

Le Mans Université - Faculty of Science & Technology

# BACHELOR

Life Sciences



Faculté des Sciences  
& Techniques

Le Mans Université



# How does the Bachelor work?

The Bachelor's degree is open to students holding a Baccalaureate (scientific recommended), or, after examination by a validation commission, to holders of any other diploma (French or foreign) of equivalent high school or higher level. Registration details are available on the University website and from the Registrar's Office.

The Bachelor's degree is constituted of 6 semesters organized into teaching units (UE), also known as modules. Each UE comprises lectures, tutorials and practical work. Each semester is validated by the awarding of 30 ECTS credits (European Credit Transfer System), with a bachelor's degree being awarded on the basis of 180 credits. A semester is obtained by capitalizing or offsetting the UEs that make it up (average  $\geq 10/20$ ). Passage to the following year is conditional on validation of both semesters. In certain cases of non-validation of a semester (in L1 and L2), and on the advice of the jury, repeat students may be authorized to take certain UEs of the following year in advance.

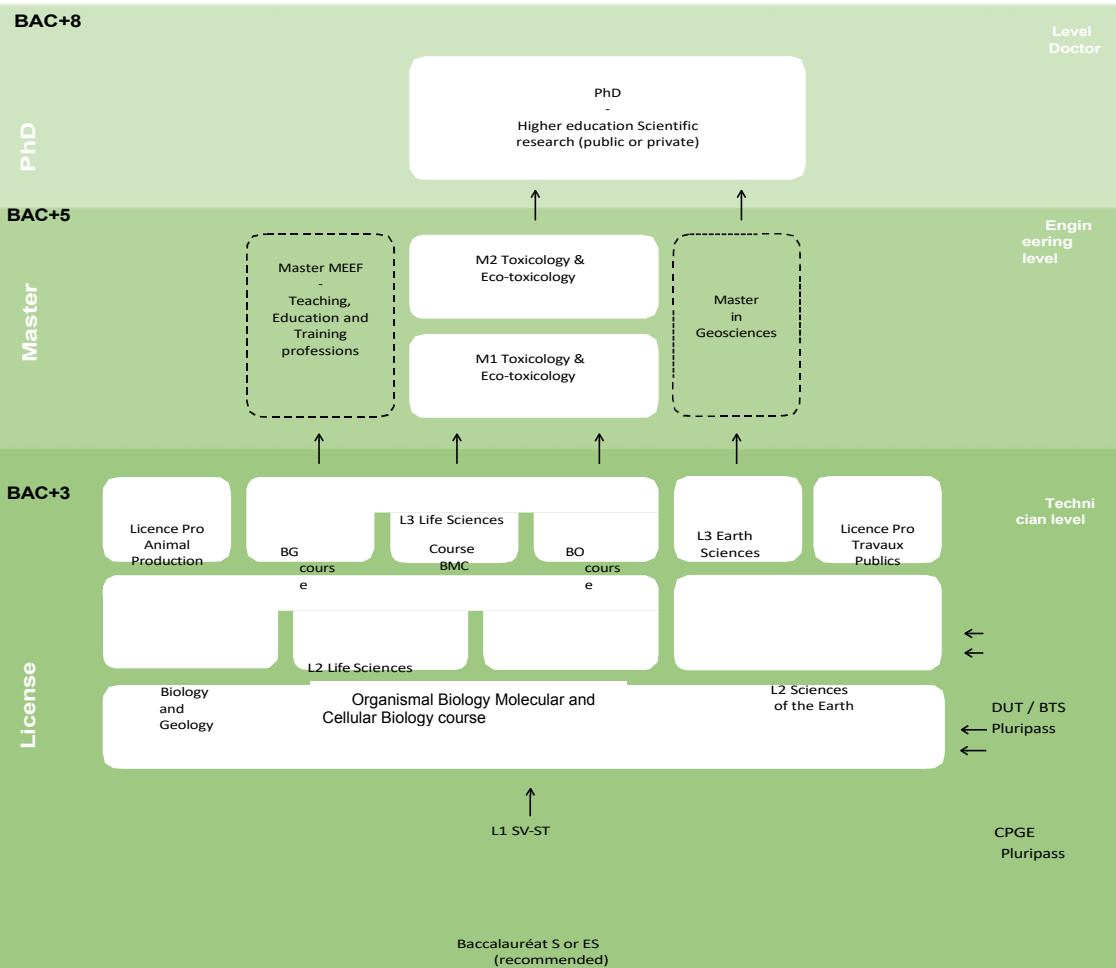
## Training objectives

The aim of the SV Bachelor's degree is to provide the theoretical and practical foundations needed for further study in Master's programs (Bac+5), engineering schools, and even Doctoral programs (Bac+8). For students who cannot or do not wish to pursue their studies beyond the Bachelor's degree, the courses offered allow them to opt for a Professional Bachelor's degree after L2 (subject to application).

