



Degree **Sciences, technologies, health**

Specialisation **Life Sciences**

Course **Cellular Biology and Physiology / Bio and geosciences / Biology of Organisms and Populations**

## Aims

The degree in Life Sciences helps students to acquire a solid basis of knowledge and to develop a range of technical and methodological skills in the field of Life Sciences.

The courses are organised to encourage, first of all, an exploration of the scientific field, then a gradual orientation towards one of the disciplinary fields in Biology or in the teaching, training or cultural professions.

The CBP and BOP courses focus on types of activities relating to production, packaging, control and analysis, quality, hygiene and safety, development and research.

The BGS course prepares students to go on towards a course based on teaching in primary or secondary education.

Access to the courses in the first year is via the general and multidisciplinary portal course, Biology-Geology-Chemistry, which takes place over the first two terms of the degree in Life Sciences.

This gateway course aims, through a clearly interdisciplinary approach, to help students acquire and reinforce the fundamental scientific skills and knowledge needed to go on to a specialisation from the second year.

## Admission

§ Baccalaureate, preferably scientific.

## Skills

§ To take part in designing experimental scientific projects (biology, biochemistry, genetics, ecology, etc.)

§ To define and use tools for analysis and scientific studies

§ To translate and interpret scientific results

§ To update and organise access to scientific information

## After the course

### Continuing studies

§ The course is firstly a preparation for a master's degree (in education, ethology, health engineering) at the UJM but is also adapted master's degrees in biology anywhere in France.

§ Students can also continue at an engineering school or in studies in the medical or pharmaceutical field.

§ The course also gives access to:

entrance exam B for the *grande écoles* (ENSA: École nationale supérieure d'agronomie; ENV: École nationale vétérinaire),

entrance exam for national and regional civil servants (category A).

### Job openings

§ The professions available at the end of the course (master's level and doctorate level) are: assistant engineer, research engineer, teacher, lecturer-researcher, researcher, mid or top-level executive, both in the private and the public sector.

## Contact

### School

+33 (0) 4 77 48 51 02

## Tuition fees

### Fees 2017/2018

Main registration: €184

Preventive medicine: €5.10

Social security: €217

# Courses

term 1 - Biology Geology Chemistry	Hours	ects
CU BIOLOGY 1: LEVEL OF ORGANISATION OF LIFE: CELLS AND ORGANISMS	58	6
CU GEOLOGY 1: EARTH & UNIVERSE, STRUCTURE OF INTERNAL/EXTERNAL ENVELOPES	48	6
CU CHEMISTRY 1: ATOMS AND THERMODYNAMICS	60	6
CU MATHEMATICAL TOOLS FOR EXPERIMENTAL SCIENCES 1	28	3
CU PHYSICS TOOLS FOR EXPERIMENTAL SCIENCES 1	30	3
CU LINGUISTIC TOOLS FOR EXPERIMENTAL SCIENCES 1	24	3
CU DIGITAL AND TEXTUAL TOOLS CU WITH 2 EDUCATIONAL ELEMENTS:		3
CU Digital tools for the experimental sciences 1	20	2
CU Textual tools for the experimental sciences	5	1

term 3 - Life Sciences	Hours	ects
CU TRANSMISSION AND EXPRESSION	50	5
CU BIOMOLECULES: STRUCTURES, REACTIONS ENERGETIC ASPECTS	50	5
CU FLOWERING PLANTS: DEVELOPMENT, GROWTH AND REPRODUCTION	50	5
CU ANIMALS: ORGANISATION PLANS AND PHYLOGENETICS	50	5
CU BIOMATHEMATICS	20	2
CU GENERAL ENGLISH B2	18	2
CU PERSONAL CAREER PROJECT	20	2
CHOICE OF SUBJECTS - 1 CU FROM:		4
CU Movement and living things	40	4
CU Organic chemistry applied to molecules of natural origin	40	4
CU Minerals, rocks, exogenous processes	38	4
CU Ecology: Fundamentals	30	4

term 5 - Cellular Biology and Physiology	Hours	ects
CU ANIMALS: DEVELOPMENT AND CONTROL	58	5
CU NERVOUS SYSTEMS: FROM NEURONES TO THE NERVOUS SYSTEM	51	5
CU THE MECHANISMS OF EVOLUTION: FROM GENES TO SPECIES	52	5
CU QUANTITATIVE STUDY OF LIFE 1	21	2
CU SPECIALISED SCIENTIFIC ENGLISH	24	3
CU GENES AND PROTEINS: ANALYSES AND CHARACTERISTICS	50	5
CU INVESTIGATION METHODS IN BIOLOGY 1	50	5

term 2 - Biology Geology Chemistry	Hours	ects
CU BIOLOGY 2: NUCLEIC ACIDS, GENES, GENOMES AND BIODIVERSITY	60	6
CU GEOLOGY 2: INTERNAL AND EXTERNAL DYNAMICS OF THE EARTH, GEORESOURCES, GEOMATERIALS	48	6
CU CHEMISTRY 2: CRYSTALLOGRAPHY, KINETICS, PH-METER, COMPLEXOMETRY	60	6
CU MATHEMATICAL TOOLS FOR THE EXPERIMENTAL SCIENCES 2	22	3
CU PHYSICS TOOLS FOR THE EXPERIMENTAL SCIENCES 2	30	3
CU LINGUISTIC TOOLS FOR THE EXPERIMENTAL SCIENCES 2	24	2
CU DIGITAL TOOLS AND CULTURE FOR THE EXPERIMENTAL SCIENCES 2	4	2
CU GENERAL ENGLISH B2	18	2

