Information about the subject

Degree: Bachelor of Science Degree in Marine Sciences

Faculty: Faculty of Veterinary Medicine and Experimental Sciences

Code: 270228 **Name:** Clinical Treatment and Healthcare of Aquatic Animals

Credits: 6,00 **ECTS Year:** 0, 2, 3, 4 **Semester:** 1

Module: Optional Itinerary: Marine Biology

Subject Matter: Clinic and Health of Aquatic Animals **Type:** Elective

Department: Animal Production and Public Health

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

CAOUR	Jeronimo Chirivella Martorell **(Responsible Lecturer)**	jeronimo.chirivella@ucv.es
OPM10	Jeronimo Chirivella Martorell **(Responsible Lecturer)**	jeronimo.chirivella@ucv.es
	Ignacio Gimenez Nebot	ignacio.gimenez@ucv.es

Module organization

Optional Itinerary: Marine Biology

Subject Matter	ECTS	Subject	ECTS	Year/semester
R+D in Marine Sciences	6,00	R&D in Marine Sciences	6,00	0, 2, 3, 4/1
Biology of Cetaceans	6,00	Cetaceans Biology	6,00	This elective is not offered in the academic year 21/22
Ichthyology	6,00	Ichthyology	6,00	2, 3, 4/1
Aquariology	6,00	Aquariology	6,00	This elective is not offered in the academic year 21/22
Bioindicators	6,00	Bioindicators	6,00	0, 2, 3, 4/1
Protected Areas and Recovery of Species	6,00	Protected Areas and Recovery of Species	6,00	2, 3, 4/1
Clinic and Health of Aquatic Animals	6,00	Clinical Treatment and Healthcare of Aquatic Animals	6,00	0, 2, 3, 4/1

Recommended knowledge

IT IS HIGHLY RECOMMENDED TO HAVE COURSED THE SUBJECTS OF PHYSIOLOGY OF MARINE ORGANISMS, MARINE MICROBIOLOGY AND AQUACULTURE.

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 understands the influence of the aquatic environment on the health of the animals that inhabit it.

R2 The student knows the etiology, diagnosis, prevention and treatment of the main diseases affecting molluscs, crustaceans and fish in aquaculture farms and aquariums.

R3 The student understands the etiology of disease in wild aquatic animals, in the wild and in captivity.

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
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	
CB4	Command of a foreign language				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	
CG10	Critical and self-critical capacity				x
CG11	Capacity to learn				x

CG12	Capacity to adapt to new situations			x	
CG16	Capacity to apply theoretical knowledge				x
CG17	Research skills			x	
CG18	Sensibility to environmental issues.		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	
CE10	Knowing how to use planning, designing and implementing research tools while surveying and assessing results			x	
CE11	Knowing how to do fieldwork and laboratory experiments in a safe and responsible way, promoting teamwork			x	
CE16	Proposing management models for endangered species recovery centers	x			
CE19	Deeply understanding operating systems of maritime orientated companies, identifying their problems and proposing solutions				x
CE22	Practical experience of methods of marine environmental impact assessment	x			

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3	40,00%	Written test with theoretical and practical questions
R1, R2, R3	40,00%	Delivery of guided assignments, whose objectives and contents will be proposed by the teacher
R2	10,00%	Laboratory test
R1, R2	10,00%	Oral presentation

Observations

*** The average mark must be equal to or greater than 50%, in order to be taken into account with the rest of the items.**
The written test represents 40% of the final grade. To do an examination on theoretical knowledge is developed. The theoretical exam will consist of 40 multiple-choice questions (each question with 4 options, of which only one is correct). The ratio of 3 wrong questions removes a correct question. If the theoretical part is not approved you cannot pass the course. Moreover of 4 questions or clinical cases.
Attendance at practices is considered mandatory. During the practical sessions, the teacher will control attendance and attitude of each student. Factors such as attention, the degree of participation and the interest shown during practice will be considered. Practical assessment will include any aspect related to the practices during the academic year. **The assessment of practical activities constitutes 30% of the final mark, 20% inside "Delivery of targeted works", and a evaluable laboratory session (10%), which will consist of carrying out a compedium of the practices performed during the course in an autonomous way. In addition, this assessment may include questions that students must answer orally. The favorable outcome of the evaluation of the practices will be essential to pass the course requirement. Failure to pass this block will make it impossible to overcome the theoretical part of the course.**
The submission and evaluation of targeted work contributes 40% of the final grade.
Overall evaluation: The results are the summary of the above items. To pass the course will need to obtain at least equal to or greater than 50 points score of 100 in each of the sections marked with an asterisk (*) and in the final grade. If you have not obtained a final score of 50 points in the sections marked with an asterisk (*), you cannot pass the course but sections approved will be

saved for two years.
Review exams: after the publication of the marks, a schedule to review the exams and marks will be published on the UCVnet; unless specifically instructed by the Faculty, no exams will be displayed outside these schedule.

