 2- Educational Establishment :

**Faculty/Institute**: Natural and Life Sciences, and Earth and Universe Sciences

**Department**: Ecology and Environment

## 3- External partners

**Algerian Academic partners**: University of Saida, Faculty of Sciences Department of Biology;

University Center of Ain Témouchent

**Companies and other socio-economic partners**: General Directorate of Forests; national forest research institute ; Tlemcen National Park

**International partners** : //

## 4- Context and objectives of the training:

All licenses with an ecological profile and even certain licenses with a forest profile, in particular:

- 1- Ecology and Environment,
- 2- Ecology, Management and Conservation of Biodiversity.



## 5- Facilities, Equipment and Laboratoires

The ecology training carries out its research activities under the supervision of the Ecology and Management of Natural Ecosystems Laboratory No. 13.

This Master in Ecology has been developed in harmony with the current proposals for training courses that affect the environment.

Its objective is to give students a solid and balanced foundation and to provide them with supplements in direct contact with the evolution of Geni-ecology, science and technology.

This training will:

Take stock of the main trends and the main conceptual options of modern ecology, while placing oneself in the historical continuum of this circum-Mediterranean discipline.

Acquire broad knowledge of climatic, ecological and phytogeographical changes in environments; that have taken place over the last two million years through an interdisciplinary approach.

Analyze the organization patterns and control factors of terrestrial and aquatical biodiversity by focusing on Mediterranean models.

Give importance to the knowledge of the phenomena governing the cycles of matter in the different components of Mediterranean ecosystems.

## 6- Profiles and Competencies Targeted

The graduate of the Specialty Master: **ECOLOGY** is versatile and has a multidisciplinary scientific culture. In addition, he is able to manage group projects and in a given time, has a great autonomy of work and a strong capacity for synthesis. General skills include:

- \* Produce data and develop studies as a team.



\* Carry out a bibliographical search and an exhaustive technological watch, using the appropriate research tools, and restore this information by explaining its relevance.

\* Carry out a scientific study, with a view to an evaluation, a development, a design, an application, with a view to testing or developing a model:

\* Pose a problem taking into account the context and the objectives, build and develop an argument, carry out the action, interpret the results, draw up a summary, evaluate the action and propose extensions.

\* Communicate: write clearly, prepare communication media using various techniques (report, slide show, summary note, poster, etc.), and comment on them for an audience, informed or not, in French and in English.

\* Respect scientific ethics in all circumstances, based on the ethical principles traditionally developed in the university setting.

\* Master the professional context.

## 7- Development Prospects and Employability

\* Activity area :

Education,

Research,

Environment,

Ecology,

Agriculture,

Forest.

\* Accessible trades

Executive in charge of scientific studies, environmental consultant.

Technical framework for studies and development in the Environment.

Eco-advisor, environmental manager.



Forest setting.

Environmental studies offices.

Construction companies in the field of the environment and green spaces.

Local Development Advisor.

Scientific communication officer, scientific animator.

School teacher, Ministry of National Education (on competition), trainer in the sector

## 8- Organisation of the Semesters Teaching

The supervision team composed of different grades will be able to supervise 30 students.

- Number of students enrolled in L3 Ecology and Environment.
- Satisfaction rate.
- Recruitment possibilities in several sectors in the field of the environment and possibilities of free trades (opening of design offices and companies).
- Presence of human scientific potential at national, regional and local level capable of supervision.
- The regional environment conducive to ecological studies (coastline, forest, highlands, Sahara, etc.).
- Existence of several research laboratories at faculty level in the field of the environment.

