



**MASTER OF INTEGRATIVE BIOLOGY AND PHYSIOLOGY – UNIVERSITY CLAUDE BERNARD LYON 1 – LYON, FRANCE**  
**MASTER 2 "PRE-CLINICAL AND CLINICAL ANIMAL RESEARCH" COURSE**  
**CO-ACCREDITED WITH VETAGRO SUP VETERINARY SCHOOL**

**The training course focuses on therapeutic innovation in human and veterinary health. It aims at training biology engineers capable of designing and carrying out the studies needed to develop a drug or medical device, from conception to validation in the pre-clinical phase.**

Biomedical research requires preclinical studies to ensure the efficacy and safety of drugs and medical devices, in line with the requirements of various regulatory, ethical and quality standards.

The Master's degree trains engineering managers to design, supervise and carry out preclinical studies in human health or clinical studies in animal health. It also prepares students for the role of experimental unit manager in animal research, providing them with the foundations needed to manage a platform and its team.

The program is based on collaboration with the Vetagro Sup veterinary school and close interaction with a network of therapeutic innovation professionals. It enables graduates to enter the world of research and development and the pharmaceutical, drug and medical device industries.

**Which jobs ?**

**R&D Project Manager** : As part of the development of a new drug, manage the product's research and development project and coordinate multidisciplinary teams with a view to obtaining registration.

**Research engineer** : Carry out work on a research subject as part of a research project, in compliance with regulations and health and safety rules. Specialization in biology, histology, biochemistry, toxicology, pharmacology, pharmacokinetics, etc.

**Experimental unit manager** : Manage the unit and its team, in compliance with regulations, ethics and quality; Develop and innovate experimental procedures; Ensure sanitary and genetic quality.

**Skills acquired**

Emphasis is placed on study methods in animal research involving :

- developing rigorous scientific questions,
- formulating hypotheses, planning controlled experiments,
- carrying out measurements with multiple repetitions,
- processing statistical data appropriately,
- representing data graphically,
- write scientific reports.
- Respect animal welfare, regulations and quality standards.

**M2 Preclinical and Clinical Animal Research detailed skills**



- Scientific skills
- Knowledge in Biology / Physiology / Neuroscience
- Theoretical and applied notions in pharmacokinetics / toxicokinetics
- Project-based learning
- Scientific bases of anesthesia, analgesia and animal behavior
- Animal welfare
- Regulatory training France/ Europe
- Ethics, 3Rs, ethology
- FELASA/AALAAC standards
- Characteristics of animal models adapted to different research problems.
- Animal experimentation, restraint, anesthesia and analgesia and basic surgery
- Scientific project management
- Bibliography report
- Experimental design
- Project planning
- Team management
- Coordination
- Budgeting
- Quality and statistical management
- Mastering data reproducibility, reliability and robustness criteria
- Study planning, results analysis
- Regulations Pre-clinical applied research
- GLP and ISO standards

**Teaching program: teaching units (<https://shorturl.at/gslUV>)**

- In vivo research and development 6 ECTS
- Pharmacology, toxicology and study models 6 ECTS
- Project management, study direction and quality assurance 6 ECTS
- Project design in animal research and surgery 9 ECTS
- English for Professional Communication Level 2 3 ECTS
- Internship 30 ECTS

**Admission requirements**

- Must be under 30 years of age to benefit from an apprenticeship contract and have validated :
- 1st year of a Master's degree in Science and Technology, subject to having obtained at least 18 ECTS (or equivalent) in physiology during their university course.
  - 4th year of engineering school in Biology/Biochemistry (INSA...)
  - 4th year of studies in Pharmacy or Medicine
  - 4th year of veterinary school.

Students over the age of 30 are eligible for a professionalization contract.

**How do I apply?**

Applicants to the M2 program must submit an application on the e-candidat platform from April onwards <https://ecandidat.univ-lyon1.fr/>



### **Selection procedure**

Examination of application and selection interview

### **For further information**

Lyon 1 University: <https://offre-de-formations.univ-lyon1.fr/parcours-138/m2-recherche-animale-pre-clinique-et-clinique.html>

M2 Pre-clinical and clinical animal research: <http://recherche-animale.univ-lyon1.fr>

### **Contact us**

Course coordinators :

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