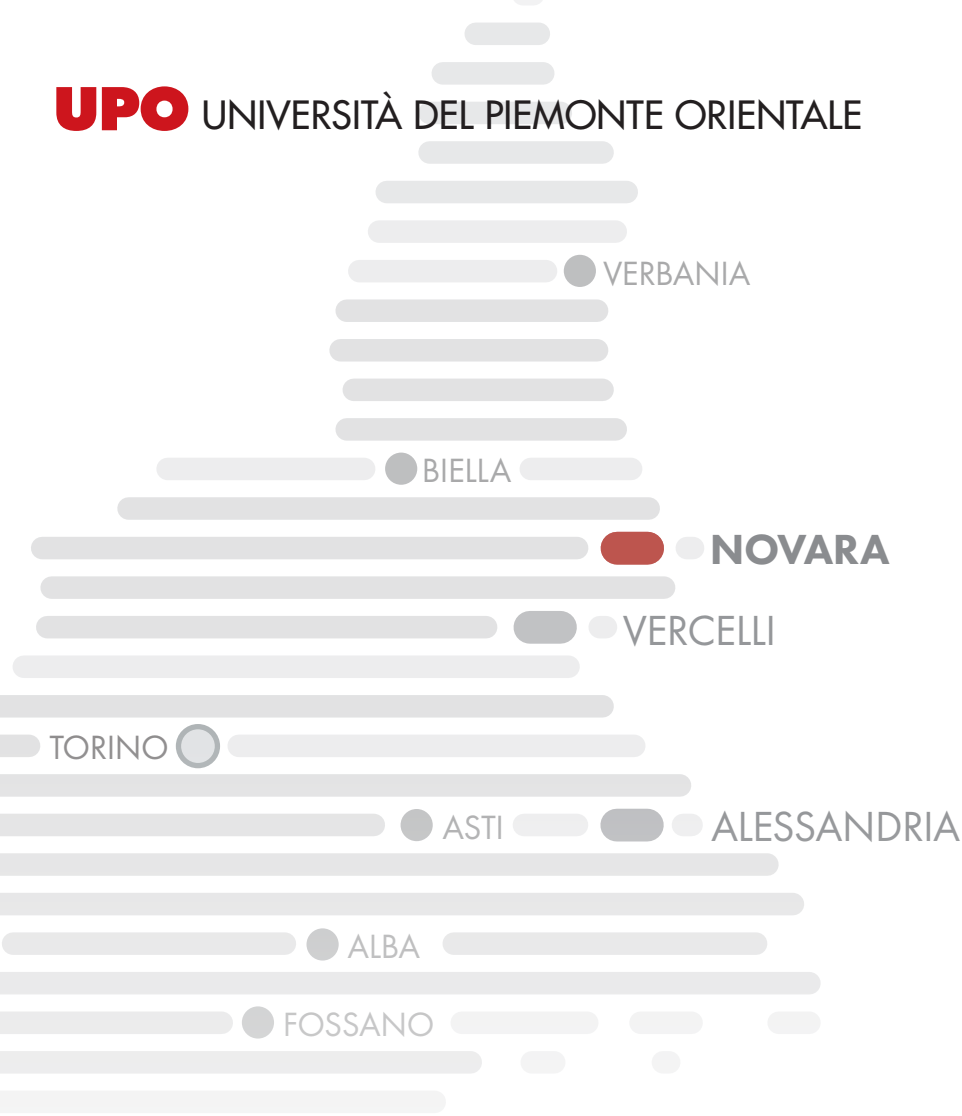
UPO UNIVERSITÀ DEL PIEMONTE ORIENTALE

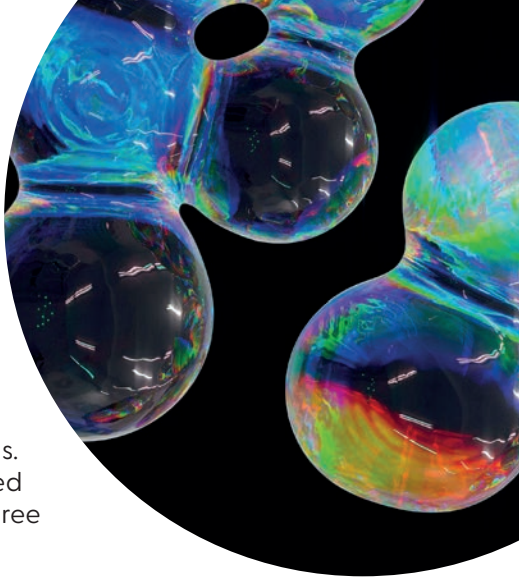



**MASTER'S DEGREE (MSC)**

# MEDICAL BIOTECHNOLOGIES

# MEDICAL BIOTECHNOLOGIES

## MASTER'S DEGREE (MSC)



The course is entirely taught in English. The Master in Medical Biotechnologies will provide you with solid, up-to-date knowledge and advanced laboratory skills. The course has a total of 120 credits, divided into two years, and presents a choice of three didactic curricula:

- **The Molecular Basis of Disease**
- **Systems Biomedicine**
- **Cellular Therapy, Tissue Engineering and Regenerative Medicine.**

Through the internships offered by the three curricula, you can become an active part of a laboratory group involved in international research and have the opportunity to develop a thesis research program.

Strengths include:

Up-to-date cultural, scientific and laboratory training with innovative methodologies

Choice of three curricula that reflect individual learning priorities

Internationalization in a friendly environment with students from many continents and several Italian universities

Numerous opportunities for international mobility programs (Erasmus, Free mover)

Advantage in applying for international Ph.D. programs and jobs thanks to the acquisition of a solid scientific English language.

The course requires compulsory attendance (70% classroom activities - 75% laboratory activities).

Classes are held in **Novara**.

# TEACHING PLAN

## The Molecular Basis of Disease

| YEAR | COMPREHENSIVE COURSE | COURSE | SSD | CREDITS |
|---|---|---|---|---|
| 1 | Fertility, reproduction and endocrine system biotechnologies | Biotechnology of reproduction | MED/40 | 2 |