term 4 - Life Sciences	Hours	ects
CU ANIMALS: MAJOR FUNCTIONS	50	5
CU PLANTS: ORGANISATION AND REPRODUCTION	50	5
CU METABOLISM, NUTRITION AND GROWTH IN EUKARYOTES AND PROKARYOTES	50	5
CU SOME APPLICATIONS OF BIOLOGY	44	5
CU OPEN CREDITS	20	2
CU GENERAL ENGLISH B2	24	3
CHOICE OF SUBJECTS - 1 UE FROM:		5
UE Physical exploration of the cell and the organism	38	5
UE General chemistry and natural products	50	5
UE Sedimentary processes, geological structures, cartographic representation	50	5

term 6 - Cellular Biology and Physiology	Hours	ects
CU IMMUNITY, ITS PATHOLOGIES AND THE APPLICATIONS OF IMMUNOLOGY	50	5
CU FLOWERING PLANTS: NUTRITION, INTER-SPECIES RELATIONS AND INTERACTION WITH THE ENVIRONMENT	50	5
CU AN INTERDISCIPLINARY BIOLOGICAL QUESTION	30	3
CU QUANTITATIVE STUDY OF LIFE 2	21	2
CU ENGLISH AND SCIENTIFIC COMMUNICATIONS	30	3
CU OPEN CREDITS	20	2
CU INVESTIGATION METHODS IN BIOLOGY 2	50	5
CAREER PREPARATION (SUPPORTED PRACTICE) - 1 CU FROM:		5
CU internship in a company or laboratory (with Preparation for continuing studies or employment)	10	5
CU From cell functions to pathology: examples and therapeutic strategies	30	5
CU ASTEP: Support in science and technology in primary school	25	5

<b>term 5 - Bio and geosciences</b>	Hours	ects
<b>CU ANIMALS: DEVELOPMENT AND CONTROL</b>	58	5
<b>CU NERVOUS SYSTEMS: FROM NEURONES TO THE NERVOUS SYSTEM</b>	51	5
<b>CU THE MECHANISMS OF EVOLUTION: FROM GENES TO SPECIES</b>	52	5
<b>CU QUANTITATIVE STUDY OF LIFE 1</b>	21	2
<b>CU SPECIALISED SCIENTIFIC ENGLISH</b>	24	3
<b>CU PLANTS: EVOLUTION AND PHYLOGENETICS</b>	50	5
<b>CU ECOSYSTEMS, THE ECOLOGICAL FACTORS AND COMMUNITIES</b>	50	5

<b>term 5 - Biology of Organisms and Populations</b>	Hours	ects
<b>CU ANIMALS: DEVELOPMENT AND CONTROL</b>	58	5
<b>CU NERVOUS SYSTEMS: FROM NEURONES TO THE NERVOUS SYSTEM</b>	51	5
<b>CU THE MECHANISMS OF EVOLUTION: GENES SPECIES</b>	52	5
<b>CU QUANTITATIVE STUDY OF LIFE 1</b>	21	2
<b>CU SPECIALISED SCIENTIFIC ENGLISH</b>	24	3
<b>CU PLANTS: EVOLUTION AND PHYLOGENETICS</b>	50	5
<b>CU ECOSYSTEMS, THE ECOLOGICAL FACTORS AND COMMUNITIES</b>	50	5

<b>term 6 - Bio and geosciences</b>	Hours	ects
<b>CU IMMUNITY, ITS PATHOLOGIES AND THE APPLICATIONS OF IMMUNOLOGY</b>	50	5
<b>CU FLOWERING PLANTS: NUTRITION, INTER-SPECIES RELATIONS AND INTERACTION WITH THE ENVIRONMENT</b>	50	5
<b>CU AN INTERDISCIPLINARY BIOLOGICAL QUESTION</b>	30	3
<b>CU QUANTITATIVE STUDY OF LIFE 2</b>	21	2
<b>CU ENGLISH AND SCIENTIFIC COMMUNICATIONS</b>	30	3
<b>CU OPEN CREDITS</b>	20	2
<b>CU MAGMATISM, METAMORPHISM, GEODYNAMICS, PALEOBIOSPHERE AND PALEOENVIRONMENTS</b>	70	7
<b>CAREER PREPARATION (SUPPORTED PRACTICE INCLUDING A PREPARATION FOR CONTINUING STUDIES OR WORK) - 1 CU FROM:</b>		3
CU Internship in primary school	10	3
CU Internship in secondary school	10	3

<b>term 6 - Biology of Organisms and Populations</b>	Hours	ects
<b>CU IMMUNITY, ITS PATHOLOGIES AND THE APPLICATIONS OF IMMUNOLOGY</b>	50	5
<b>CU FLOWERING PLANTS: NUTRITION, INTER-SPECIES RELATIONS AND INTERACTION WITH THE ENVIRONMENT</b>	50	5
<b>CU AN INTERDISCIPLINARY BIOLOGICAL QUESTION</b>	30	3
<b>CU QUANTITATIVE STUDY OF LIFE 2</b>	21	2
<b>CU ENGLISH AND SCIENTIFIC COMMUNICATIONS</b>	30	3
<b>CU OPEN CREDITS</b>	20	2
<b>CU ANIMAL BEHAVIOUR: CHARACTERISTICS, ORIGIN AND CONTROL</b>	41	5
<b>CAREER PREPARATION (SUPPORTED PRACTICE) - 1 CU FROM:</b>		5
CU internship in a company or laboratory (with Preparation for continuing studies or for employment	10	5
CU ASTEP: Support in science and technology in primary school	25	5