



**BIOCHEMISTRY AND MOLECULAR AND CELL BIOLOGY**  
**SPECIAL ORIENTATION IN MOLECULAR PHYSIOPATHOLOGY**

*This master is organized by the Faculties of Sciences and Medicine of ULB and UMONS.*

**Skills taught**

Molecular biology studies the normal and abnormal functioning of living organisms - including human beings - by analyzing the component molecules in their structure and tries to provide responses to today's numerous issues in the fields of healthcare, environment and biodiversity.

The aim of the program is to provide students with the knowledge and modern methodological tools allowing them to understand the major issues of modern molecular biology, from studying the genome through to the major pathways for metabolic and physiological regulation in advanced organisms.

The teaching focuses on an experimental approach and develops original projects in order to make students aware of the latest progress in pure research in the area of life sciences.

**Cursus**

The central topic of this special orientation is the molecular study of normal and pathological physiology. The courses are taught both in French and in English (50% each) on Charleroi campus, in collaboration with the Faculties of Science and of Medicine of Université libre de Bruxelles (ULB) and the same faculties at the Université de Mons (UMONS).

The first year of the Master's course is based on a full program of practical classes which are given largely at the Institute of Biology and Molecular Medicine (IBMM). The courses approach the major fields of molecular and cellular biology (regulation of gene expression, biotechnology) and the aspects which are particular to advanced organisms (embryology, mammalian genetics, study of immune and nervous systems). It also covers molecular microbiology, bioinformatics and the major questions of modern evolutionary biology.

The second year is essentially devoted to writing the graduation work, a pure research project. This is accompanied by specialised courses in the form of interuniversity weeks related to specific topics or by research internships in labs (possibly abroad).

## Requirements and courses catalogue

To find out which BA leads to this MA and what the requirements are, please visit the universities websites: <http://www.ulbruxelles.be> and <http://www.umons.ac.be>

### Specifics

The program is based on the activities of ULB laboratories located at the Biopark Charleroi Brussels South. This location is a true center of competitiveness in molecular biology; it benefits from the support of a large number of European programs and hosts nearly 700 researchers from the whole world. One of its key features is that it brings together teaching activities, research institutes of the Université libre de Bruxelles and of the Université de Mons (IBMM, IMI, CMMI) as well as technological platforms and companies (Henogen, Euroscreen, Delphi Genetics, DNAVision, etc.). The campus itself offers hence numerous possibilities in terms of training and employment.

### Professional assets

This program leads to a wide range of career possibilities for graduates in pure or applied research in biology, biomedical sciences, pharmacy, veterinary sciences, agri-food science and so on. To work in laboratories in research centers, universities or the private sector, but also for a career in management, in teaching, in sales of laboratory or biotech products, etc.

### Practical Information

**Charleroi (Gosselies) Campus**

**(Free university shuttles between Solbosch / la Plaine and Gosselies)**

**Daytime courses**

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