The M1 is intended to provide students with basic and advanced knowledge on:
1- The current major pathologies
2- The biotechnological, analytical and medicinal chemistry tools
3- The pharmaco-toxicological and analytical methods with extension to environmental impacts in order to implement diagnosis, treatment and prevention

COURSE OBJECTIVES
Training of future managers in the pharmaceutical field with a versatile, scientific and technical expertise, and an opening-up to business life or research laboratories.
The programme includes courses into 3 axes:
1- Basic and advanced knowledge of the current diseases and the dysregulation of major functions
2- Pharmacist’s toolbox: chemistry, biotechnology, formulation, production
3- Transverse methods: pharmaco-toxicological, analytical sciences

PROFESSIONAL SKILLS
- Scientific knowledge to understand the continuum from the discovery of a health product to a medicine
- Identification of the current issues in the major pathologies
- Knowledge of methodologies for the screening of therapeutic targets, the synthesis, formulation and production of health products, and the associated analytical control and biological tests
- Project management
- Oral and written communication
The M1 is composed of core and optional courses, a research specialization course and a symposium.

The program is split into 3 axes:

**Axis 1:** Current issues in the major pathologies

**Axis 2:** Pharmacy and biotechnology

**Axis 3:** Transverse pharmaceutical disciplines

### Core courses M1S1 (26 ECTS)

- 001 French language and culture
- 101 Physiopathology of major functions
- 102 Immunopathology and hematologic dysregulations
- 103 Oncology
- 201 Pharmaceutical engineering 1
- 202 Biotechnology 1
- 301 Analytical sciences 1

### 2 optional courses M1S1 (4 ECTS)

- 201b Pharmaceutical Engineering PW
- 202a Biotechnology PW1: Bioreactors
- 320 Hospital internship
- 321 Marketing 1
- 322 Rush: Pharmaceutical business game
- 323 French language

### Core courses M1S2 (18 ECTS)

- 104 Infectiology
- 203 The medicinal chemist's toolbox 1
- 302 Environment 1
- 303 Pharmacology 1 / Toxicology 1

### Research specialization course 1, M1S2 (8 ECTS)

- 002a Bibliographical work
- 002b Lab internship

### 1 optional course M1S2 (2 ECTS)

- 104a Diagnosis of infectious diseases
- 202b Biotechnology PW2: Gene cloning
- 203a Basic structural elucidation applied to natural and synthetic compounds
- 324 English 1

### Research specialization course 2, M1S2 (2 ECTS)

- 003 Symposium organization and participation

### Toward the Master 2 D²HP

#### From the M1

- **Axis 1**
- **Axis 2**
- **Axis 3**

#### To the M2

3 specializations offered to students

1. **Axis 1 + Axis 2**
2. **Axis 1 + Axis 3**
3. **Axis 2 + Axis 3**