## 1-Identification of the Education Offer

Level : Master

Field :Biology

Branch : Ecology and Environment

Speciality : Animal Ecology



## 2-Educational Establishment :

**Faculty/Institute:**Sciences of Nature and Life, Earth and Universe

**Department:**Ecology and Environment

## 3-External partners

**Algerian Academic partners:**

**Companies and other socio-economic partners:**

**International partners :**

## 4-Context and objectives of the training:

Acquire a training allowing access to a good level of academic knowledge in research but also in a perspective of professional integration

The Animal Ecology specialty offers to train students who will work in ecology in rural and urban areas, in eco-toxicology, in management and conservation of wildlife in the context of environmental bio-monitoring. Its objective is to acquire a broad and multidisciplinary basic training in the tools and scientific technical allowing apprehending the problems of the environment. At the end of this master's degree, students will be able to apply for positions dealing with environmental issues.



## 5-Facilities, Equipment and Laboratoires

- **Master's support research laboratory: Valorization of human actions for the protection of the environment and application in public health.**
- **Pedagogic laboratories of the faculty**
- **Personal workspaces:**
  - o **Library of the faculty**
  - o **University Library**
  - o **Internet center**
  - o **Computing center**
  - o **Classrooms equipped with internet network and data-show**

## 6-Profiles and Competencies Targeted

At the end of this master's course, students are able to:

- Master the main basic concepts of the analyzes of physic-chemical factors and biology related to the environment;
- master the fundamental principles in terms of environmental risks and treatment of pollutants and energy transfer;
- make the link between environmental conditions, biodiversity and the biology of populations and communities;
- Acquire general knowledge of the interactions between the different environmental spheres.



- Identify, measure and assess the importance of the impact of pollutants on the environment and more specifically on the wildlife component.
- Mastery the techniques of building a written scientific report and a presentation oral, convincing and persuasive aimed at regional political bodies (APW and APC) but also environmental management bodies such as certain large industrial groups with the aim of raising awareness in terms of management environmental.

## 7-Development Prospects and Employability

- Responsible for studies in the management of faunal diversity according to the differentiations of environments = National parks, forest department, agriculture department, fisheries, hunting reserve, hunting center, INRF, INPV,
- Environmental agent and adviser on environmental matters in sectors manufacturers, companies with an "environment" department (agro-food, automotive, surface treatments, printing, etc.)
- Project manager for the implementation of a backup program and wildlife protection by local authorities (Environment Department, APC)
- Responsible for environmental impact studies of development projects and of urbanization (ANAT, URBAT, private sectors)
- Design offices responsible for carrying out environmental studies.



- Possibility of continuing studies for the preparation of a doctorate in the same speciality

## 8-Organisation of the Semesters Teaching

### Semester 1:

- Fundamental unit 1 :
  - Characterization of ecosystems mediterranean
  - Biology of conservation
- Fundamental unit 2 :
  - Biodiversity and reign animal
  - Ecology of populations
- Methodological unit :
  - Bio systematic
  - Sampling and digital ecology
- Discovery unit :
  - Molecular biology and evolution
- Transverse unit :
  - Communication

### Semester 2:



- **Fundamental unit 1 :**

- **Ecology of animal communities**
- **Dysfunction communities and ecosystems**

- **Fundamental unit 2 :**

- **Adaptive strategy**
- **Biology of interaction**

- **Methodological unit :**

- **Bio staistical**
- **Physic-chimical analysis**

- **Discovery unit :**

- **Protection of wildlife and the environment**

- **Transverse unit :**

- **Legislation**

**Semester 3:**

- **Fundamental unit 1 :**

- **Eco-toxicology**
- **Nature et sources de pollutions**

- **Fundamental unit 2 :**

- **Bio climates and climatic changes**
- **Landscape ecology**

- **Methodological unit :**

Université Abou Bekr Belkaïd Tlemcen  
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جامعة أبو بكر بلقايد تلمسان

نيابة مديرية الجامعة

للتقويم العالي في الترجم والتقويم

المتواصل والشهادات

- Biomonitoring and bioevaluation
- Interactive cartography
- Discovery unit :
  - Scientist english
- Transverse unit :
  - Entrepreneurship and project management