

Advanced Materials

Program factsheet

Admission requirements

Candidates must fulfill the following:

- › Hold a Bachelor degree with honors or 3-year / 180 ECTS equivalent in chemistry, physical chemistry or materials science.

Level

- › Master degree in Chemistry

Program duration

- › 2 years (120 ECTS)

Language requirements

A good level of English is required:

- › IELTS score around 6.5; TOEFL score 79-93; minimal TOEIC score 900
- › Students with lower marks may be considered.

Fees / budget

- › University registration fees : 400€
- › Some grants are available for selected students, which cover tuition fees and also include funds for everyday life: a maximum of 8,000€ for Master Year 1, a maximum of 5,000€ for Master Year 2.

Program outline

The aim of this Master program is to provide students with a complete training in the domain of Chemistry and Physical Chemistry of Materials, starting from the stage of conception, synthesis and elaboration, to physico-chemical characterizations, and their use for specific functions and applications.

The studied materials are very diverse (inorganic materials, polymers, colloidal materials, hybrids, composites etc...) and draw upon the main research fields studied within the laboratories of the University of Bordeaux.

The University of Bordeaux was recently identified as a **Campus of Excellence** for the field of Materials.

Strengths

- › Students develop skills based on the large range of materials topics studied in the University of Bordeaux campus laboratory: inorganic materials, colloids, polymers, hybrid and composite materials etc...
- › Students are trained and equipped to enter both academic (fundamental research) or industrial (more applied research) fields. Whatever their profile, upon completion of their studies, they master a high level of skills in materials science.
- › Students have the opportunity to test and apply their skills during two training periods occurring in Year 1 (two months) and Year 2 (six months) of the Master. These training periods most often take place in the chemistry labs (eight in total) located on the Bordeaux campus but other opportunities are available and may arise in other academic or industrial laboratories.

Program structure

All teaching modules (Master Year 1 and 2) are open to non-francophone students.

Year 1

Semester 1:

Teaching is divided into two semesters which include five modules of 6 ECTS each:

- › Chemical bonding (6 ECTS)
- › Characterization techniques (6 ECTS)
- › Structural analysis of solids and surfaces (6 ECTS)
- › Introduction to colloids and polymer science (6 ECTS)
- › Elaboration of inorganic materials (6 ECTS)

Semester 2:

- › English/French dedicated courses (3 ECTS)
- › Training period (two months), generally within the Bordeaux campus labs. Training periods in industrial labs or any other chemistry labs (in France or abroad) are permitted if opportunities arise (2 ECTS)
- › Conference series held by different lab directors on campus (1 ECTS)
- › Solid state physics (6 ECTS)
- › Mechanical behaviour from fluids to solids (6 ECTS)

Students must choose two modules from the following options:

- › Transformations (6 ECTS)
- › Physical chemistry of polymer solutions (6 ECTS)
- › Phase transitions and phase diagrams (6 ECTS)
- › Macromolecular chemistry (6 ECTS)

Year 2

Semester 1:

The first semester offers several teaching modules.

Students must choose four modules from the following six:

- › Innovative and composite materials (6 ECTS)
- › Material dielectric and magnetic properties (6 ECTS)
- › Self-assembly in surfactant and polymer solutions (6 ECTS)
- › Photonics, laser and imaging (6 ECTS)
- › Latex and emulsions (6 ECTS)
- › Energy, communication and information (6 ECTS)

Students must also choose two modules from the following options:

- › English or French tutorials (3 ECTS)
- › Project management (3 ECTS)
- › Entrepreneurship (3 ECTS)

Semester 2:

- › Six month training period in academic or industrial laboratories

How to apply?

Please send your CV and Bachelor degree certificate (including your grades) to:

› corinne.jalibert@u-bordeaux.fr
(Corinne Jalibert)

with a copy to:

› mondain@crpp-bordeaux.cnrs.fr
(Prof. Olivier Mondain-Monval) and

› francis.rebillat@u-bordeaux.fr
(Prof. Francis Rebillat)

A special committee examines the candidate CVs.

And after?

- › Master students with good marks may apply for PhD applications in chemistry labs. The local labs offer many opportunities with funding included from various agencies. After a PhD, the majority of our students find employment in the R&D department of chemical companies of various sizes.
- › Master students who do not wish to apply for a PhD have a suitable profile for engineering positions in companies.

Contacts

› Prof. Olivier Mondain-Monval:
mondain@crpp-bordeaux.cnrs.fr

› Prof. Francis Rebillat:
francis.rebillat@u-bordeaux.fr

More information:

www.u-bordeaux.com/Education/International-Study/Courses-in-English