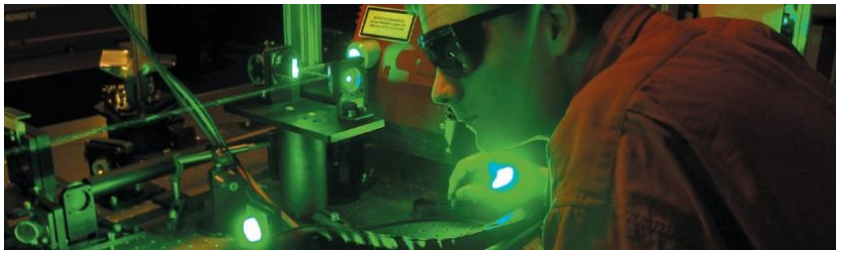
Career Prospects

The specialties of the Master Physical and Analytical Chemistry are mainly **research-oriented**. A large majority of alumni engage in a **Ph.D. program**, with the aim of joining a **research laboratory** in their field of expertise or a **Research & Development** department within enterprises.

Nevertheless, our graduate students also have the proper background and practical skills to reach **positions of responsibility** (**production**, **management**, **R&D**) at Master level in international analytical enterprises, fine chemicals industries or in environmental sciences.



More Online

http://master-pac.univ-lille1.fr

http://chimie.univ-lille1.fr/formations/Masters

ASC Master : http://www.master-asc.org

AE Master : http://www.labex-cappa.fr/master-atmospheric-environment

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Université de Lille 1 SCIENCES ET TECHNOLOGIES — UFR de Chimie

Master of Science in Physical & Analytical Chemistry

Université de Lille 1 SCIENCES ET TECHNOLOGIES — UFR de Chimie

Objectives

The Master of Science in Physical and Analytical Chemistry (PAC) aims at preparing students to become experts in **Physical Chemistry** with strong skills in theoretical and practical **Spectroscopy**. This program is intended for students eager to develop an **international culture** and looking for a worldwide **mobility**.

The Master PAC is providing an **English-speaking training** of excellence, bringing the necessary tools and knowledge to students to carry on **doctoral studies**. Students will develop a highly specialised know-how and a rare practical experience supported by state-of-the-art technologies.

Throughout the first year, students are introduced to the fields of specialization of the second year : **advanced spectroscopy applied to the various fields of chemistry** (solid state chemistry, catalysis, sustainable chemistry, nanomaterials, biomaterials…) and **atmospheric chemistry**.

International Master taught in English

Study Program

The study program is composed of **theoretical courses** and optional units. A substantial part is also dedicated to **practical work** and **research projects**, where **group work** is as essential as **student centered learning**.

English is compulsory for all students. Besides, a French course is proposed to international students to help them in their day-to-day life.

Moreover, two extra courses are taking place at the beginning of the year: an **English intensive course** for bringing everyone up to standard, and an **intercultural module** to promote group dynamics.

Admission conditions

The Master Physical and Analytical Chemistry is targeting European and International students holding a **Bachelor of Science** (*i.e.* 180 ECTS) or an equivalent Diploma in the following fields of studies: **Chemistry**, **Physical Chemistry**, **Biochemistry** or **Physics**.

The minimum advised language level corresponds to the B2 level (independent user) of the Common European Framework of Reference for Languages.

Admission in Lille1 University depends on your situation (nationality, country of residence, last diploma). International students must complete the Campus France procedure as soon as possible (campusfrance.org/en) for application to the Master and a Student Visa.

Students with no Campus France agency and Europeans have to go through the university's validation procedure (contact the secretary).

Courses

Semester 1 (30 ECTS): 4 common courses + 2 optional units

Semester 2 (30 ECTS): 4 common courses + 2 optional units

**ECTS = European Credit Transfer and Accumulation System*

Master 1 - Mandatory Units

Semester 1

PAC-1: Quantum Chemistry and Chemical Bonds
PAC-2: Magnetic Resonance Spectroscopy
PAC-3: Optical Spectroscopy
PAC-5: Language unit – English

Semester 2

PAC-6: Imaging and Chemometrics
PAC-7: Physical Organic Chemistry
PAC-8: Advanced chemical kinetics and catalysis
PAC-9: Methodologies in Inorganic Chemistry

Master 1 - Choice Units towards Master 2

Semester 1

PAC-4A: X-ray Diffraction
PAC-4B: Mass Spectrometry

Semester 2

PAC-10A: Experimental methodologies in environmental sciences
PAC-10B: Spectroscopy for Biology
PAC-10C: Synchrotron radiation and its applications

Semester 1

PAC-4B: Mass Spectrometry
PAC-4D: Data processing and data analysis in physical-chemistry

Semester 2

PAC-10A: Experimental methodologies in environmental sciences
PAC-10D: Applied Molecular Spectroscopy

Master 2 in Advanced Spectroscopy in Chemistry

Master 2 in Atmospheric Environment

Second year specialization

Advanced Spectroscopy in Chemistry (ASC):
Specialization in spectroscopy applications in solid-state chemistry (Lille), fluid and condensed phases (Bologna), green chemistry (Helsinki), nano- and biomaterials (Krakow), bioorganics and surface sciences (Leipzig) .

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Atmospheric Environment (AE):
Specialization in atmospheric sciences. Program shared with the 2nd-year specialty of the Master of Physics.

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Admittance in one of the two specialties of the second year is by full right for students following the correct targeted choice units during the first year. Otherwise, admittance is contingent upon an interview.