At the end of L3, graduates have the following skills (among others):

- ✓ Identify and independently carry out the stages of an experimental approach in SV ;
- ✓ Study the impact of chemical and natural molecules on man and his environment ;
- ✓ Carry out measurements, experiments and observations, analyse and control the results;
- ✓ Mobilize the fundamental concepts of ecology and ecosystems to situate biological and physiological issues;
- ✓ Identify, select and apply the right combination of tools to characterize organisms (from bio-molecules to individuals) and their functioning at different levels of analysis: intracellular metabolism, biology and physiology of complex organisms, interactions between individuals and groups, interactions with the environment;
- ✓ Mobilize the concepts and tools of mathematics, physics, chemistry and computer science in the context of life science issues, etc.

# General diagram of the SV-ST filière



# Biology of organisms

## Common first year: SV-ST portal

Semester 1			Semester 2		
Module title	hours	ECTS	Module title	hours	ECTS
Maths for SVT	25	3	Maths for SVT	20	2
Physics for SVT	19	2	Physics for SVT	25	3
Chemical reaction	24	3	Organic chemistry	26	3
Structure and properties of atoms	22	3	Plant cell biology	26	3
Animal evolution and diversity	29	3	Animal cell biology	26	3
Plant evolution and diversity	28	3	Structural biochemistry	25	3
Planet Earth	25	3	History of the Earth	25	3
Introduction to petrology	25	3	Cartography	26	3
Overview of SVT professions	10	1	Digital skills (C2i)	25	2
Communication	20	2	Student Professional Project	10	1
English	20	2	Communication	15	2
Methodology, applications and programming	28	2	English	20	2

## Second year

Semester 3			Semester 4		
Module title	hours	ECTS	Module title	hours	ECTS
Spermaphytes anatomy and adaptations	24	3	Animal physiology	48	6
Cell Biology 2	50	5.5	Plant biology and physiology	59	5
Plant physiology	54	5.5	Genetics	32	4
Metabolic biochemistry	32	4	Molecular biology	29	3
Life chemistry	28	3	3G Genetic engineering	28	3
Biophysics	20	3	Biomolecule analysis techniques	28	3
History of science	15	2	Opening module	15	2
Opening module	15	2	Communication	15	2
English	20	2	English	20	2

## Third year

Semester 5			Semester 6		
Module title	hours	ECTS	Module title	hours	ECTS
Evolutionary biology	50	6	Plant biology and physiology 2	50	6
Metabolic biochemistry 2	50	6	Physiology of major functions	34	4
Embryology	25	3	Ecology	50	6
Invertebrate biology and evolution	25	3	Theories on the origin and evolution of life	25	2
Comp. anatomy and evolution of vertebrates	26	3	Cell Biology 3	18	2
Biostatistics	25	2	Business economics	15	2
Professional integration	15	2	English	20	2
English	20	2	A choice of two modules		
A module of your choice			Molecular biotechnology	32	3
			Population genetics	25	3
Genotoxicity and epigenetics	27	3	Microbiology	24	3
Algology and Mycology	25	3	Membrane biochemistry	25	3
Ethology	29	3	Chemistry of natural organic substances	25	3
Introduction to ecotoxicology	24	3	Training		2
			Study and research work		2

Further studies in Masters, engineering school...

# Molecular and Cellular Biology specialization

## Common first year: SV-ST portal

### Semester 1

### Semester 2

Module title	hours	ECTS	Module title	hours	ECTS
Maths for SVT	25	3	Maths for SVT	20	2
Physics for SVT	19	2	Physics for SVT	25	3
Chemical reaction	24	3	Organic chemistry	26	3
Structure and properties of atoms	22	3	Plant cell biology	26	3
Animal evolution and diversity	29	3	Animal cell biology	26	3
Plant evolution and diversity	28	3	Structural biochemistry	25	3
Planet Earth	25	3	History of the Earth	25	3
Introduction to petrology	25	3	Cartography	26	3
Overview of SVT professions	10	1	Digital skills (C2i)	25	2
Communication	20	2	Student Professional Project	10	1
English	20	2	Communication	15	2
Methodology, applications and programming	28	2	English	20	2

## Second year

### Semester 3

### Semester 4

Module title	hours	ECTS	Module title	hours	ECTS
Spermaphytes anatomy and adaptations	24	3	Animal physiology	48	6
Cell Biology 2	50	5,5	Plant biology and physiology	59	5
Plant physiology	54	5,5	Genetics	32	4
Metabolic biochemistry	32	4	Molecular Biology	29	3
Life chemistry	28	3	Genetic engineering	28	3
Biophysics	20	3	Biomolecule analysis techniques	28	3
History of science	15	2	Opening module	15	2
Opening module	15	2	Communication	15	2
English	20	2	English	20	2

