

People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research



Setif 1 University – Ferhat ABBAS
Faculty of Sciences



Master's Degree in Pharmaceutical Chemistry

Presentation and objectives of the speciality :

The Master's programme in Pharmaceutical Chemistry aims to train students to identify and synthesise organic compounds with therapeutic effects, and to understand their effects on human health. This programme will enable students to:

- To provide the students concerned with a solid grounding in organic chemistry, enabling them to acquire in-depth theoretical and practical knowledge of organic chemistry ;
- To provide the students concerned with specific training in the field of bioactive and/or pharmaceutical molecules, opening up gateways to biology and pharmacy ;
- To master the essential methods for analysing and determining the structures of organic molecules ;
- Learn as much as possible about phytochemical practices, both in terms of how natural substances are obtained and what to do about their structural identification. Students will also try to make the most of this part by carrying out biological tests in order to detect any activity ;
- Computer skills (Software: Algorithms and Programming for the design of new bioactive molecules and the simulation of chemical processes).

Admission requirements:

- ❖ Licence Diploma in Fundamental Chemistry or Diploma recognised equivalent ;
- ❖ Licence Diploma in Organic Chemistry ;
- ❖ Licence Diploma in Pharmaceutical Chemistry ;
- ❖ Diploma in Pharmacy (From 3rd Year).

Career Prospects/Professions:

- ❖ Join a research laboratory in the field of phytochemistry or the natural substances chemistry;
- ❖ To apply for positions of managers in the corporate world as well as quality control (QC) and/or research and development (R&D) laboratory.
- ❖ To start research for a PhD position.

Curriculum Highlights:

The Master's degree in Pharmaceutical Chemistry offers students an academic degree in the field of organic or fundamental chemistry. Its teaching units constitute a different but complementary approach to pharmaceutical chemistry with the master's degree in pharmaceutical process engineering. The main aim of this program is to provide students with a solid grounding in the field of bioactive and/or pharmaceutical molecules, opening up gateways to biology and pharmaco-medicine. This training also enables students to master the essential methods for analysing and determining the structures of organic molecules. It will also enable students to learn phytochemical practices, both in terms of how to separate natural substances and what to do when identifying their structure.

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.

Organization of Studies and Official Duration of the Program:

Overview of the programme:

Semester 01 :

Major Reactions in Organic Chemistry
Therapeutic Chemistry - 1
Chemistry of Natural Substances
Physico-chemical methods of analysis 1
Practical work: Organic synthesis (1)
Practical work: Chromatography and Spectroscopy
Galenic Pharmacy - 1
Crystallography
Scientific English

Semester 02 :

Chemistry of Heterocycles
Retro Synthesis in Organic Synthesis
Phytochemistry and Pharmacognosy
Galenic Pharmacy - 2
Physico-chemical methods of analysis 2 Organic
Electrochemistry
Practical work : Phytochemistry
Practical work: Organic synthesis (2)
Computer Chemistry

Semester 03 :

Introduction to Asymmetric Synthesis
Advanced Chemical Kinetics
Organometallics and Catalysis
Bioorganic Chemistry
Therapeutic Chemistry - 2
Radical Chemistry and Photochemistry
Practical Work: Organic Synthesis (3)
Ethics and Deontology

Semester 04 :

Internship in a research laboratory or company, culminating in a memory and defense.

Training Canvas:

- Organic chemistry
- Inorganic chemistry
- Chromatography
- Atomic and molecular spectroscopy
- X-ray diffraction
- Applied mathematics
- Computer Science

Advanced training modules:

- General biochemistry
- Microbiology
- Molecular Modelling

Language of instruction:

French and English

Training framework:

The tables provided in the previous section "Program Overview".

Coordinator of the Program: Dr. Yacine NOUAR

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