

MASTER CHEMISTRY AND LIFE SCIENCES

IN BRIEF

Type of diploma : Master degree
Ministry field : Science and Technology
Mention : Chimie et Sciences du Vivant

PRESENTATION

Environmental protection and sustainable development have become societal major issues. It is now also acknowledged that we must take advantage of our expertise in physico-chemistry and microbiology to identify, assess and manage the anthropogenic contamination of air, water, soils and waste. This program trains multidisciplinary managers who will be able to offer and implement solutions to solve environmental problems.

The Chemistry and Life Sciences program aims at training specialists able to analyze, manage and process environmental issues. The program offers common core courses which train students in both Chemistry and Life sciences as related to the environment.

The Chemistry and Life Sciences program trains managers in the field of environment. Job prospects are the following:

- * Research engineer
- * Environmental engineer
- * Research and Innovation engineer

The Chemistry and Life Sciences is a 2-years course. It offers 4 "parcours". The "parcours CMCEI" is opened only for the second year and all courses are taught in English.

ORGANIZATION

- M2 Chemical and microbiological characterization for environmental issues (CMCEI)

ORGANIZATIONAL UNIT

Collège Sciences et Technologies pour l'Énergie et l'Environnement (STEE)

MORE INFO

ECTS credits : 120

Duration : 2 years

Level : Master degree level

Kind of education : Degrees

Education language : French and English

Internship : Mandatory

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M2 Chemical and microbiological characterization for environmental issues (CMCEI)

PRESENTATION

« Applications are open from December 2018 to April 2019 from <https://aap.e2s.univ-pau.fr/siaap/pub/appel/view/5>

Strongly increasing societal demand in the fields of Environment, Sustainable Development and Health, implies a synergy of advanced skills in Chemistry and Biology Sciences. In order to be able to effectively respond to this demand and to implement innovative solutions providing efficient answers to these requests, it is essential to perfectly understand the interaction of contaminants with living organisms and particularly their structures, properties, reactivities/activities in natural ecosystems. The “Chemical and Microbiological Characterization for Environmental Issues” (CMCEI) second year course of the Master in Chemistry and Life Sciences aims to train specialists with knowledge of the most recent advances in analytical chemistry, physico-chemistry, molecular biology and environmental microbiology.

OBJECTIVES

Entirely taught in English, the first semester is devoted to the knowledge of contaminants cycles and to the application of different techniques for the analysis of chemical elements and species of interest in various compartments of environment, the identification of microorganisms presenting a risk for environment or public health, but also quality assurance, critical evaluation of scientific publications and /or technical documentation.

The second semester consists of a six-month research internship in the field of chemical and/or biological analysis applied to the environment in IPREM teams.

MORE INFO

ECTS credits : 60

Type of education

- * Initial training
- * Ongoing training
- * Foreign students

Number of students : 20

Internship : Mandatory (6 months)

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The course is mainly taught through project-based scenarios. This helps students understand scientific approach in research. It also make them put into practice various techniques and reflect further on their professional project.

SKILLS

At the end of this program, the students in the «**Chemical and Microbiological Characterization for Environmental Issues Master**» will be able to:

- * Show expertise in modern techniques in chemistry, molecular biology and microbiology
- * Synthesize technical and research documentations to produce a technical study
- * Plan and define a research or R&D project in analytical chemistry, molecular biology, microbiology or environmental survey
- * Manage and carry out a project
- * Manage field experiments to estimate the efficiency of chemical or biological methods for the protection of the ecosystems
- * Interpret and validate results of chemical and biological analysis
- * Produce summary report describing the experiments done, the applied methods used and the results obtained

ADDITIONAL INFORMATION

[International Welcome Desk](#)

TRAINING CONTENT

SEMESTER 1	ECTS
Trace elements in the environment	
Trace elements biogeochemical cycles	2
Speciation concepts and analysis	2
Advanced analytical chemistry	

Advanced separation techniques	2
Advanced spectrometric techniques coupling	2
Electrochemical sensors	2
Biological macromolecules characterization	2
Organic contaminants analysis	2
Statistical tools, chemometrics and quality	
Analytical methods performances evaluation	2
Quality Assurance for Analysis	2
Statistical tools project	4
Microbiology and molecular biology for Environmental applications	
Microbial biotransformations and environmental applications: project	4
Microbial biotransformations and environmental applications : conferences	2
Molecular biology, Technological applications	6
Research tools and applications	
Scientific papers and documentation critical evaluation	2
Environmental Project	4

Language	
French as a Foreign language	2
SEMESTER 2	
Internship in academic or industrial research project	30

ACCESS CONDITIONS



Applications are open from December to April from <https://aap-e2s.univ-pau.fr/siaap/pub/appel/view/5>

Applicants must hold at least a 4-year university level in chemistry and/or biology fields.

The **M2 CMCEI** is open to students who have completed an M1 (4-year degree) in "**Chemistry and Life sciences**" (SAVE), "**Molecular Biology and micro-biology for the environment**" (BME) or an equivalent level.

For students outside UPPA, integration in the second year is subjected to a selection on curricula with equivalent training level and with sufficient skills in biology, chemistry and environment (Molecular biology, bioinformatics, microbiology, environmental microbiology, ecotoxicology, biostatistics, field sampling and data processing, physico-chemistry, analytical chemistry, environment).

English Language requirements

Applicants must be fluent in English, both in writing and speaking. An applicant whose native language is not English has to take a recognized international English test.

Minimum required score: CECRL B2 level in English

French Language Requirements

None: French language courses are included in the formation.

For any additional information or questions related to application, please contact:

✉ florence.pannier@univ-pau.fr
or christine.cagnon@univ-pau.fr

PROFESSIONAL INSERTION

Sectors:

- * Environment
- * Agribusiness
- * Analytical chemistry
- * Chemical industries
- * Biotechnology

Fields:

- * Research and Development, quality control

Positions:

- * Academic positions
- * Researchers (public institutes or private companies)
- * Research and Innovation Engineers
- * PhD students

PLACES

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PERSON IN CHARGE

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