



Information about the subject

Degree: Bachelor of Science Degree in Veterinary Medicine

Faculty: Faculty of Veterinary Medicine and Experimental Sciences

Code: 1260402 **Name:** Clinic and health in water animals

Credits: 6,00 **ECTS Year:** 5 **Semester:** 1

Module: Module of Clinical Sciences and Animal Health

Subject Matter: Clinical Sciences and Animal Health **Type:** Compulsory

Department: Animal Production and Public Health

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Module of Clinical Sciences and Animal Health

Subject Matter	ECTS	Subject	ECTS	Year/semester
Alterations in Structure and Function, and Fundamentals of Diagnosis	36,00	Clinical diagnostic techniques I (Clinical Propedeutics)	6,00	3/1
		Clinical Diagnostic Techniques II (Imaging Diagnosis)	6,00	3/1
		Histopathology and General Pathological Anatomy	6,00	2/1
		Physiopathology and general integrated Pathology I	6,00	2/1
		Physiopathology and general integrated Pathology II	6,00	2/2
		Special pathological anatomy	6,00	2/2
Pharmacology and Therapeutics	12,00	Pharmacology and Toxicology	6,00	3/1
		Pharmacotherapy, preventive medicine and veterinary hygiene	6,00	5/1
Clinical Sciences and Animal Health	60,00	Clinic and health in equines	6,00	3/2
		Clinic and health in water animals	6,00	5/1
		Clinic and health in wild and exotic animals	6,00	3/2



Clinical Sciences and Animal Health	Clinic and health on the farm I	6,00	4/1
	Clinic and health on the farm II	6,00	4/2
	Epidemiology	6,00	3/1
	Pet Clinic	6,00	3/2
	Reproduction and Obstetrics	6,00	3/1
	Veterinary Surgery I	6,00	3/2
	Veterinary Surgery II	6,00	4/1

Recommended knowledge

IT IS HIGHLY RECOMMENDED TO HAVE COURSED PREVIOUSLY AQUACULTURE SUBJECT



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 searches bibliographic information from different sources and knows how to analyse it with a critical and constructive spirit.
- R2 The student argues according to rational criteria based on his or her work.
- R3 The student knows and understands the alterations in the structure and function of aquatic animals of veterinary interest.
- R4 The student knows and identifies diseases of importance of aquatic animals in their geographical area and is able to establish a treatment.
- R5 The student applies methods of diagnosis of diseases in aquatic animals.
- R6 The student knows the principles of biosecurity and welfare in the maintenance and production of aquatic animals and is able to establish health programs in different facilities in captivity.
- R7 The student is able to write a comprehensible and organized text on various aspects of health in aquatic animals in the veterinary field.
- R8 The student is able to produce documents on aquatic animal health, through teamwork.



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	Capacity to apply knowledge to work or occupation in a professional way and have the competences that are proved by preparing and arguing topics and problem-solving in their specific field of study.				X
CB3	Capacity to gather and interpret relevant data usually within their specific field of study and capacity to make judgments that include reflection on relevant social, scientific or ethical issues.				X
CB4	Capacity to communicate information, ideas, problems and solutions at specialist and non-specialist levels.			X	
CB5	Capacity to develop those learning skills needed to undertake further studies with a high degree of autonomy.				X
GENERAL		Weighting			
		1	2	3	4
CG0	Capacity to speak well in public.	X			
CG2	Understanding and applying prevention, diagnosis and individual or collective treatment, and control of animal diseases, individually or in groups, with special attention to zoonoses.				X
CG3	Understanding and applying control of animal breeding, management, health, reproduction, protection, and feed as well as improving production.			X	
CG5	Understanding and applying laws, regulations and administrative provisions in all areas of the veterinary profession and public health, understanding the ethical implications of health in a changing global context.			X	
CG6	Developing professional practice, acquiring skills related to teamwork, with an efficient use of resources and quality management.			X	



CG7 Identifying emerging risks in all areas of the veterinary profession.

