

Career Prospects

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

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



More Online

<http://master-physical-analytical-chemistry.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>

Information

Cédric LION

Director of studies

Tel : +33 (0)320.436.908
cedric.lion@univ-lille1.fr

Sylvain CRISTOL

Master Coordinator

Tel : +33 (0)320.434.503
sylvain.cristol@univ-lille1.fr

Contacts-Application

Francine CHANIER

Secretary

Tel : +33 (0)320.336.436
francine.chanier@univ-lille1.fr

MASTER of Science in PHYSICAL AND ANALYTICAL CHEMISTRY

 *Teaching in English* 

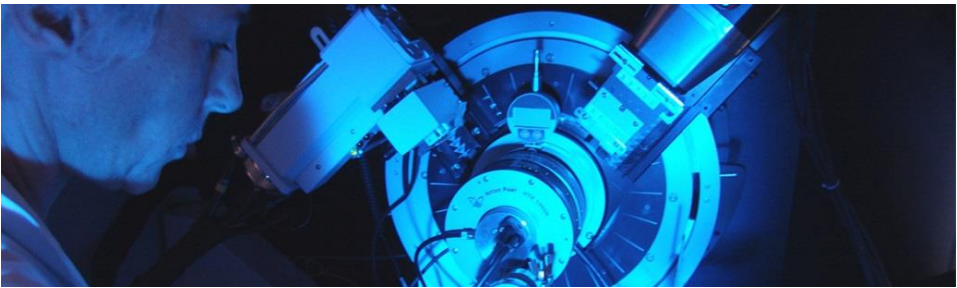


Objectives

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 PAC Master 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: **solid state chemistry, atmospheric chemistry** and **organic chemistry**.



Study Program

The study program is composed of **lectures** along with a substantial amount of **practical work** and **research projects**, representing 542 teaching hours. In addition, **group work** and **student centered learning** require 572 hours.

During the first **two semesters** (30 ECTS* each), 2/3 of the program (40 ECTS) is providing common **core courses** giving students the fundamentals and methods in **spectroscopy** and **physical chemistry**. The remaining courses are **choice units** (2 per semester). These targeted units allow students to choose a **specialization** for the second year.

English (5 ECTS) 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 create **group dynamics**.

*ECTS = European Credit Transfer and Accumulation System

Courses

Semester 1

- **PAC-1** : Quantum Chemistry and Chemical bonds
- **PAC-2** : Magnetic Resonance Spectroscopy
- **PAC-3** : Optical Spectroscopy
- **PAC-5** : English

2 choice units

- **PAC-4A** : X-ray Diffraction
- **PAC-4B** : Mass Spectroscopy
- **PAC-4C** : Advanced Molecular Synthesis
- **PAC-4D** : Experimental tools for Chemistry

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

2 choice units

- **PAC-10A** : Experimental methodologies in environmental sciences
- **PAC-10B** : Spectroscopy for Biology
- **PAC-10C** : Organometallic Chemistry
- **PAC-10D** : Applied Molecular Spectroscopy



Admission conditions

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

International students must complete the Campus France procedure as soon as possible (campusfrance.org) in order to apply for the Master and a Student Visa.

Students holding a Bachelor of Science in another field of studies, and International students coming from countries with no Campus France agency must ask for a 'validation of studies' file to the Registrar's office of Lille 1 University (valid@univ-lille1.fr).



Second year specialties

Three specialties are proposed in the second year of Master « PAC » :

- Specialty **Advanced Spectroscopy in Chemistry** (ASC): sylvain.cristol@univ-lille1.fr
Specialization in various spectroscopic techniques in solid state chemistry.
Targeted units : PAC-4A, PAC-4B ; PAC-10A, PAC-10B.
- Specialty **Atmospheric Environment** (AE): denis.petitprez@univ-lille1.fr
Specialization in atmospheric sciences. Program shared with the AE specialty of the Master of Physics.
Targeted units : PAC4B, PAC-4D ; PAC10A, PAC-10D.
- Specialty **Sustainable Synthesis and Catalysis** (SSC): simon.desset@univ-lille1.fr
Specialization in the field of synthesis and applied molecular catalysis.
Targeted units : PAC-4B, PAC-4C ; PAC10B, PAC-10C.

Admittance in one of the three 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.