MASTER IN
BIOMEDICAL SCIENCES
PRECLINICAL RESEARCH
CLINICAL RESEARCH
BIOMEDICAL DATA MANAGEMENT
TRANSLATIONAL COSMETIC AND DERMATOLOGICAL SCIENCES
The University of Namur offers five Masters in Biomedical Sciences, taught entirely in English. These degree programmes will, via research in the field of life sciences, lead you through each stage in the development of new therapeutic molecules, biomarkers and diagnostic testing. Two areas of specialisation in clinical research are also offered, leading to careers such as clinical research associate, clinical project manager, clinical trials assistant or data manager. These professions involve setting up and monitoring clinical trials, ensuring the quality of data gathered, and compliance with applicable regulations, as well as the management of data processing.

Our 120-credit Masters are spread over two years, and the choice of a professional focus will ensure your expertise in one of the following areas:

- **Preclinical Research** at the University of Namur
- **Clinical Research** at the University of Namur – a joint degree with the University of Liège
- **Biomedical Data Management** at the University of Liège – a joint degree with the University of Namur
- **Translational Cosmetic and Dermatological Sciences (EMOTION)** a double degree from the University of Piemonte Orientale (Italy) and either the University of Namur or the Miguel Hernández University (Spain)

Our 60-credit Master lasts one year and provides a basic grounding in Biomedical Sciences, in particular in the field of biopharmaceuticals. At the University of Namur.

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**YOUR OBJECTIVES**

- To lead **scientific projects** which aim for greater understanding of the molecular and cellular mechanisms of pathologies and to improve treatment: to analyse data, interpret the results and share discoveries with the worldwide scientific community;
- To master every stage of the **development of new therapies**, in particular biotechnology or cell-related therapies;
- To develop **biomarkers** related to different therapies, for example using genetics and pharmacogenomics;
- To lead and monitor **preclinical or clinical trials** and to be responsible for the administrative management of testing;
- To ensure the **production quality** of biotechnological and biosimilar products, cell therapies (stem cells), gene therapies, tissue engineering, medical devices (implants, drug delivery devices, etc.) and so on;
- To monitor the quality, safety and efficiency of a **drug** before it is placed on the market.
PROFESSIONAL FOCUS
MODULES IN PRECLINICAL
AND CLINICAL RESEARCH

Preclinical and clinical research form an intrinsic part of the process of developing new therapies.
At UNamur, you have the opportunity to choose your area of expertise from one of these two specialist fields.

The 120-credit Master in Biomedical Sciences with professional focus in preclinical research centres your learning on the laboratory phase of research into new disease-causing mechanisms, as well as products and techniques before they are tested on humans. It is based on a solid grounding in fundamental research (current topics in molecular and cellular biology, cell models, elective classes in different research fields etc.), biopharmaceutics (pharmaco therapy, health technology assessment, biosynthetic drugs and pharmacovigilance), biotechnology and therapy (clinical and non-clinical experimental approaches, biomedical engineering).

The 120-credit Master in Biomedical Sciences with professional focus in clinical research is based around the research carried out on human beings when products and techniques are sufficiently far-advanced. This Master is offered by UNamur but also relies on the expertise of the University of Liège, which provides many courses related to this professional focus.

Whichever focus you choose, your degree programme will boast a significant professional dimension thanks to a large number of visits to companies and hospitals, practical projects and a 5-month placement in a laboratory or company in Belgium or abroad.

You will also have the opportunity to write a thesis based in a research laboratory or a hospital, working on a personal project right through from design to completion (10 months).
## PROGRAMME STRUCTURE

### CORE SUBJECTS

| Pharmacotherapy • Preclinical Drug Development • Clinical Trials • Statistics Applied to Preclinical and Clinical Studies • Negotiation, Communication and Networking • Bioethics • Quality Assurance: GMP, GCP, GLP and Auditing • Pharmacovigilance • Pharmaco-Economy and Health Technology Assessment |

### ELECTIVE MODULES

| Pharmacogenomics • Introduction to Patient-Reported Outcomes • Investigator-Initiated Trials • Integrative Approach of Organelle Pathology • Interdisciplinary Programme in Healthcare Innovation • Dermato-cosmetic Sciences • Biomarkers and Surrogate Markers in Clinical Dermatology Trials • Laboratory Animal Sciences (mammals, fish, amphibians) for Master of Experiments - FELASA • Anticancer Therapies • Human Resources Management • Health Sciences Philosophy • Animal Pathology • Molecular Virology |

### PROFESSIONAL FOCUS

| Basic Research Modules (including classes on cancer, inflammation, aging...) • Current Topics in Molecular Cell Biology • Laboratory Research Training • Biopharmaceuticals • Biotechnology: Principles and Scale-Up • Drug and Society • Innovation in Biomedical Engineering • Biomarkers, Biobanks, Personalized Medicine • Vaccinology, Immunotherapy • Project Management: Development of Biomarkers |