X

SPECIFIC	Weighting			
	1	2	3	4
E24				X
E26				X
E27				X
E28		X		
E29				X
E31	X			
E32	X			
E33	X			
E34				X
E36			X	
E39				X
E40				X
E41		X		
E42				X



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R2, R3, R4, R5, R6, R7	40,00%	Written assessment of acquired knowledge and skills. The test may consist of a series of open-ended questions or multiple-choice questions about the theoretical contents of the module and/or practical exercises (problem-solving).
R1, R2, R7, R8	10,00%	Evaluation of the use of the practical lessons in the classroom, of problems or computer science, seminars and tutorials, by means of participation, computer-supported problem solving and the elaboration of the corresponding reports.
R2, R3, R4, R5, R7	15,00%	Evaluation of the practical laboratory work, which must demonstrate the competences acquired by the student and his or her ability to use them to solve the different situations and problems that arise in a laboratory; this assessment may consist of one of the following methods, or a combination of several of them: an individual written test, the individual or group performance of a laboratory experience, the delivery of an individual or group report on the work carried out in the laboratory.
R2, R3, R4, R5, R7	15,00%	Evaluation of practical work in a clinic through which the student must demonstrate the competences acquired and the ability to use them to solve the different situations and problems that arise in a clinic; this assessment may involve one of the following methods, or a combination of several of them: a written individual test, the individual or group performance of a clinical experience, the delivery of an individual or group report on the work carried out in the laboratory.



R1, R2, R6, R7, R8	10,00%	Evaluation of group work through a system of continuous assessment throughout the course based on the delivery of assignments the objectives and content of which will be proposed by the teacher.
R1, R2, R7	10,00%	Evaluation of activities in which the student must do some research individually and structure information related to each of the topics through a system of continuous assessment throughout the course based on the delivery of papers, the objectives and contents of which will be proposed by the teacher.

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 40-60 multiple-choice questions (each question with 4 options, of which only one is correct). The ratio of 3 wrong questions removes a correct question. Moreover of 4 questions or clinical cases. If the theoretical part is not approved you cannot pass the course.

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 shall include any aspect related to the practices during the academic year. **The assessment of practical activities constitutes 30% of the final mark and will consist in performing one of the randomly selected by Professor practices. Also, 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 30% of the final grade. The students, divided into groups of about 5 people, presented a scientific paper selected by them. Professor will evaluate the presentation of the article and the involvement of all members of the group. The Clinical cases will be done with the team but will be resolved individually during the seminar of the same.

Overall evaluation: The final 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 examinations after the appearance of the notes, the student will have times published on the platform, to review its examination, unless specifically instructed otherwise by the faculty and outside these hours no exams are displayed.



MENTION OF DISTINCTION:

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with 9 Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

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

- M1 On-site training activity aimed primarily at acquiring knowledge acquisition skills. It is characterised by the fact that students are spoken to. Also called master class or exposition, it refers to the oral presentation made by the teacher, (with the support of blackboard, a computer and a projector for the display of texts, graphs, etc.), in front of a group of students. They are expository, explanatory or demonstrative sessions of contents. The size of the group is determined by the limit or physical capacity of the classroom; therefore, it is a single group.
- M2 On-site training activity aimed primarily at obtaining knowledge application and research skills. Knowledge is built through interaction and activities. The activity consists of supervised monographic sessions with shared participation (teachers, students, experts). The size of the group is variable, from one large group to various small groups, with a minimum of 6 students to ensure interaction. The evaluation will be based on follow-up records kept by the teacher. Participation and the development of the capacity to problematize should be taken into account.
- M3 On-site group-work training activity oriented toward problem solving under the supervision of a teacher. It would correspond to "Animal-free supervised practical work", type e1, from the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students, to differentiate it from a master class.



