



People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
Sétif 1 University – Ferhat Abbas

Faculty of Sciences

Master's Degree in Environmental Chemistry

Presentation and Objectives of the Specialty:

- The Master's program in Environmental Chemistry aims to train students capable of identifying pollutants in water, air, or soil, understanding their effects on the environment and human health, knowing the methods to diagnose and quantify the risks associated with these pollutants, this program will enable students to acquire multidisciplinary scientific knowledge in the field of chemistry applied to environmental protection. Its main objectives are as follows:
- Providing students with training in various methods and techniques of physicochemical
- Developing skills in the treatment and/or valorization of various types of industrial waste

Admission requirements:

This Master's degree is aimed at all students who have completed a bachelor's degree in general chemistry, a bachelor's degree in physical chemistry or a bachelor's degree in environmental chemistry. chemistry, physical chemistry and environmental chemistry, wishing to acquire a solid foundation in environmental chemistry, both experimentally and theoretically.

Career Prospects/Professions:

- ❖ Professions targeted on completion of the Master's degree:

Manager in private companies or academic structures (research establishments/organizations), local and regional authorities, design and engineering offices.

- ❖ Sectors: Chemical industry - Pharmaceutical industry - Cosmetics industry - Biotechnology industry - Food industry - Nuclear industry - Scientific police.
- ❖ Further studies: Preparation of a doctoral thesis in the field of analytical sciences.

Organization of Studies and Official Duration of the Program:

Program Overview:

Semester 1:

- Thermodynamics and Kinetics
- Introduction to Spectroscopy
- Green Chemistry
- Statistical Methods
- Organic Chemistry
- PW: Analytical Chemistry
- PW: Synthesis
- standards Management

Semester 2:

- Separative method and SM
- Structural determination
- Homogeneous catalysis
- Waste Management
- PW ; Electrochemistry
- System Pollution

Semester 3:

- Spectroscopic analysis of surfaces:
- Radiochemical and radio analytical methods
- Chemistry of water, air and soil pollution
- Environmental sampling analysis techniques
- Management of Pollutants and Risks: Diagnostics of Polluted Sites and Soils 1 and 2
- PW: Analytical Chemistry Applied to the Environment
- PW : Heterogeneous Catalysis Lab

Semester 4:

- Master Project / Stage

Curriculum Highlights:

The main objective of this specialization is to ensure the acquisition of fundamental knowledge and skills in the field of environmental chemistry.

Ultimately, students will be able to:

- Design, monitor, and operate conventional treatment systems for effluents or soil remediation.
- Analyze industrial risks within a company and provide the necessary recommendations and guidelines for risk prevention.
- Manage waste at the level of a company or a local authority.

Training Canvas:

- Kinetics and Thermodynamics
- Spectroscopy (Introduction)
- Green Chemistry
- Organic Chemistry
- Synthesis Laboratory
- Statistical Methods
- Separation Techniques & SM
- Structural Determination
- Homogeneous Catalysis and Environment
- Electrochemistry Laboratory

Advanced training modules:

- Waste Management
- Analytical Chemistry Lab
- System Pollution
- Chemistry of Water, Air, and Soil Pollution
- Environmental Sampling and Analysis Techniques
- Management of Pollutants and Risks: Diagnostics of Polluted Sites and Soils 1 and 2
- Analytical Chemistry Lab Applied to the Environment
- Heterogeneous Catalysis Lab

Language of instruction:

French and English

Training framework:

The tables provided in the previous section "Program Overview"

Coordinator of the Program: Dr. Samira Maane

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Admission Information:

The current application of Articles 171 and 1023 of Decrees:

☐ Skills and knowledge acquisition are assessed every six months through continuous assessment and a final exam.

☐ Progress from the first to the second year is automatic if the student has completed the first two semesters of the training program.

The student's assessment focuses on, depending on the training program: lectures, practical work, tutorials, and practical internships.