| | | Endocrinology and Metabolism | MED/13 | 2 |
| 1 | Molecular virology | Molecular Virology | MED/07 | 5 |
| | | Molecular Virology | MED/07 | 1 |
| 1 | Molecular Basis of Neoplastic and proliferative disorders | Experimental oncology | MED/04 | 8 |
| | | Hematoncology | MED/15 | 5 |
| 1 | Functional Genomics | Genetics | BIO/18 | 1 |
| | | Genomic analysis | MED/03 | 5 |
| | | Regulation of gene expression | BIO/10 | 5 |
| 1 | Molecular Basis of Regenerative Medicine | Histology, Gene and Cell Therapy | BIO/17 | 5 |
| | | Molecular Regenerative Medicine | BIO/11 | 5 |
| 1 | Internal Medicine | Internal Medicine | MED/09 | 5 |
| 1 | Molecular therapy | Biotechnological applications | BIO/13 | 6 |
| | | Pharmacology | BIO/14 | 5 |
| 1 | Optional Activities 1 | Optional Activities 1 | | 4 |
| 1 | Internship 1 | Internship 1 | | 4 |
| 2 | Public health and regulatory aspects | Biomedical statistics | MED/01 | 5 |
| | | Innovation and Patents | SECS-P/07 | 1 |
| | | Public Health | MED/42 | 5 |
| 2 | Transplantation and Biocompatibility | Biotechnology in kidney transplantation | MED/14 | 1 |
| | | Hematopoietic stem cell biology and transplantation | MED/15 | 1 |
| | | Materials Biocompatibility | BIO/16 | 1 |
| | | Nanomaterials | MED/28 | 1 |
| | | Transplant immunology | MED/04 | 2 |

| | | | | |
|---|---|---|---|---|
| 2 | Molecular diagnostics | Clinical applications of Molecular Biology | BIO/12 | 5 |
| | | Clinical Pathology | MED/05 | 1 |
| | | Pathologic basis of diseases | MED/08 | 5 |
| 2 | Scientific English Course for the thesis | Scientific English Course for the thesis | | 3 |
| 2 | Optional Activities 2 | Optional Activities 2 | | 4 |
| 2 | Internship 2 | Internship 2 | | 6 |
| 2 | Experimental thesis | Experimental thesis | | 14 |