- M4 On-site training activity in groups that takes place in the classroom. It includes working with documents and formulating ideas without handling animals, organs, objects, products, or corpses (e.g., work with articles or documents, clinical case studies, diagnostic analyses, etc.). It would correspond to "Animal-free supervised practical work", type e1, from the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students.
- M5 On-site training activity in groups that takes place in the Computer Lab where the computer is used as support for learning. It includes work with computer models, specific software, Web queries, etc. It would correspond to "Animal-free supervised practical work", type e1, from the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students.
- M6 On-site training activity in groups carried out in the laboratory. It includes the sessions where the students develop laboratory experiments, make dissections or use the microscopes for the study of histological or histopathological samples actively and autonomously, under the supervision of the professor. It also includes work with healthy animals, objects, products, corpses (e.g., animal handling, bacteriological practices, physiology or biochemistry, meat inspection, etc.). It would correspond to the "Supervised practical non-clinical animal work" type e2 of the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students.
- M7 On-site training activity that is defined as the clinical practical work developed in the Veterinary Clinical Hospital or clinical centres ascribed to the University, as well as itinerant clinical practices, mainly with ruminants, equids, pigs, birds and aquatic animals. Also included are necropsies, surgical workshops and training in clinical examination techniques or diagnosis with healthy patients. In these practical sessions the student will always work with animals, which can be healthy (e.g. propaedeutic or obstetrics) or clinical cases (individual or collective), including a protocol or work scheme, being supervised by a teacher and assuming the provision of a service. This type of training corresponds to type e3 of the EAEVE European evaluation called "Clinical Training" (strickly hands-on)". The size of the group will be 5 students or fewer.
- M8 A set of on-site training activities carried out by the teacher to provide personalised attention to the student or in small groups with the aim of reviewing and discussing the materials and topics presented in classes, seminars, readings, carrying out projects, etc. The aim is to ensure a truly comprehensive education of the student rather than a mere transfer of information. It is, therefore, a personalized assistance relationship in which the tutor assists, facilitates and guides one or more students in the learning process.



- M9 Set of processes that attempt to evaluate the learning outcomes of students expressed in terms of acquired knowledge, capacities, skills or abilities developed and manifested attitudes. It covers a wide range of activities that can be developed for students to demonstrate their training (e.g. written, oral and practical tests, projects or assignments). It also includes the Official Calls.
- M10 Autonomous training activity, including activities and coursework, bibliographic searches. The results obtained from unsupervised group and teamwork will be evaluated, with particular attention paid at the time of evaluation to the acquisition of specific knowledge development skills through group work.
- M11 Autonomous training activities related to personal study, or the preparation of individual course assignments. The individual preparation of readings, essays, problem solving, papers, reports, etc. will be evaluated through presentations or submissions during theoretical classes, practical classes, seminars and/or tutorials. The evaluation of the submitted papers will consider the structure of the paper, the quality of the documentation, originality, spelling and presentation.



IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical lessons (TL) M1	R2, R3, R4, R5, R6, R7	48,00	1,92
Seminars (S) M2	R6, R7, R8	4,00	0,16
In-Classroom Practice (ICP) M4	R2, R6, R7, R8	4,00	0,16
Laboratory Practice (LP) M6	R2, R3, R4, R5, R7	30,00	1,20
Tutorial M8	R2	2,00	0,08
Evaluation (Ev) M9	R2, R3, R4, R5, R6, R7	2,00	0,08
TOTAL		90,00	3,60

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group work M10	R1, R2, R6, R7, R8	20,00	0,80
Individual work M11	R1, R2, R3, R4, R5, R6, R7	40,00	1,60
TOTAL		60,00	2,40



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.	External and internal anatomy in fish	Laboratory	2,00
PR2.	DIAGNOSTIC METHODS IN AQUATIC ANIMAL DISEASES IN CAPTIVITY.	Laboratory	28,00

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.	16,00	32,00
Unit 4.- DIAGNOSTIC METHODS IN AQUATIC ANIMAL DISEASES IN CAPTIVITY.	15,00	30,00
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.	2,00	4,00



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