### PRECLINICAL RESEARCH

| at the University of Namur |

### CLINICAL RESEARCH

| both at the University of Namur and at the University of Liège |

### PROFESSIONAL INTERNSHIP

| 19 |

### INTRODUCTION TO SCIENTIFIC RESEARCH AND THESIS

| 30 |

### TOTAL

| 120 |

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**Core Subjects (ECTS: 31)**

Pharmacotherapy • Preclinical Drug Development • Clinical Trials • Statistics Applied to Preclinical and Clinical Studies • Negotiation, Communication and Networking • Bioethics • Quality Assurance: GMP, GCP, GLP and Auditing • Pharmacovigilance • Pharmaco-Economy and Health Technology Assessment

**Elective Modules (ECTS: 10)**

Pharmacogenomics • Introduction to Patient-Reported Outcomes • Investigator-Initiated Trials • Integrative Approach of Organelle Pathology • Interdisciplinary Programme in Healthcare Innovation • Dermato-cosmetic Sciences • Biomarkers and Surrogate Markers in Clinical Dermatology Trials • Laboratory Animal Sciences (mammals, fish, amphibians) for Master of Experiments - FELASA • Anticancer Therapies • Human Resources Management • Health Sciences Philosophy • Animal Pathology • Molecular Virology

**Professional Focus (ECTS: 30)**

Basic Research Modules (including classes on cancer, inflammation, aging...) • Current Topics in Molecular Cell Biology • Laboratory Research Training • Biopharmaceuticals • Biotechnology: Principles and Scale-Up • Drug and Society • Innovation in Biomedical Engineering • Biomarkers, Biobanks, Personalized Medicine • Vaccinology, Immunotherapy • Project Management: Development of Biomarkers

**Preclinical Research (ECTS: 30)**

at the University of Namur

**Clinical Research (ECTS: 30)**

both at the University of Namur and at the University of Liège

**Professional Internship (ECTS: 19)**

**Introduction to Scientific Research and Thesis (ECTS: 30)**

**Total (ECTS: 120)**

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Fore more information, please visit: [www.unamur.be/en/med/study-biomedical-sciences](http://www.unamur.be/en/med/study-biomedical-sciences)
PROFESSIONAL FOCUS IN BIOMEDICAL DATA MANAGEMENT

Offered by ULiège, the 120-credit Master in Biomedical Sciences with professional focus in Biomedical Data Management also benefits from the renowned expertise in data management of UNamur’s Faculty of Computer Science. This focus will lead to a specialisation in medical data management.

> PROGRAMME STRUCTURE

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<th>CORE SUBJECTS</th>
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<tr>
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<td>30</td>
<td>BIOMEDICAL DATA MANAGEMENT</td>
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<td>Introduction to Programming • Operating Systems • Algorithmic • Data Analysis • Advanced Programming • Data Management within the Clinical and Reporting Processes • Patient Records • Clinical Data Management and Biobank</td>
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TOTAL 120

WHY SHOULD I CHOOSE THIS PROGRAMME?

¬ A door towards bioinformatics, which became central to the research fields;
¬ Shortage in the skilled trades;
¬ Synergies with UNamur’s Faculty of Computer Science in terms of both teaching and research;
¬ Reinforcement and development of research projects within the Namur Research Institute for Life (Narilis) at UNamur and the Interdisciplinary Biomedical Research Centre (GIGA) at ULiège.
INTERNATIONAL MASTER IN TRANSLATIONAL COSMETIC AND DERMATOLOGICAL SCIENCES

UNamur is one of the European partner universities which together offer the European Master in Translational Cosmetic and Dermatological Sciences (EMOTION).

This 120-credit Master, limited to only 30 students, will entitle you to a double degree from the University of Piemonte Orientale (Italy) and one of its partner institutions: the University of Namur or the Miguel Hernández University (Spain).

You will have the opportunity to experience teaching at these universities, all experts in their field, whilst gaining international experience and learning about other ways of teaching and about the cultures of the partner countries.

EMOTION’s mission is to educate the future generation of translational scientists and professionals in dermocosmesis and dermatologic therapies.

This Master comprises two semesters in Italy and one semester in either Belgium or Spain.

In the first year, held in Italy, courses in Anatomy, Physiology, Pharmacology, Dermatology, Regulatory Affairs, Pharmaceutical Technology and Medicinal Chemistry are taught together with workshops on Project Management, Drug Discovery, and the Features of the Pharmaceutical and Cosmetic Sectors.