## System Biomedicine

| YEAR | COMPREHENSIVE COURSE | COURSE | SSD | CREDITS |
|---|---|---|---|---|
| 1 | Molecular virology | Molecular Virology | MED/07 | 5 |
| | | Molecular Virology | MED/07 | 1 |
| 1 | Molecular Basis of Neoplastic and proliferative disorders | Experimental oncology | MED/04 | 8 |
| | | Hematoncology | MED/15 | 5 |
| 1 | Functional Genomics | Genetics | BIO/18 | 1 |
| | | Genomic analysis | MED/03 | 5 |
| | | Regulation of gene expression | BIO/10 | 5 |
| 1 | Big Data Analysis | Big Data Analysis | BIO/11 | 5 |
| 1 | Molecular Basis of Regenerative Medicine | Histology, Gene and Cell Therapy | BIO/17 | 5 |
| | | Molecular Regenerative Medicine | BIO/11 | 5 |
| 1 | Forensomics and biotechnological applications | Biotechnological applications | BIO/13 | 6 |
| | | Forensomics | MED/43 | 6 |
| 1 | Structural genomics | Human Genomics | BIO/18 | 3 |
| | | Metagenomics | BIO/18 | 2 |
| 1 | Optional Activities 1 | Optional Activities 1 | | 4 |
| 1 | Internship 1 | Internship 1 | | 3 |

| | | | | |
|---|---|---|---|---|
| 2 | Public health and regulatory aspects | Biomedical statistics | MED/01 | 5 |
| | | Innovation and Patents | SECS-P/07 | 1 |
| | | Public Health | MED/42 | 5 |
| 2 | Synthetic Biology and Proteomics | Proteomics and Metabolomics | BIO/10 | 5 |
| | | Synthetic biology | BIO/13 | 5 |
| 2 | Clinical Omics | Cytomics | MED/04 | 2 |
| | | Omics in Hematology | MED/15 | 3 |
| | | Omics in Nephrology | MED/14 | 1 |
| | | Omics in Oncology | MED/06 | 5 |
| 2 | Scientific English Course for the thesis | Scientific English Course for the thesis | | 3 |
| 2 | Optional Activities 2 | Optional Activities 2 | | 4 |
| 2 | Internship 2 | Internship 2 | | 3 |
| 2 | Experimental thesis | Experimental thesis | | 14 |

## Cell Theraphy, Tissue Engineering and Regenerative Medicine

| YEAR | COMPREHENSIVE COURSE | COURSE | SSD | CREDITS |
|---|---|---|---|---|
| 1 | Principles of Regenerative Medicine and Tissue Engineering | Basic Principles of Applied Immunology | MED/04 | 2 |
| | | Functional Human Anatomy | BIO/16 | 1 |
| | | Mechanobiology and Mechanotransduction | MED/50 | 1 |
| | | Tissue Regeneration by Stem Cells | BIO/17 | 2 |
| 1 | Molecular Basis of Neoplastic and proliferative | Experimental oncology | MED/04 | 8 |
| | | Hematoncology | MED/15 | 5 |
| 1 | Functional Genomics | Genetics | BIO/18 | 1 |
| | | Genomic analysis | MED/03 | 5 |
| | | Regulation of gene expression | BIO/10 | 5 |

| | | | | |
|---|---|---|---|---|
| 1 | Molecular Basis of Regenerative Medicine | Histology, Gene and Cell Therapy | BIO/17 | 5 |
| | | Molecular Regenerative Medicine | BIO/11 | 5 |
| 1 | Applied Nanotechnologies | Applied Nanotechnologies for Regenerative Medicine | MED/50 | 1 |
| | | Biomaterials development and analytical technologies | ING-IND/34 | 5 |
| 1 | Molecular therapy | Biotechnological applications | BIO/13 | 6 |
| | | Pharmacology | BIO/14 | 5 |
| 1 | 3D models and Technologies for Tissue Engineering | 3D models and Technologies for Tissue Engineering | MED/50 | 5 |
| 1 | Optional Activities 1 | Optional Activities 1 | | 4 |
| 1 | Internship 1 | Internship 1 | | 4 |
| 2 | Scientific English Course for the thesis | Scientific English Course for the thesis | | 3 |
| 2 | Synthetic Biology | Synthetic Biology | BIO/13 | 6 |
| 2 | Preclinical studies and regulatory aspects | Biomaterials Immunomodulation | MED/04 | 3 |
| | | In vitro and in vivo Preclinical models | BIO/17 | 3 |
| | | Technology transfer and regulatory aspects | SECS-P/07 | 3 |
| | | Functional Tissue Engineering | BIO/16 | 5 |
| 2 | Functional and Applied Cell and Tissue Engineering | Cell Engineering in Hematology | MED/15 | 2 |
| | | Tissue Engineering in Orthopedics | MED/33 | 2 |
| | | Tissue Engineering in Dermatology | MED/35 | 2 |
| 2 | Optional Activities 2 | Optional Activities 2 | | 4 |
| 2 | Internship 2 | Internship 2 | | 6 |
| 2 | Experimental thesis | Experimental thesis | | 11 |

