

# Master in Biology

Biologie



Target level  
Baccalaureate  
+5



ECTS  
120 credits



Duration  
2 years



Component  
UFR Chimie-  
Biologie



Language(s) of  
instruction  
English, French

## Subprograms

- > Portal Molecular and cellular biology 1st year
- > Immunology microbiology infectious diseases (IMID)
- > Integrative structural biology (ISB)
- > Neurobiology Neurosciences (NN)
- > Physiology, epigenetics, differentiation and cancer (PhEDC)
- > Biology and marketing techniques (BioTechCo)
- > Lab science trading (LST)
- > Pro2Bio
- > PLANTA international (PLANTA-Int)

of the master's degree, *i.e.* the master 1st year's program named Molecular and cellular biology (MCB) opens to the 7 following master 2 programs

- Immunology, microbiology, infectious diseases (IMID) program
- Integrative structural biology (ISB) program
- Neurobiology - neurosciences (NN) program
- Physiology, epigenetics, differentiation and cancer (PhEDC) program
- Biologie et techniques de commercialisation (BioTechCo) program (taught in French)
- Lab science trading (LST) program
- Pro2Bio program (taught partly in French and partly in English)

The master in Biology also offers an international PLANTA course.

## Presentation



The master's degree in Biology is axed around the main domains of biomedical research in Grenoble. The first year

Students graduating from the master's degree in Biology can look forward to gaining job opportunities throughout the public and private sector, as well as in research settings in various fields of Biology such as cell biology, molecular biology, microbiology, immunology, infectious diseases, neurosciences, physiology, epigenetics, development, biochemistry, structural biology. The programs Pro2Bio, BioTechCo and Lab science trading open to careers as biomedical engineers (Pro2Bio) and sale engineers (BioTechCo and Lab science trading).

**International education** : Internationally-oriented programmes

## Admission

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### Access conditions

- First year master's degree : If you have completed a bachelor's degree in Science or are enrolled in the final semester of a bachelor's program in Science, you are eligible to apply for the master's degree in Biology
- Second year master's degree : To be eligible to apply you should have completed, or be enrolled in a first year of a master program in Science, and totalize 60 ETCS

Public continuing education : You are in charge of continuing education :

- if you resume your studies after 2 years of interruption of studies
- or if you followed training under the continuous training regime one of the previous 2 years
- or if you are an employee, job seeker, self-employed

If you do not have the diploma required to integrate the training, you can undertake a [🔗](#) validation of personal and professional achievements (VAPP).

### Candidature / Application

Do you want to apply and sign up for a course ? Please be aware that the procedure differs depending on the diploma you want to take, the diploma you have already obtained and, for foreign students, your place of residence. Let us be your guide – simply follow this [🔗](#) link

An interview will be proposed to the applicants to the first or second year of the master's degree in order to test their motivation

### Fees

- Tuition fees 2019-2020 : 243 €
- Fees CVEC : 91 €

## And after

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### Professional integration statistics

During the 2014-2015 survey, 6 graduates are in the labor market (job + research). Of these, 67% are employed 30 months after graduation.

### Additional information

The programs Pro2Bio, BioTechCo and Lab Science Trading open to careers as biomedical engineers (Pro2Bio) and sale engineers (BioTechCo and Lab Science Trading).

## Useful info

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### Contacts

Program director

Alain Buisson

✉ Alain.Buisson@univ-grenoble-alpes.fr

Program administration

Chemistry-Biology Course Services

✉ ufrchimiebiologie-formation@univ-grenoble-alpes.fr

### Course location(s) - City

📍 Grenoble

### Campus

🏠 Grenoble - University campus

# Program

## Portal Molecular and cellular biology 1st year

### Master 1st year

#### Semester 7

	Nature	CM	TD	TP	Crédits
UE Experimental approach in biology	Teaching Unit (UE)		3h	150h	18 credits
UE Cell compartmentalization and implications in pathology	Teaching Unit (UE)	43,5h	6h		6 credits
UE Molecular genetics and epigenetics	Teaching Unit (UE)	28,5h	12h	6h	6 credits
UE Chemistry and cellular biochemistry	Teaching Unit (UE)	30h	20h		6 credits

#### Semester 8

	Nature	CM	TD	TP	Crédits
UE Laboratory internship (part I)	Teaching Unit (UE)				6 credits
UE Communication tools	Teaching Unit (UE)	3h	21h		3 credits
UE Development and differentiation	Teaching Unit (UE)	30h	20h		6 credits
UE Metabolic physiology and pathophysiology	Teaching Unit (UE)	30h	20h		6 credits
UE How to become a cancer cell	Teaching Unit (UE)	30h	20h		6 credits
UE Molecular and cellular imaging (microscopy)	Teaching Unit (UE)	30h	2h	18h	6 credits
UE Molecular bases of the normal and pathological memory	Teaching Unit (UE)	45h	12h		6 credits
UE Behaviors of biological macromolecules	Teaching Unit (UE)	20h	10h	20h	6 credits

