



Instruction descriptive form

Domain: Natural and Life Sciences

Branch: biotechnology

Specialty : Plant biotechnology

Cycle: Master

Type: Academic

Attachment structure: Faculty of Natural and Life Sciences, Department of Agronomy

1. Context and objective of the training

Conditions of access

The teaching is organized in such a way as to allow the integration of students at the different levels of the specialization.

Access to the 1st year of the Master (M1).

To be holder of a degree in biology (plant sciences) from Algerian universities or to have an equivalence, delivered by a pedagogical commission on presentation of titles and works.

Access to the 2nd year of the master (M2).

To be holder of the master M1 plant biotechnology and/or plant improvement from Algerian universities or to have an equivalence, delivered by a pedagogical commission on presentation of titles and works.

Thus, the candidates are not obliged to follow the first year in our university but they must have an equivalence in the field of speciality

Objectives

The Master in Plant Biotechnology is an integrated multidisciplinary approach directly linked to the realities of scientific and socio-economic research. It is a Master's degree that covers two tracks, the first will focus on the means of understanding in an integrated manner the plant sciences and their agronomic, biotechnological and agri-food applications. The second will provide students with knowledge on plant improvement, selection methods and the creation of genetic variability aimed at the conservation and improvement of plant genetic resources in a

region like ours (with an agropastoral vocation and characterized by an arid to semi-arid climate).

This training is an essential prerequisite for access to the research and development sector. Faced with the economic and societal challenges and the evolution of agriculture, the aim is to prepare competent executives capable of mastering the means and challenges of plant production and defining priorities in terms of investigation and innovation in relation to the objectives of sustainability, competitiveness and quality. Through its integrated approach, the Plant Biotechnology Master's degree will enable the acquisition of recent knowledge on the organization, functioning and functionalities of the plant, the stand and the agrosystem and on the mechanisms of production quality. These training objectives will largely take into account the constraints imposed by the environment (climate change, urbanism, desertification, etc.) and sustainable development, in particular those related to the need to preserve our environment and to satisfy our growing needs in terms of plant and food production.

2. Profiles and skills targeted

To train researchers and managers to meet the expectations of the agriculture and agri-food industry of the 21st century by integrating the importance of biotechnologies and the strategic issues of innovation. Particular attention is given to natural substances of medicinal and agri-food interest.

The Plant Biotechnology master's degree is aimed at students who wish to acquire training in the classical disciplines of Genetics and Molecular Biology as well as in the more recent ones concerning the mastery of modern techniques of Molecular and Cellular Biology (genomics, proteomics, etc).

This master's degree therefore trains competent executives in plant improvement, genomics, genetics and plant physiology, capable of supporting the research dynamics in the Science and Production sector (Agro-food, Pharmaceuticals, Cosmetics, etc.).

3. Regional and national employability potential

- Fundamental knowledge in plant sciences and its environment,
- Mastery of molecular and biotechnological tools in plant knowledge (cloning, sequencing, quantitative PCR, electrophoresis), which opens the way to employability in medical analysis and scientific research laboratories such as the CRBT.

4. Gateways to other specialties

The first year of this master's degree is an upgrade and a gateway to different specialties such as:

- Plant improvement
- Agronomic sciences
- Molecular genetics
- Genomics and plant production

5. Training Partners

- Other academic institutions:

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

- companies and other socio-economic partners:

- SAGRODEV- Sétif
- Laboratory of LACIPGroup Ain m'lila
- ITGC - Khroub
- CRBT constantine
- Forest conservation in the wilaya of Khenchela (field trips, practical training and co-supervision)
- The direction of agricultural services (D.S.A) in the wilaya of Khenchela (reception of student trainees, co-supervision, installation of tests in pilot farms, supply of biological material "sample")
- Public and private quality control laboratories (co-supervision, practical training)
- Nursery El-ssafa Kais
- CCLS Khroub
- ITCMI Oum-Elbouagui

6. Semester organization of lessons

Semester 01 :

Teaching Unit	HVW	HV weekly				Coeff.	Crédits	Evaluation mode	
	14-16 Weem.	C	DW	PW	Others			Continu	Exam
TU fondamentale									
TUF1									
Molecular genetic	45h	1h30	1h30	-	55h	02	04	33%	67%
quantitative genetic	45h	1h30	1h30	-	55h	02	04	33%	67%
TUF2									
Biology of plant developement	67h30	1h30	1h30	1h30	82h30	03	06	40%	60%
Plant biodiversity	45h	1h30	-	1h30	55h	02	04	33%	67%
TU méthodology									
TUM1									
Biostatistics	60h	1h30	1h30	1h	65h	03	05	40%	60%
Modeling applied to plant biology	45h	1h30	1h30	-	55h	02	04	33%	67%
TU discovery									
TUD1									
Phytochemistry and Industrial Use of Plant Productions	45h	1h30	1h30	-	05h	02	02	33%	67%
TU transversal									
TUT									
Communication	22h30	1h30	-	-	2h30	01	01	25%	75%
Total Semester 1	375h				375h	17	30		

Semester 02 :

Teaching Unit	HVW	HV weekly				Coeff.	Crédits 14-16 Weem.	Evaluation mode	
	14-16 Weem.	C	DW	PW	Others			C	DW
TU fondamentale									
TUF1									
Structure and use of plant genomes in plant breeding	67h30	1h30	1h30	1h30	82.30h	03	06	40%	60%
Cytogénétic	67h30	1h30	1h30	1h30	82.30h	03	06	40%	60%
TUF1									
Plant-Environment-Microorganism Interactions	67h30	1h30	1h30	1h30	82.30h	03	06	40%	60%
TU méthodology									
TUM1									
Methodology of plant breeding	60h	1h30	01h3	1h	65h	03	05	40%	60%
systematic Botany	45h	1h30	-	1h30	55h	02	04	33%	67%
TU discovery									
TUD1									
Plant pathology and plant protection	45h	1h30	-	1h30	05h	02	02	33%	67%
TU transversale									
TUT1									
Legislation	22h30	1h30	-	-	2h30	01	01	25%	75%
Total Semester 2	375h				375h	17	30		

Semester 03 :

Teaching Unit	HVW	HV weekly				Coeff.	Crédits 14-16 Weem.	Evaluation mode	
	14-16 Weem.	C	DW	PW	Others			C	DW
TU fondamentale									
TUF1									
Functional approach to the study of genomes	67h30	1h30	1h30	1h30	82h30	03	06	40%	60%
Plant transgenesis	67h30	1h30	1h30	1h30	82h30	03	06	40%	60%
TUF2									
Plant biotechnology	67h30	1h30	1h30	1h30	82h30	03	06	40%	60%
TU methodology									
TUM1									
Methodological approaches in molecular biology	60h	1h30	01h	1h30	65h	03	05	40%	60%
Bioinformatics	45h	1h30	-	1h30	55h	02	04	33%	67%
TU discovery									
TUD1									
Business knowledge and economics	45h	1h30	1h30	-	05h	02	02	33%	67%
TU transversale									
TUT1									
Entrepreneurship	22h30	1h30	-	-	2h30	01	01	25%	75%
Total Semester 2	375h				375h	17	30		

7. Evaluation method

The evaluation will be based on a continuous assessment plus a final exam whose weighting is mentioned in the tables of each semester