



## IDENTIFYING DATA

### Biology: Biology 2

Subject	Biology: Biology 2			
Code	V10G061V01106			
Study programme	Grado en Ciencias del Mar			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	2nd
Teaching language	#EnglishFriendly Spanish			
Department				
Coordinator	Souza Troncoso, Jesús			
Lecturers	López Pérez, Jesús Souza Troncoso, Jesús			
E-mail	troncoso@uvigo.es			
Web				
General description	It is the first approach of the student to the Zoology and Ecology.  English Friendly subject: International students may request from the teachers: a) resources and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English.			

## Training and Learning Results

Code			
A1	Students have demonstrated knowledge and understanding in a field of study that builds upon their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study		
C9	Acquire basic knowledge about the structural and functional organization and the evolution of marine organisms.		
C10	Know the biological diversity and functioning of marine ecosystems.		
C11	Apply the knowledge and techniques acquired to the characterization and sustainable use of living resources and marine ecosystems.		
D1	Develop the search, analysis and synthesis of information skills oriented to the identification and resolution of problems.		
D2	Acquire the ability to learn autonomously, continuously and collaboratively, organizing and planning tasks over time.		

## Expected results from this subject

Expected results from this subject		Training and Learning Results	
1. Know, comprise, measure and value the importance of the biodiversity of the organisms in the half marine.	A1	C9 C10 C11	D1 D2
2. Comprise the bases of the diversity and the evolutionary history of the animal species.	A1	C9 C10 C11	D1 D2
3. Know the basic terminology of the zoological science.	A1	C9 C10 C11	D1 D2
5. Know the situation of the *filos zoological in the marine ecosystems (*zooplancton, *necton, *bentos).	A1	C9 C10 C11	D1 D2
6. Know the adaptations *morfolóxicas that condition the situation of the zoological groups in the marine ecosystems coastlines, *neríticos and deep.	A1	C9 C10 C11	D1 D2
7. Know recognize the main *filos zoological belonging to the half marine.	A1	C9 C10 C11	D1 D2

8. Know recognize the offshore species more common.	A1	C9 C10 C11	D1 D2
9. Know and comprise the basic ecological principles that determine the structure and the operation of the marine ecosystems.	A1	C9 C10 C11	D1 D2
10. Acquire basic knowledge on autoecología. Adjustment go in the organisms and the environment. Environmental factors. Analysis of the effects and answers of the organisms the distinct Factors. Conditions and resources.	A1	C9 C10 C11	D1 D2
11. Purchase the capacity to relate processes *abióticos and *bióticos in the half marine.	A1	C9 C10 C11	D1 D2
12. Purchase skill in the analysis and interpretation of data.	A1	C9 C10 C11	D1 D2
13. Purchase the skill to transmit information of form written, verbal and graphic.	A1	C9 C10 C11	D1 D2

## Contents

### Topic

□ The diversity of the marine organisms. The tree The zoological Topic coincides with Sub-topics. of life.

□ The five kingdoms. Unicellular and multicellular idem organisms.

□ The multicellular organisms: the animal idem kingdom.

□ Origin of metazoas, levels of organisation. idem Analogy and homology. The symmetry. Classifying animals. The biological nomenclature. Systematics. Filogeny.

□ Introduction to the Phyla on marine idem environment.

□ The invertebrates protostomes. Lophotrochozoa idem and ecdysozoa.

□ The invertebrates deuterostomes: idem xenoturbellida, equinodermata and hemichordata.

Introduction to the Phylum chordata. idem Characteristics of the subphyla urochordata and cephalochordata.

The subphylum Craniata (vertebrates). Agnatha idem and gnathostomata.

Marine condrichthyes, osteichthyes, birds and idem mammalia.

- Vertebrates with accidental presence on marine idem environment: amphibia and reptilia.

- Field of study of the ecology: The biological idem The ecological topics coincides with Sub-topics. macroscopic systems: The ecology how science of synthesis; historical review. Levels of organisation; hierarchy and emergent properties. General theory of systems. System to level supra organismic. The ecosystem. The parts (diversity) and it all (energetic).

- The paper of the environment in the evolution of idem the organisms: Adaptation; concept and critical. Biological efficacy. Natural selection and genetic drift. Speciation. Convergences and parallelisms. Ecotypes and genetic polymorphisms.

- Decomposition of the environment factors: idem conditions and resources. Limiting factors. Limits of tolerance and optimal physiological. Ecological indicators. Ecological niche. Ecological profiles.

- Environmental factors: The space, Temperature, idem Salinity, luminous Radiation, Nutrients, Gases dissolved, others.