## Third year

### Semester 5

### Semester 6

Module title	hours	ECTS	Module title	hours	ECTS
Evolutionary biology	50	6	Cell Biology 3	18	3
Metabolic biochemistry 2	50	6	Molecular biotechnology	32	3
Biomolecule analysis techniques	25	3	Microbiology	24	3
Genotoxicity and epigenetics	27	3	Membrane biochemistry	25	2
Introduction to ecotoxicology	24	3	Enzymology	28	3
Biostatistics	25	2	Business economics	15	2
Professional integration	15	2	English	20	2
English	20	2	Four modules to choose from (with constraints)		
A module of your choice			Plant biology and physiology 2	54	4
Angiology and mycology	25	3	Physiology and major functions	50	6
Biology and evolution of invertebrates	25	3	Ecology	50	6
Comparative anatomy and evolution of vertebrates	26	3	Chemistry of natural organic substances	25	3
Embryology	25	3	Organic chemistry applied to life	25	3
Solution chemistry applied to life	25	3	Population genetics	25	2
Organic chemistry applied to life	25	3	Internship		2
			Study and research work		2

Further studies in Masters, engineering school...

# Biology and Geology

## Common first year: SV-ST portal

### Semester 1

### Semester 2

Module title	hours	ECTS	Module title	hours	ECTS
Maths for SVT	25	3	Maths for SVT	20	2
Physics for SVT	19	2	Physics for SVT	25	3
Chemical reaction	24	3	Organic chemistry	26	3
Structure and properties of atoms	22	3	Plant cell biology	26	3
Animal evolution and diversity	29	3	Animal cell biology	26	3
Plant evolution and diversity	28	3	Structural biochemistry	25	3
Planet Earth	25	3	History of the Earth	25	3
Introduction to petrology	25	3	Cartography	26	3
Overview of SVT professions	10	1	Digital skills (C2i)	25	2
Communication	20	2	Student Professional Project	10	1
English	20	2	Communication	15	2
Methodology, applications and programming	28	2	English	20	2

## Second year

### Semester 3

### Semester 4

Module title	hours	ECTS	Module title	hours	ECTS
Cell Biology 2	50	5,5	Plant biology and physiology	59	4
Plant physiology	54	5,5	Genetics	32	4
Metabolic biochemistry	32	4	Molecular Biology	29	3
Sedimentology	27	3	Geodynamics	25	3
Structural geology	25	3	Magma and Volcanoes	25	3
History of science	15	2	Land	25	3
Opening module	15	2	Opening module	15	2
English	20	2	Communication	15	2
			English	20	2

## Third year

### Semester 5

### Semester 6

Module title	hours	ECTS	Module title	hours	ECTS
Evolutionary biology	50	5	Plant biology and physiology 2	50	6
Algae and mycology	25	3	Physiology of major functions	34	4
Cartography	25	3	Ecology	50	6
Geochemistry and geophysics	25	3	Theories on the origin and evolution of life	25	2
Endogenous petrology	25	3	Geology of France	25	3
Professional integration	15	2	Geo-resources	25	3
English	20	2	Business economics	15	2
			English	20	2
Three modules to choose from			A module of your choice		
Invertebrate biology and evolution	25	3	Training		2
Vertebrate anatomy and evolution	26	3	Study and research work		2
Ethology	29	3			
Embryology	25	3			
Planetology	25	3			

Continuation of studies leading to competitive teaching exams (agrégation)

## How do I register?

- 1 - **January:** 10 applications entered on the "Parcoursup" website [www.parcoursup.fr](http://www.parcoursup.fr)
- 2 - **End of May:** affichage of admission proposals and choice of candidates.
- 3 - **July:** register as soon as you have obtained your baccalaureate results, according to the procedures on the "Parcoursup" website and/or on the Le Mans Université website: [www.univ-lemans.fr](http://www.univ-lemans.fr) section FORMATION > CANDIDATURES / INSCRIPTIONS

## Registration fee :

As an indication, the registration fee for the 2019-2020 academic year is €170, payable after payment of the €90 CVEC. Go to [cvec.etudiant.gouv.fr](http://cvec.etudiant.gouv.fr)

Scholarship holders are exempt from paying the CVEC and registration fees. Students who have received a conditional grant are automatically detected on the site and can download their CVEC payment certificate once they have completed the online procedure.

Please note: to apply for a grant and accommodation (DSE) for the start of the new school year in September, you need to fill in the form from mid-January on the CROUS website: [www.crous-nantes.fr/bourses/](http://www.crous-nantes.fr/bourses/)

The information contained in this document is given for guidance only and may be subject to change. It should not be considered as contractual.



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**SV department website :**

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