In the first semester of the second year, you are invited to choose whether you wish to continue your studies in Preclinical Cosmetic and Pharmaceutical Research (in Spain) or in Clinical Development (at the University of Namur):

**CLINICAL DEVELOPMENT**

Clinical Trials • Quality Assurance: GMP, GCP, GLP and Auditing • Bioethics • Clinical Study Management • Clinical Research Associate Training • Clinical Project Management • Lecture Series in Dermato-cosmetic Sciences • Biomarkers and Surrogate Markers in Clinical Dermatology Trials at the University of Namur

You will also attend workshops intended to introduce you to the world of industry and provide you with transferable and soft skills (including communication, job-seeking skills and know-how for entrepreneurship).

Finally, in the second semester of the last year, you will have the opportunity to carry out work on your thesis in industry or in academia at the three partner Universities and at Humboldt University (Germany).

For more information concerning this Master as well as related Erasmus Mundus bursaries, please visit www.emotion-master.eu
CAREER OPPORTUNITIES

Biomedical Sciences can lead to many different careers, mainly in the area of research, either basic or applied. This research is carried out at universities, university hospitals, government agencies (e.g. public health institutes, drug and health product agencies, health policy bodies, etc.), and in laboratories in the biopharmaceutical, biotechnological, nutrition, cosmetics and medical equipment sectors.

**Basic biomedical research** aims to understand, via an experimental approach, how the human being works at the level of cells and molecules. Its conclusions may one day lead to clinical applications.

**Applied biomedical research** puts into practice the advances made in basic research. Its objective is to improve the way conditions are diagnosed and treated. For example, it might aim to design new vaccines or new diagnostic tests. It also paves the way for careers in the pharmaceutical or cosmetics industries.

**Clinical research management** involves the setting up and coordination of clinical trials in hospitals, clinical research organisations and the biopharmaceutical industry, and can lead to the following careers:

- **clinical trials assistant** - assists investigating doctors in carrying out clinical trials;
- **clinical project manager** - executes the clinical trial development plan, in accordance with regulations and deadlines;
- **clinical research associate** - sets up and monitors the clinical trials in a particular project, whilst ensuring the quality of the data gathered in compliance with regulations;
- **data manager** - manages the processing of data obtained in the context of the clinical trial.

As well as research, the clinical sector offers a large number of other career paths: toxicology, nutrition, clinical biology, bioengineering, medical imaging, etc., as well as medical data management.

Biomedical Sciences can also lead to many other opportunities in the fields of research and development, production, insurance and quality control, regulatory affairs, intellectual property, consultancy, medical representation, teaching, and so on.

Finally, the Master in Biomedical Sciences allows you to further your studies in the third cycle (Doctorate) or to take an interuniversity certificate in Health Product Regulatory Affairs, offered jointly by UNamur and ULiège.
CONDITIONS FOR ADMISSION TO THE MASTER IN BIOMEDICAL SCIENCES

MASTER 120 IN BIOMEDICAL SCIENCES, PROFESSIONAL FOCUS IN PRECLINICAL RESEARCH
MASTER 120 IN BIOMEDICAL SCIENCES, PROFESSIONAL FOCUS IN CLINICAL RESEARCH
MASTER 60 IN BIOMEDICAL SCIENCES

STUDENTS WITH A FIRST DEGREE OBTAINED IN BELGIUM

DIRECT ACCESS
— bachelier en sciences biomédicales.

ACCESS subject to a maximum of 15 ADDITIONAL CREDITS
— bachelier en sciences pharmaceutiques, médecine, médecine vétérinaire, sciences biologiques, sciences dentaires, kinésithérapie et réadaptation, sciences de la motricité, sciences chimiques ;
— master en ingénieur civil en chimie et science des matériaux, sciences de la santé publique, kinésithérapie et réadaptation.

ACCESS subject to AN ADDITIONAL 15 TO 30 CREDITS
— bachelier (type court) en sage-femme, infirmier responsable de soins généraux ;
— bachelier de spécialisation (type court) en anesthésie, soins intensifs et aide médicale urgente.

For admission to Masters degrees, please contact the Admission Service.

STUDENTS WITH A FIRST DEGREE OBTAINED OUTSIDE OF BELGIUM

If you have a degree from an institution outside of Belgium, you will need to complete and return the admissions request form before 31 August (30 April for students from outside the European Union): www.unamur.be/en/enrolment

MASTER 120 IN BIOMEDICAL SCIENCES, PROFESSIONAL FOCUS IN BIOMEDICAL DATA MANAGEMENT
This Master is offered jointly by UNamur and ULiège. For details of conditions for admission, please see the ULiège website: www.enseignement.uliege.be/cms/c_9780514/en/enrol

MASTER IN TRANSLATIONAL COSMETIC AND DERMATOLOGICAL SCIENCES (EMOTION)
For more information concerning this Master as well as related Erasmus Mundus bursaries, please visit www.emotion-master.eu

Fore more information, please visit: www.unamur.be/en/med/study-biomedical-sciences