<b>Planning</b>			
	Class hours	Hours outside the classroom	Total hours
Lecturing	29	59	88
Seminars	7	24	31
Laboratory practical	8	12	20
Studies excursion	6	3	9
Objective questions exam	0.5	0	0.5
Essay questions exam	0.5	0	0.5
Presentation	0.5	0	0.5
Laboratory practice	0.5	0	0.5

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

<b>Methodologies</b>	
	Description
Lecturing	Explain to the students the theoretical contents that will be evaluated in a final examination.
Seminars	By means of the preparation of oral exhibitions on scientific texts selected, the students will show his skills, the team work, oral exhibition regard a scientific subject. After the exposure we will open a debate to evaluate the capacity of synthesis and the understanding of the subject proposed.
Laboratory practical	Recognize the answers of the organisms to the environmental factors. Besides to recognize the most commons marine organisms on our coasts.
Studies excursion	The students will learn to recognize the marine organisms more common of the European coasts.

### **Personalized assistance**

<b>Methodologies</b>	<b>Description</b>
Lecturing	Students willing so could attend personal tutorials to solve doubts and/or uncertainties, which will mainly take place during the timetables indicated. To better optimise the procedure, the student is requested to previously contact his/her teacher with reasonable anticipation.
Seminars	It Will do a continuous assessment of the academic performance of the student during the Seminars by means of the observation of the his active participation, so much during the phase of preparation, manufacture, exhibition, back debate as well as the resources to bibliography used.
Laboratory practical	The professors of the subject will realize a continuous assessment of the performance of the student, in base to the participation in the practices and to the intervention in the distinct activities offered.
Studies excursion	Students willing so could attend personal tutorials to solve doubts and/or uncertainties, which will mainly take place during the timetables indicated. To better optimise the procedure, the student is requested to previously contact his/her teacher with reasonable anticipation.
<b>Tests</b>	<b>Description</b>
Objective questions exam	The professor will be present at the exam.
Essay questions exam	The professor will be present at the exam.
Presentation	The professor will be present at the exposition.
Laboratory practice	The professor will be present at the laboratory.

### **Assessment**

	Description	Qualification	Training and Learning Results		
Lecturing	They Will evaluate the contents with questions type test and/or short questions.	2	A1	C9 C10 C11	D1 D2
Seminars	It Will qualify the preparation of the subject and his exhibition. It will evaluate the participation debate us of all the Seminars. Due to the experimental nature, attendance is mandatory.	5	A1	C9 C10 C11	D1 D2
Laboratory practical	It Will value the realization and participation in the practical. Due to the experimental nature, attendance is mandatory.	10	A1	C9 C10 C11	D1 D2
Studies excursion	It Will evaluate the realization and the participation in the trip. Due to the experimental nature, attendance is mandatory.	5	A1	C9 C10 C11	D1 D2
Objective questions exam	It will qualify the basic concepts in Zoology and Ecology.	19	A1	C9 C10 C11	D1 D2

Essay questions exam	It will qualify the basic concepts in Zoology and Ecology.	19	A1	C9 C10 C11	D1 D2
Presentation	Attendance is mandatory during the seminar to give the presentation. It will qualify the presentation and discussion.	15	A1	C9 C10 C11	D1 D2
Laboratory practice	Attendance is mandatory to prepare the results book. It will qualify the laboratory results book.	25	A1	C9 C10 C11	D1 D2

### Other comments on the Evaluation

**Continuous assesment:** Master class/Lecturer attendance: 0.2 points. Exam: 3.8 points. Seminars and technical visit: 3 points. Practices: 3 points.

**Global assesment:** The application for this evaluation must be submitted in the time and manner determined by the Center, which will be published prior to the academic start. Given the experimental nature of the practices, attendance at them is mandatory to be eligible for this evaluation option. Failure to attend the practices, with no justified cause invalidates this possibility, as well as the opportunity for extraordinary evaluation (2nd opportunity).

### 2nd Opportunity (July call)

Students will be able to recover up to a maximum of 4 points in the 2nd chance exam.

Date, time and place of exams will be published in the official web of Marine Sciences Faculty:

<http://mar.uvigo.es/alumnado/examenes/>

Students are strongly requested to fulfil a honest and responsible behaviour. It is considered completely unacceptable any alteration or fraud (i.e., copy or plagiarism) contributing to modify the level of knowledge and abilities acquired in exams, evaluations, reports or any kind of teacher's proposed work. Fraudulent behaviour may cause failing the course for a whole academic year. An internal dossier of these activities will be built and, when reoffending, the university rectorate will be asked to open a disciplinary record.

### Sources of information

#### Basic Bibliography

Susan Keen, Jr. Hickman, Cleveland, Allan Larson, David Eisenhour, Helen I'Anson, **Integrated Principles of Zoology**, 16, McGraw-Hill Education, 2015

Richard C. Brusca, **Invertebrates**, Sinauer, 2016

Peter Castro, Michael Huber, **Marine Biology**, 9, McGraw-Hill Higher Education, 2012

Trigo, J.E., et al., **Guía de los Moluscos Marinos de Galicia**, 1, UVIGO - Soc. Esp. Malcologia, 2018

#### Complementary Bibliography

### Recommendations

### Other comments

The key to success is to take part in all activities.