UE Neurological bases of the behaviors	Teaching Unit (UE)	36h	6h	4h	6 credits
UE Drug action and drug design	Teaching Unit (UE)	25h	15h	10h	6 credits
UE Engineering of macromolecules	Teaching Unit (UE)	25h	15h	10h	6 credits
UE Immunobiology	Teaching Unit (UE)	30h	20h		6 credits
UE Metals in biology	Teaching Unit (UE)	30h	20h		6 credits
UE Microbiology	Teaching Unit (UE)	18h	15h	8h	6 credits
UE Infectious diseases (part I)	Teaching Unit (UE)	34,5h	15h		6 credits
UE Biostatistics, bioinformatics and modeling (part I)	Teaching Unit (UE)	16,5h	16,5h	16,5h	6 credits
UE Biotechnology, products and processes	Teaching Unit (UE)	25h	25h		6 credits
UE Functional anatomy of the central nervous system	Teaching Unit (UE)	35h	5h		6 credits
UE English course	Teaching Unit (UE)		24h		3 credits
UE Transverse teaching of choice	Teaching Unit (UE)				3 credits

## Immunology microbiology infectious diseases (IMID)

### Master 2nd year

#### Semester 9

	Nature	CM	TD	TP	Crédits
UE Research project	Teaching Unit (UE)	3h	35h		6 credits
UE Fundamental and medical microbiology	Teaching Unit (UE)		40h		6 credits

UE Infectious diseases (part II)	Teaching Unit (UE)	18h	22h		6 credits
UE Pathology and immunology	Teaching Unit (UE)	24h	13,5h		6 credits
UE Immunity against cancers and infectious diseases	Teaching Unit (UE)	24h	13,5h		6 credits
UE Cancer disease : experimental and therapeutical approaches	Teaching Unit (UE)	30h	10h		6 credits
UE High throughput in biology	Teaching Unit (UE)				6 credits
UE Biostatistics, bioinformatics and molecular modeling (part II)	Teaching Unit (UE)	27h	12h		6 credits

## Semester 10

	Nature	CM	TD	TP	Crédits
UE Communication in scientific english (part II)	Teaching Unit (UE)				3 credits
UE Business plan of your start-up (entrepreneurship and science)	Teaching Unit (UE)		24h		3 credits
UE Laboratory internship IMID (part II)	Teaching Unit (UE)				24 credits

## Integrative structural biology (ISB)

### Master 2nd year

#### Semester 9

	Nature	CM	TD	TP	Crédits
UE Research project	Teaching Unit (UE)	3h	35h		6 credits
UE Structure determination of biological macromolecules	Teaching Unit (UE)	19h	10h	11h	6 credits
UE Integrative structural cell biology	Teaching Unit (UE)	20h	15h	5h	6 credits
UE Recent advances and applications in structural biology	Teaching Unit (UE)	15h	25h		6 credits

UE Cancer disease : experimental and therapeutical approaches	Teaching Unit (UE)	30h	10h		6 credits
UE High throughput in biology	Teaching Unit (UE)				6 credits
UE Biostatistics, bioinformatics and molecular modeling (part II)	Teaching Unit (UE)	27h	12h		6 credits

## Semester 10

	Nature	CM	TD	TP	Crédits
UE Communication in scientific english (part II)	Teaching Unit (UE)				3 credits
UE Business plan of your start-up (entrepreneurship and science)	Teaching Unit (UE)		24h		3 credits
UE Laboratory internship ISB (part II)	Teaching Unit (UE)				24 credits

## Neurobiology Neurosciences (NN)

### Master 2nd year

#### Semester 9

	Nature	CM	TD	TP	Crédits
UE Research project	Teaching Unit (UE)	3h	35h		6 credits
UE Neurophysiology	Teaching Unit (UE)				6 credits
UE Neurodegeneration and repair	Teaching Unit (UE)				6 credits
UE Plasticity of the adult nervous system	Teaching Unit (UE)				6 credits
UE Cancer disease : experimental and therapeutical approaches	Teaching Unit (UE)	30h	10h		6 credits
UE High throughput in biology	Teaching Unit (UE)				6 credits
UE Biostatistics, bioinformatics and molecular modeling (part II)	Teaching Unit (UE)	27h	12h		6 credits

UE Epigenetics and cell differentiation	Teaching Unit (UE)	18h	18h		6 credits
UE Cardiovascular physiology and integrated metabolism	Teaching Unit (UE)				6 credits
UE Ageing and longevity	Teaching Unit (UE)				6 credits
UE Evolution and development of Eukaryotes	Teaching Unit (UE)	21h	15h		6 credits

## Semester 10

	Nature	CM	TD	TP	Crédits
UE Communication in scientific english (part II)	Teaching Unit (UE)				3 credits
UE Business plan of your start-up (entrepreneurship and science)	Teaching Unit (UE)		24h		3 credits
UE Laboratory internship NN (part II)	Teaching Unit (UE)				24 credits

## Physiology, epigenetics, differentiation and cancer (PhEDC)

### Master 2nd year

#### Semester 9

	Nature	CM	TD	TP	Crédits
UE Research project	Teaching Unit (UE)	3h	35h		6 credits
UE Ageing and longevity	Teaching Unit (UE)				6 credits
UE Cardiovascular physiology and integrated metabolism	Teaching Unit (UE)				6 credits
UE Epigenetics and cell differentiation	Teaching Unit (UE)	18h	18h		6 credits
UE Evolution and development of Eukaryotes	Teaching Unit (UE)	21h	15h		6 credits
UE Molecular biology of the cancer cell	UE	36h			6 credits

UE Molecular biology of the cancer cell	UE	36h			6 credits
UE High throughput in biology	Teaching Unit (UE)				6 credits
UE Biostatistics, bioinformatics and molecular modeling (part II)	Teaching Unit (UE)	27h	12h		6 credits
UE Cancer disease : experimental and therapeutical approaches	Teaching Unit (UE)	30h	10h		6 credits
UE Neurophysiology	Teaching Unit (UE)				6 credits
UE Neurodegeneration and repair	Teaching Unit (UE)				6 credits
UE Plasticity of the adult nervous system	Teaching Unit (UE)				6 credits

## Semester 10

	Nature	CM	TD	TP	Crédits
UE Communication in scientific english (part II)	Teaching Unit (UE)				3 credits
UE Business plan of your start-up (entrepreneurship and science)	Teaching Unit (UE)		24h		3 credits
UE Laboratory internship PhEDD (part II)	Teaching Unit (UE)				24 credits

## Biology and marketing techniques (BioTechCo)

### Lab science trading (LST)

## Master 2nd year

### Semester 9

	Nature	CM	TD	TP	Crédits
UE Sales and commercial negotiation	Teaching Unit (UE)	40h	20h		6 credits
UE Marketing : an approach to foreign markets	Teaching Unit (UE)	24h	4h	12h	3 credits



UE Sociological and cultural approach in different parts of the world	Teaching Unit (UE)	40h	20h		3 credits
UE Knowledge of company management, accounting and logistics	Teaching Unit (UE)	40h	20h		3 credits
UE Project management	Teaching Unit (UE)	4h	16h		3 credits
UE Biotechnology and cross training between selling and science	Teaching Unit (UE)	24h	20h	16h	3 credits
UE Principles of instrumental analysis	Teaching Unit (UE)	24h	20h	16h	3 credits
UE Imaging technologies for life sciences	Teaching Unit (UE)	24h	20h	16h	3 credits
UE Relationship with the professional world	Teaching Unit (UE)	24h	20h		3 credits

## Semester 10

	Nature	CM	TD	TP	Crédits
UE Internship (part II)	Teaching Unit (UE)				27 credits
UE Communication in scientific english (part II)	Teaching Unit (UE)				3 credits

## Pro2Bio

### Master 2nd year

## Semester 9

	Nature	CM	TD	TP	Crédits
UE Knowledge of intellectual and industrial properties	Teaching Unit (UE)			2h	3 credits
UE Business ecosystem	Teaching Unit (UE)	40h			3 credits
UE Project management	Teaching Unit (UE)		5h		6 credits
UE Drawing up a business plan for setting up a business	Teaching Unit (UE)				3 credits

UE Introduction to the professional world	Teaching Unit (UE)			3 credits
UE Fundamental and medical microbiology	Teaching Unit (UE)	40h		6 credits
UE Infectious diseases (part II)	Teaching Unit (UE)	18h	22h	6 credits
UE Pathology and immunology	Teaching Unit (UE)	24h	13,5h	6 credits
UE Immunity against cancers and infectious diseases	Teaching Unit (UE)	24h	13,5h	6 credits

## Semester 10

	Nature	CM	TD	TP	Crédits
UE Communication in scientific english (part II)	Teaching Unit (UE)				3 credits
UE Training period M2Pro2Bio	Teaching Unit (UE)				27 credits

## PLANTA international (PLANTA-Int)

### Master 1st year

#### Semester 7

	Nature	CM	TD	TP	Crédits
UE Plant development and signaling part I	UE				6 credits
UE Evolutionary biology of plants	UE				6 credits
UE Strategies in experimental biology	UE				12 credits
UE Advanced scientific english / FLE / Italian	UE				3 credits
UE Entrepreneurship in sciences	UE				3 credits
UE Communication tools	UE				3 credits

#### Semester 8

	Nature	CM	TD	TP	Crédits
UE Plant development part II	UE				6 credits

UE Plant signal transduction part II	UE	6 credits
UE Laboratory stage	UE	6 credits
UE Plant ecology	UE	6 credits
UE Advanced plant cell biotechnology	UE	6 credits
UE Plant metabolic engineering and nutrigenomics	UE	6 credits
UE Basic statistics and experimental design	UE	6 credits
UE Development of crop ideotypes	UE	6 credits
UE Molecular plant breeding and genetics	UE	6 credits

## Master 2nd year

### Semester 9

### Semester 10