

# MSc. of Physical Chemistry / Chemical Engineering

## Physical and Analytical Chemistry specialisation

### Year One

#### Fall Semester

#### Phys Chem 1

ECTS 12

Kinetics and Thermodynamics

Analytical and physical chemistry, Practical courses

Optical spectroscopies

Separation methods and mass spectrometry

#### Chem Eng 1

ECTS 9

Polymer chemistry

Petrochemistry

Membrane separation

#### Info 1

ECTS 9

Project-mode applied programming in Python

Introduction to Data Science

### Year One

#### Spring Semester

#### Phys Chem 2

ECTS 9

Inorganic analysis and speciation

Electrochemistry

NMR Spectroscopy

#### Chem Eng 2

ECTS 6

Advanced transfers

Polymer Reaction Engineering

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Info 2

ECTS 6

Chemical databases and Chemoinformatics  
Molecular Modeling + Quantum Chemistry

5 week Internship

ECTS 9

Internship 5 weeks

### Year Two

Fall Semester

Advanced mass spectrometry

ECTS 3

Advanced mass spectrometry

Technology and applications

ECTS 3

Advanced spectroscopic methods

Advanced recognition and applications

ECTS 3

Advanced recognition and applications

Characterization methods for solid surfaces and  
nanomaterials

ECTS 3

Characterization methods for solid surfaces and nanomaterials

Analytical sciences and health

ECTS 6

Introduction to chemobiology

Bioanalytical chemistry

Miniaturization for biomolecules

Technics for sampling and analysis of environmental  
samples

ECTS 6

Technics for sampling and analysis of environmental samples

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Evaluation of environmental pollution processes

ECTS 6

Evaluation of environmental pollution processes

## Year Two

Spring Semester

Stage en laboratoire de recherche ou en entreprise

Training period

ECTS 30

Stage en laboratoire de recherche ou en entreprise Training  
period