## ADMISSION

Bachelor's or master's degree in biology, biotechnology, or medical/ health sciences is required. Moreover, an adequate background in the basic disciplines (anatomy, biochemistry, biology, genetics) is also required by passing an entrance test. The level of English language proficiency must be no less than B2 (Common European Framework of Reference CEFR).

## JOB OPPORTUNITIES

- Access to doctoral positions in Italian and foreign academic and research institutions;
- Medical biotechnologist in academic and research institutions;
- Biologist in the Health System and other medical-diagnostic facilities (after passing the licensing/state examination);
- Researcher and employee in Biotech and Pharmaceutical companies;
- Data manager and study coordinator in the field of clinical trials;
- Clinical trial assistant in CROs (contract research organizations).

# TUTTA LA NOSTRA OFFERTA FORMATIVA

## ALESSANDRIA

### LAUREE TRIENNALI

Chimica
Economia aziendale
Educazione professionale
Fisioterapia
Infermieristica
Informatica
Scienze biologiche
Scienze politiche e dell'amministrazione

### LAUREE MAGISTRALI A CICLO UNICO

Giurisprudenza
Medicina e chirurgia

### LAUREE MAGISTRALI

Biologia
Economia e Management
Intelligenza artificiale e innovazione digitale
Scienze chimiche

## ASTI

### LAUREE TRIENNALI

Servizio sociale

## NOVARA

### LAUREE TRIENNALI

Biotecnologie
Economia aziendale
Fisioterapia (anche ad Alessandria e Fossano)
Igiene dentale
Infermieristica (anche ad Alba, Alessandria, Biella, Verbania e Vercelli)
Promozione e gestione del turismo
Tecniche di laboratorio biomedico
Tecniche di radiologia medica per immagini e radioterapia

### LAUREE MAGISTRALI A CICLO UNICO

Chimica e tecnologia farmaceutiche
Farmacia
Giurisprudenza (per l'economia e l'impresa)
Medicina e chirurgia

### LAUREE MAGISTRALI

Amministrazione, professione e persone
Biotecnologie farmaceutiche
Management e finanza
Medical Biotechnologies (100% in Inglese)
Scienze infermieristiche e ostetriche

## VERCELLI

### LAUREE TRIENNALI

Chimica verde
Filosofia e comunicazione
Fisica applicata
Gestione ambientale e sviluppo sostenibile
Infermieristica
Informatica
Lettere
Lingue straniere moderne
Scienze biologiche

### LAUREE MAGISTRALI

Biologia
Disaster and Health Crisis Management (100% in Inglese)
Filologia moderna, classica e comparata
Filosofia, politica e studi culturali
Food Health and Environment (100% in Inglese)
Intelligenza artificiale e innovazione digitale
Lingue, culture, turismo

**TUTTI I CORSI**
Naviga nella sezione Corsi del sito www.uniupo.it e scopri tutti i dettagli della nostra offerta formativa

UPO risponde

Ti servono informazioni? Abbiamo creato un servizio per rispondere in maniera efficace alle tue richieste.


# UPO, la giovane università delle grandi scelte.

**COME CI SI IMMATRICOLA?**
Naviga nella sezione Infostudenti per capire tutti i passi necessari per accedere ai nostri corsi

**TUTTI I SERVIZI A TUA DISPOSIZIONE**
Abbiamo pensato a una rosa di servizi fatti su misura per migliorare la tua esperienza all'UPO