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)

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).

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
ON-CAMPUS CLASS M1	R1, R2, R3	35,00	1,40
PRACTICAL CLASSES M2	R1, R2, R3	6,00	0,24
LABORATORY M3	R2, R3	8,00	0,32
SEMINAR M4	R1, R2, R3	2,00	0,08
GROUP PRESENTATION OF ASSIGNMENTS M5	R1, R2, R3	4,00	0,16
TUTORIAL M6	R1, R2, R3	3,00	0,12
ASSESSMENT M8	R1, R2, R3	2,00	0,08
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK M9	R1, R2, R3	30,00	1,20
INDEPENDENT WORK M10	R1, R2, R3	60,00	2,40
TOTAL		**90,00**	**3,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
Unit 1.- INTRODUCTION TO THE CLINIC AND HEALTH IN AQUATIC ANIMALS	Item 1. The aquatic environment and the health of aquatic animals. Importance of aquatic animal health and welfare.
Unit 2.- STRUCTURE AND FUNCTION IN AQUATIC ANIMALS	Item 2. Anatomy and physiology of fish, crustaceans and shellfish. Item 3. Pathophysiology and systematic pathology in fish, crustaceans and shellfish. Item 4. Immunology in fish, crustaceans and shellfish.
Unit 3.- DISEASES IN FISH, CRUSTACEANS AND SHELLFISH IN CAPTIVITY.	Item 5. Non-infectious diseases: by intrinsic causes, adverse environment, poor nutrition, for physical injury. Item 6. Infectious diseases: viral, bacterial, fungal and parasitic.
Unit 4.- DIAGNOSTIC METHODS IN AQUATIC ANIMAL DISEASES IN CAPTIVITY.	Item 7. Anamnesis, necropsy, sampling and study skills.
UD 5.- BIOSECURITY IN AQUACULTURE: PREVENTION, CONTROL AND ERADICATION DISEASE.	Item 8. Biosecurity monitoring programs in aquaculture facilities: quarantine, hygiene and disinfection, prophylactic measures and curative measures. Recommendation and application of therapeutic treatments.
UD 6.- STUDY AND DIAGNOSIS OF DISEASES IN MARINE MAMMALS OF INTEREST IN VETERINARY.	Item 9. The challenge of the study of wild marine mammals. Major diseases found in the wild population. Main guidelines for the health of marine mammals in captivity.

Organization of the practical activities:

	Content	Place	Hours
PR1.	STRUCTURE AND FUNCTION IN AQUATIC ANIMALS	Laboratory	2,00
PR2.	DIAGNOSTIC METHODS IN AQUATIC ANIMAL DISEASES IN CAPTIVITY.	Laboratory	10,00

Temporary organization of learning:

Block of content	Number of sessions	Hours
Unit 1.- INTRODUCTION TO THE CLINIC AND HEALTH IN AQUATIC ANIMALS	2,00	4,00
Unit 2.- STRUCTURE AND FUNCTION IN AQUATIC ANIMALS	4,00	8,00
Unit 3.- DISEASES IN FISH, CRUSTACEANS AND SHELLFISH IN CAPTIVITY.	12,00	24,00
Unit 4.- DIAGNOSTIC METHODS IN AQUATIC ANIMAL DISEASES IN CAPTIVITY.	5,00	10,00
UD 5.- BIOSECURITY IN AQUACULTURE: PREVENTION, CONTROL AND ERADICATION DISEASE.	6,00	12,00
UD 6.- STUDY AND DIAGNOSIS OF DISEASES IN MARINE MAMMALS OF INTEREST IN VETERINARY.	1,00	2,00

References

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DAVID SCARFE A., CHENG-SHENG LEE, PATRICIA J. O'BRYEN. AQUACULTURE BIOSECURITY: PREVENTION, CONTROL, AND ERADICATION OF AQUATIC ANIMAL DISEASE. Wiley-Blackwell 2006
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VOLLMANN-SCHIPPER, F. TRANSPORTE DE PECES VIVOS. ACRIBIA 1978

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:

[X] Microsoft Teams

[X] 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:

X	Microsoft Teams
X	Kaltura

Explanation about the practical sessions:

In the case of confinement due to a new alarm state, the practical laboratory sessions will be moved to a new date as soon as the health situation allows. As a non-face-to-face alternative, they will be replaced by video-tutorials of the techniques to be used, and the analysis and guided discussion of the results based on data provided by the teacher.

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

ONSITE WORK

Regarding the Assessment Tools:

[X] 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: