

University of Mouloud Mammeri Tizi-Ouzou



Field: science of matter
Discipline: chemistry
Academic master's Degree
Environmental Chemistry

Objective

The various aspects of sustainable development are reaching all sectors (economic, political, cultural, or scientific) of human activity, thus necessitating a profound change in the way knowledge is approached and taught. The Master's program in Environmental Chemistry aims to train scientists 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 substances, and developing alternative strategies to avoid or mitigate their effects, as well as speculating on appropriate methods of analysis and treatment.



This program will enable students to acquire multidisciplinary scientific knowledge in the field of chemistry applied to environmental protection, particularly in the areas of water treatment and air quality control. Its main objectives are as follows:

- Providing students with training in various methods and techniques of physicochemical and biological analysis.
- Implementing environmentally friendly processes.
- Deepening and consolidating students' knowledge in electrochemistry, specifically in the field of electrochemical protection and depollution.
- Developing skills in the treatment and/or valorization of various types of industrial waste (compliance with air emissions, treatment of industrial wastewater, inerting and storage of hazardous waste, etc.).
- Providing knowledge in the field of fluid mechanics, heat and mass transfer, industrial reactors, and their operation, in addition to understanding key environmental regulations.
- Enhancing students' knowledge in catalysis, surface chemistry, and computational chemistry.



Profiles and Targeted Skills

A student holding a Master's degree in Environmental Chemistry can pursue a career in academic research after successfully passing the doctoral entrance examination or enter the professional world. The holder of this degree will be capable of undertaking the following tasks:

- Conducting technical studies for the decontamination of water, air, and soil.
- Managing, treating, and valorizing all categories of waste.
- Designing and synthesizing molecules or implementing alternatives in the context of sustainable chemistry.
- Utilizing analytical techniques and developing analytical protocols suitable for any compound and matrix.
- Preventing air quality issues and making decisions in case of alarm situations.



Potentialités régionales et nationales d'employabilité

Les diplômés du Master Chimie de l'Environnement pourront intégrer toute entreprise, laboratoire, bureau d'études, collectivités locales et territoriales ou centre de recherches relevant du domaine de la chimie et/ou de l'environnement. Plusieurs branches professionnelles sont concernées : Chimie, Plasturgie, Analyse environnementale, Contrôle de qualité, Réseaux de surveillance de la qualité de l'air, Métallurgie, Industrie agroalimentaire, Secteur énergétique, Eau et assainissement, Stations d'épurations, Enfouissement technique, Collecte et gestion des déchets et Enseignement (moyen et secondaire).

Regional and National Employment Opportunities

Graduates of the Master's program in Environmental Chemistry can find employment in a wide range of organizations, including companies, laboratories, consulting firms, local and regional authorities, and research centers in the field of chemistry and/or the environment. Several professional sectors are concerned, including:

- Chemistry
- Plastics industry
- Environmental analysis
- Quality control
- Air quality monitoring networks
- Metallurgy
- Food industry
- Energy sector
- Water and sanitation
- Wastewater treatment plants
- Landfills
- Waste collection and management
- Education (middle and high school)