



## Information about the subject

**Degree:** Bachelor of Degree in Marine Sciences

**Faculty:** Faculty of Veterinary Medicine and Experimental Sciences

**Code:** 271102 **Name:** Biology

**Credits:** 6,00 **ECTS Year:** 1 **Semester:** 1

**Module:** Fundamental Science

**Subject Matter:** Biology **Type:** Basic Formation

**Field of knowledge:** Sciences

**Department:** -

**Type of learning:** Classroom-based learning

**Languages in which it is taught:** Spanish

**Lecturer/-s:**

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## Module organization

### Fundamental Science

Subject Matter	ECTS	Subject	ECTS	Year/semester
Physics	12,00	Fluid Mechanics	6,00	1/2
		Physics	6,00	1/1
Mathematics	6,00	Mathematics	6,00	1/1
Chemistry	12,00	Chemistry	6,00	1/1
		Chemistry of Aqueous Solutions	6,00	1/2
Biology	12,00	Biochemistry	6,00	1/2
		Biology	6,00	1/1
Geology	6,00	Geology	6,00	1/2



## Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 The student knows the main disciplines integrating the life sciences, their foundations, and fields of work.
- R2 The student distinguishes the different levels of organization of living beings.
- R3 The student uses different working techniques in the laboratory, understanding the planning, development and purpose of the experiment.
- R4 The student knows and uses basic techniques for the collection of organisms in coastal sampling.
- R5 The student applies the general knowledge of biology: marine biology case.
- R6 The student extracts qualitative information on biotic and abiotic factors from Mediterranean marine ecosystems.
- R7 The student seeks bibliographical information from different sources and can analyse it with a critical and constructive spirit.
- R8 The student is able to produce documents on biology and can work in teams.
- R9 The student argues with rational criteria from his/her work.
- R10 The student is able to draft an intelligible and well-organized text on different aspects of biological sciences.



## Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students acquire and understand knowledge in their field of study based on general secondary education but usually reaching a level that, although supported on advanced text books, also includes aspects involving state-of-the-art knowledge specific to their area.				X
CB2	Students are able to apply knowledge to their work in a professional way and have the competences enabling them to state and defend views and opinions as well as perform problem-solving tasks in their field of study.	X			
CB5	Students develop the necessary learning skills to undertake further studies with a high level of autonomy.		X		

GENERAL		Weighting			
		1	2	3	4
CG1	Capacity to analyze and synthesize				X
CG2	Capacity to organize and plan			X	
CG3	Mastering Spanish oral and written communication				X
CG5	Knowing and applying Basic ITC skills related to marine science	X			
CG6	Capacity to manage information (capacity to look for and analyze information coming from different types of sources)			X	
CG7	Decision making		X		
CG8	Capacity to work in interdisciplinary and multidisciplinary team			X	
CG9	Interpersonal skills	X			



CG10	Critical and self-critical capacity	x			
CG11	Capacity to learn		x		
CG12	Capacity to adapt to new situations				x
CG13	Capacity to produce new ideas (creativity)	x			
CG16	Capacity to apply theoretical knowledge		x		

SPECIFIC	Weighting			
	1	2	3	4
CE8	Identifying and analyzing new problems and proposing solution strategies	x		
CE9	Knowing how to carry out experiments and measurements both in the laboratory and during sample collection	x		
CE11	Knowing how to do fieldwork and laboratory experiments in a safe and responsible way, promoting teamwork			x



## Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R9, R10	40,00%	Written test with theoretical and practical questions
R3, R4, R5, R6, R7, R8, R10	20,00%	Delivery of guided assignments, whose objectives and contents will be proposed by the teacher
R2, R3	20,00%	Laboratory test
R3, R4, R5, R6, R9	20,00%	Oral presentation

### Observations

The weighted average necessary to pass the subject will be equal to or greater than 5. It is possible to weight the final grade in the case that in an item is obtained between 4 and 4.99 points, the rest must be at least 5 points.

### MENTION OF DISTINCTION:

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.

## Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- M1 Teacher presentation of contents, analysis of competences, explanation and in-class display of skills, abilities and knowledge.



- M2 Group work sessions supervised by the professor. Case studies, diagnostic tests, problems, field work, computer room, visits, data search, libraries, on-line, Internet, etc. Meaningful construction of knowledge through interaction and student activity.
- M3 Activities carried out in spaces with specialized equipment.
- M4 Supervised monographic sessions with shared participation.
- M5 Application of multidisciplinary knowledge.
- M6 Personalized and small group attention. Period of instruction and/or guidance carried out by a tutor to review and discuss materials and topics presented in classes, seminars, readings, papers, etc.
- M8 Set of oral and/or written tests used in initial, formative or additive assessment of the student.
- M9 Group preparation of readings, essays, problem-solving, seminars, papers, reports, etc. to be presented or submitted in theoretical , practical and/or small-group tutoring sessions. Work done on the university e-learning platform ([www.plataforma.ucv.es](http://www.plataforma.ucv.es) )
- M10 Student's study: Individual preparation of readings, essays, problem-solving, seminars, papers, reports, etc. to be presented or submitted in theoretical, practical and/or small-group tutoring sessions. Work done on the university e-learning platform ( [www.plataforma.ucv.es](http://www.plataforma.ucv.es) ).



## IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
ON-CAMPUS CLASS M1	R1, R2, R5, R6, R9	37,00	1,48
PRACTICAL CLASSES M2	R4, R5, R6, R8, R9, R10	4,00	0,16
LABORATORY M3	R1, R2, R3, R5, R8, R9	8,00	0,32
SEMINAR M4	R2, R3, R4	3,00	0,12
GROUP PRESENTATION OF ASSIGNMENTS M5	R5, R7, R8, R9, R10	3,00	0,12
TUTORIAL M6	R5, R7, R9, R10	2,00	0,08
ASSESSMENT M8	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10	3,00	0,12
<b>TOTAL</b>		<b>60,00</b>	<b>2,40</b>

## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK M9	R3, R4, R5, R6, R8, R9, R10	20,00	0,80
INDEPENDENT WORK M10	R1, R2, R5, R6, R7, R9, R10	70,00	2,80
<b>TOTAL</b>		<b>90,00</b>	<b>3,60</b>





## Description of the contents

Description of the necessary contents to acquire the learning outcomes.

### Theoretical contents:

Content block	Contents
UNIT 1. Introduction to biology	Basic concepts. Historical outline. Branches of biology.
UNIT 2. Marine Biology	Basic concepts. Pelagic system: zonation and classification of organisms. Benthic system: zonation and classification of organisms. Aquatic environment.
UNIT 3. Biochemistry	Chemical composition of cells: water, ions and dissolved gases. Organic compounds: carbohydrates, lipids, proteins and nucleic acids.
UNIT 4. The cell	Cell theory. Types of cells: Prokaryotes and eukaryotes. Cell organization: cellular organelles. Biological membranes.
UNIT 5. Cell physiology	Transport. Intercellular union. Metabolic processes. Cell cycle and reproduction.
UNIT 6. Multicellular organization	Tissues, organs and systems: homeostasis.
UNIT 7. Diversity of life	The five kingdoms. Introduction to the systematics and taxonomy of marine organisms.
UNIT 8. Ecology	Ecosystems. Populations and Communities. Demography. Inter and intra-specific relationships. Diversity. Spatial structure Succession. Food web. Energy flows and matter cycles. Holism and reductionism. Biosphere and Gaia.
UNIT 9. Genetics	Organization, duplication, transmission, expression, regulation and change of genetic information. Genes and development.
UNIT 10. Evolution	Macro- and microevolution. Theories of evolution. Speciation. Evolutionary history of life on Earth.



## Organization of the practical activities:

	Content	Place	Hours
PR1.	Processing of soft bottoms biological samples	Laboratory	2,00
PR2.	Marine Biological Lab: basic microscopy techniques	Laboratory	2,00
PR3.	Animal tissues	Laboratory	2,00
PR4.	Diversity of organisms in coastal waters I	Laboratory	2,00
PR5.	Diversity of organisms in coastal waters II	Laboratory	2,00
PR6.	Sampling of marine organisms	Boat	2,00
PR7.	Study of Supra, meso-and upper infralittoral rocky shore areas.	Marine station	2,00
PR8.	Mediterranean Benthic organisms: Biodiversity	Marine station	2,00



## Temporary organization of learning:

Block of content	Number of sessions	Hours
UNIT 1. Introduction to biology	2,00	4,00
UNIT 2. Marine Biology	5,00	10,00
UNIT 3. Biochemistry	2,00	4,00
UNIT 4. The cell	3,00	6,00
UNIT 5. Cell physiology	2,00	4,00
UNIT 6. Multicellular organization	3,00	6,00
UNIT 7. Diversity of life	5,00	10,00
UNIT 8. Ecology	3,00	6,00
UNIT 9. Genetics	3,00	6,00
UNIT 10. Evolution	2,00	4,00



## References

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## Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

**Situation 1: Teaching without limited capacity** (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

**Situation 2: Teaching with limited capacity** (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

### 1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

☒ Microsoft Teams

☒ Kaltura



## **Situation 3: Confinement due to a new State of Alarm.**

In this case, the following changes are made:

### **1. Educational Activities of Onsite Work:**

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☒ Microsoft Teams

☒ Kaltura

Explanation about the practical sessions:

In the case of confinement due to a new state of alarm, all practical sessions requiring the student's presence will be moved to a new date as soon as the health situation allows. If it is not possible to carry out classroom activities (such as boat or laboratory practices), these will be replaced by online sessions and video-tutorials on the techniques to be used, and the analysis and guided discussion of the results based on data provided by the professor.



## 2. System for Assessing the Acquisition of the competences and Assessment System

### ONSITE WORK

#### Regarding the Assessment Tools:

☒ The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☐ The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

#### Comments to the Assessment System: