



Universitat de Lleida

DEGREE CURRICULUM **GENERAL PATHOLOGY AND PROPEDEUTICS**

Coordination: MOLIN MOLINA, JESSICA

Academic year 2022-23

Subject's general information

Subject name	GENERAL PATHOLOGY AND PROPEDEUTICS			
Code	100317			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology				
	Degree	Course	Typology	Modality
	Double bachelor's degree: Bachelor's Degree in Veterinary Medicine and Bachelor's Degree in Science and Production	2	COMPULSORY	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB	PRAULA	TEORIA
	Number of credits	1.4	1.6	3
	Number of groups	4	2	1
Coordination	MOLIN MOLINA, JESSICA			
Department	CIÈNCIA ANIMAL			
Teaching load distribution between lectures and independent student work	Hores presencials: 60 Hores no presencials: 90			
Important information on data processing	Consult this link for more information.			
Language	Catalan and Spanish			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
AQUILUE GIMENEZ, BEATRIZ PILAR	beatriz.aquilue@udl.cat	4	
MOLIN MOLINA, JESSICA	jessica.molin@udl.cat	6,8	
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Subject's extra information

To be able to properly follow the content of the course a general knowledge on veterinary anatomy and physiology is needed.

Learning objectives

Objective of knowledge: The student that passes the subject has to:

Know, from a general point of view, the main mechanisms that comprise the disease. For that reason, the students need to understand and integrate different aspects related to the etiology of the disease, the morphologic and physiopathologic alterations related to pathologic processes and the functional alterations and clinical manifestations induced by them. Additionally, the student will know how to perform a general physical examination in different species, as well as to detect clinical signs and interpret them.

Objectives of capacity: The student that passes the subject has to be able to:

- Know and correctly apply the proper terminology of General Anatomic Pathology, Nosology and Physiopathology.
- Know and understand the modifications of shape, structure and function of animal organs and tissues.
- Classify the lesions into their main category. To know and understand the morphological characters that allow lesion identification and differentiation
- Know, understand and analyze the pathogenesis implicated in the development of the different lesions and diseases.
- Correlate aetiology, pathogenesis and lesion.
- Know and understand the current general concept of health and disease.
- Know the generalities of causes, mechanisms, symptoms and signs and the different ways the disease can progress in time.
- Perform a physical general examination on different animal species and to detect clinical signs associated to the disease.
- Describe the causes of the functional disorders of organs and systems and to explain their mechanisms of pathogenicity.
- Describe the causes of the functional disorders of organs and systems and to explain their mechanisms of pathogenicity.
- To interpret a hemogram, a basic clinical chemistry profile and a urinalysis.

Competences

Basic competences

- (GVET-GCPA) CB1. To get knowledge in an area of study that starts from the basis of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that involve knowledge beyond the state-of-the-art of this field of study
- (GVET-GCPA) CB2. To apply their knowledge to their job or vocation in a professional way and possess the competencies that are usually demonstrated through the elaboration and defense of arguments and problem solving within their area of study.
- (GVET-GCPA) CB3. The ability to collect and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant issues of a social, scientific or ethical nature
- (GVET-GCPA) CB4. To be able to transmit information, ideas, problems and solutions to a specialized and non-specialized audience
- (GVET-GCPA) CB5. To know how to develop those learning skills necessary to undertake further studies with a high degree of autonomy
- (GCPA) CB9. To use the basic working methodologies related to the disciplines mentioned
- (GCPA) CB10. To recognize and know how to apply the basic techniques of livestock experimentation and know how to interpret their results.

General competences

- (GVET) CG1. Hygiene control, inspection and technology for the production and processing of food for human consumption from primary production to the consumer.
- (GVET) CG2. The prevention, diagnosis and individual or collective treatment, as well as the fight against animal diseases, whether they are considered individually or in groups, particularly zoonoses.
- (GVET) CG6. Development of professional practice with respect to other health professionals, acquiring skills related to teamwork, efficient use of resources and quality management.
- (GVET) CG7. Identification of emerging risks in all areas of the veterinary profesión.
- (GCPA) CG1 Identify animals and their products, as well as their importance in society and the food chain.
- (GCPA) CG2 Use the knowledge of basic sciences (biology, physics, biochemistry, physiology, mathematics, statistics, economics, ...) to understand animal processes and their involvement in livestock systems.
- (GCPA) CG3 Analyze the strategies of animal production as a whole with the aim of optimizing production.
- (GCPA) CG4 Manage animal production systems.

Specific competences

- (GVET) CE10. To identify and apply the principles and basis of Nosology.
- (GVET) CE11. To describe the pathogenesis and to identify general structural and functional alterations of cells, tissues, organs and systems.
- (GVET) CE14 To identify and apply the methods and procedures of clinical examination, complementary diagnostic techniques and their interpretation, as well as identify and apply the principles of necropsy
- (GVET) CE16. To identify and apply the bases in general diagnosis of the different types of injuries and their association with pathological processes
- (GVET) CE17 To know and apply the clinical study of the sick individual and the medical, surgical or hygienic-dietary treatments that it requires, as well as sporadic diseases that affect groups
- (GVET) CE33 To identify and apply good hygiene practices, hazard analysis and critical control points in the inspection of establishments and products of veterinary interest
- (GVET) CE44. To address emergencies and first aid in veterinary medicine.
- (GVET) CE45 To recognize when euthanasia is necessary and carry it out humanely using the appropriate method
- (GCPA) CE17 To optimize animal production taking into account the response mechanisms of organism against pathogens to achieve animal welfare.
- (GCPA) CE18 To recognize animal welfare as a primary factor in production. Describe the different animal diseases, individual and collective, and their preventive measures. Sample collection and submission.

Transversal competences

- (GVET-GCPA) CT1. To acquire an appropriate understanding and oral and written Catalan and Spanish
- (GVET-GCPA) CT2. To acquire a significant command of a foreign language, especially English.
- (GVET-GCPA) CT3. To train in the use of new technologies and information and communication technologies
- (GVET-GCPA) CT4. To acquire basic knowledge of entrepreneurship and professional environments
- (GVET-GCPA) CT5. To acquire essential notions of scientific thought
- (GCPA) CT6. To analyze specific situations, define problems, make decisions and implement action plans in the search for solutions.
- (GCPA) CT7. To apply acquired knowledge to real situations, properly managing available resources.
- (GCPA) CT8. To interpret studies, reports, data and analyze numerically.
- (GCPA) CT9. To select and manage written and computerized sources of information related to professional activity.
- (GCPA) CT11. To manage individual and team work
- (GCPA) CT12. To acquire a holistic training.
- (GCPA) CT14. To know and apply the scientific method to professional practice

Subject contents

THEORETICAL CONTENTS

BLOCK 1: NOSOLOGY AND INTRODUCTION TO CLINICAL PROPAEDEUTICS

1. Nosology. General concept and definition of disease. Etiology, pathogenesis, general anatomic pathology, physiopathology, clinical signs and symptoms. Classification of the disease. Diagnostic, prognostic and treatment. Classification of the diseases.

2. Introduction to clinical propaedeutics – Concept of propaedeutics. General methods of examination: inspection, palpation, percussion and auscultation. Complementary methods of exploration. Normal behaviour of animals during physical examination and subjection methods in different species.

BLOCK 2: GENERAL PATHOLOGY

1. Cellular pathology – Adaptive changes. Reversible and irreversible lesion. Cellular death. Necrosis and apoptosis. Morphologic patterns of necrosis. Physiological and pathological cellular and tissular deposits.

2. Haemodynamic alterations - Oedema. Hyperemia/congestion. Concept of hemostasis. Haemorrhage. Thrombosis and embolism. Ischemia and infarct. Definition and classification of shock.

3. Inflammation and tissue repair - General concepts. Acute inflammation. Chronic inflammation. Regeneration and tissue repair.

4. Immune system- General concepts and main cell types involved. Hypersensitivity reactions and autoimmune diseases.

5. Neoplasia – General concepts and definitions. Morphopathological characteristics of benign and malignant tumours. Molecular basis of neoplastic lesions: oncogenes, tumor suppressor genes and genes that regulate cellular cycle and apoptosis. Propagation. Local invasion. Metastasis. Tumoral immunity. Physical, chemical and viral-induced neoplastic lesions. Paraneoplastic syndromes.

BLOCK 3: PHYSIOPATHOLOGY

1. Physiopathology of the digestive system– Physiopathology of mastication, salivary secretion and deglutition. Physiopathology of the stomach of monogastric animals. Physiopathology of the stomach of ruminants. Physiopathology of the intestine. Hepatic and pancreatic insufficiency.

2. Physiopathology of the urinary system – Physiopathology of the micturition. Renal insufficiency.

3. Physiopathology of the cardiovascular system– Cardiac insufficiency/congestive heart failure. Arrhythmias and valvular disease. Shock.

4. Physiopathology of the blood and haematopoietic system - Erythrocytic system. Leukocytic system.

Hemostasis. Plasmatic system.

5. Physiopathology of the respiratory system – Defensive mechanisms of the respiratory system and perturbations in the respiratory mechanisms. Respiratory insufficiency. Physiopathology of the pleura and peritoneum.

PRACTICAL CONTENTS

BLOCK 1: CLINICAL PROPAEDEUTICS

1. Seminar on equine general physical examination .
2. Practical session: general physical examination in horses.
3. Seminar on general physical examination of ruminants.
4. Practical session: general physical examination in sheep.
5. Seminar on general physical examination in dogs/cats
6. Practical sessions: general physical examination in dogs.

To perform propaedeutics practical sessions the following material will be needed: stethoscope, lab coat/surgical pajama, boilersuit and waterproof boots

BLOCK 2: GENERAL ANATOMIC PATHOLOGY

There will be 4 practical sessions oriented to identification, nomenclature and interpretation of macroscopic and microscopic pathological changes related to the theoretical content.

1. Images of adaptative changes, necrosis and cellular / tissular pysiological and pathological deposits.
2. Images of lesions related to hemodynamic alterations.
3. Images of acute and chronic inflammatory lesions.
4. Images of neoplastic lesions.

BLOCK 3: PHYSIOPATHOLOGY

1. Seminar on physiopathology of thermoregulation, hydroelectrolitic and acid-base balance.
2. Seminar on biochemical markers of digestive, hepatic and urinary disease.
3. Seminar on clinical cases of digestive and urinary disease.
4. Seminar on interpretation of alterations in hemogram and clinical cases of cardiovascular disease.
5. Seminar oral presentation of a clinical case (work group).

Methodology

Observations

The course will be developed through theoretical sessions, seminars in medium groups and practices in small groups, according to the official schedule of the Double Degree and the Development Plan available at the subject's folder within the Virtual Campus.

1. Theoretical lectures: participative lectures of 2h duration oriented to transmit the basic knowledge of each topic included on the theoretical content of the subject. Depending on the current health situation the theoretical lectures will be taught on site or in a virtual format, through the Virtual Campus videoconference tool.
2. Practical lessons: Practice sessions are aimed at the application, reinforcement and expansion of the different theoretical knowledge acquired, so they will be carried out interspersed between the corresponding theory sessions. During these sessions, active learning will be stimulated through activities that involve gamification, learning based on problem solving, group work and discussion. Depending on the activity and current health situation, practical lessons will be on site or online. Please, be aware of the Development plan of the subject on Virtual Campus.

All material of the course will be available for the students in the space of the subject on Virtual campus.

Development plan

The schedule of theoretical and practical lessons, groups of practices and seminars, and general schedule of the semester will be provided to each student by the Double Degree Direction/Coordination. The Development plan of the subject will be available in the resources folder on Virtual Campus.

Theoretical lectures: 1-2 sessions of 2h / week (afternoon)

Seminars and practical sessions of clinical propaedeutics: 6 sessions of 1.5 - 2.5h /group

Practical sessions of macroscopic and microscopic pathology: 4 session of 2 h / group

Seminars and practical sessions of physiopathology: 5 sessions of 2h /group

Seminar oral presentation of a clinical case in powerpoint (team work): 1 session 2h / group

**** Methodology and development plan of the theory and practical sessions may be altered depending on the current health situation and the measures adopted by the University and / or by the competent health authorities to respond to health emergency situations that may arise during this semester.***

RULES OF THE SUBJECT

N1. No changes of groups in practices or seminars are allowed except those well justified by means of a certificate or those by mutual exchanged participants, prior notification by email to the responsible person of the activity.

N.2 Depending on the practical activity and the instructions from the professor in charge it is required to bring necessary material (esthetoscope) and to wear a clean surgical pajamas/lab coat, boilersuit and impermeable boots to access the activity. Failure to meet this requirement will allow students not to enter into practice.

N3. In order to be able to comply with the teaching program, it will be appreciated to be on time for each theoretical and practical session. You will not be able to access to a practical session if you arrive 15 minutes later from the start time.

N4. If a copy attempt is detected in any of the exams the student will be immediately expelled and will fail the subject without option to recovery and with a final qualification of "0".

Evaluation

Theoretical block

The theoretical block will represent **60% of the final qualification the subject**. It will be evaluated through 2 partial eliminatory exams, each one representing 30% of the final mark of the subject. The structures of both exams include 30 test and short answer questions.

Date of evaluations: on the dates assigned for that purpose within the official academic schedule for the Double Degree.

A **minimum mark of 4/10 on each individual theoretical exam** will be required to obtain a final mark for the theoretical block and to pass the subject. Otherwise the failed parts will have to be recovered on the established dates for that purpose within the official academic schedule for the degree.

A **minimum final mark of 4.5/10 on the theoretical block** (50% test 1 + 50% test 2) will be required to consider the marks on the practical block. Otherwise student will fail the subject.

Practical block

The practical block will represent **40% of the final qualification the subject**. It will be divided into general

anatomic pathology (10%), Propaedeutics and Nosology (10%), Physiopathology (10%), and a power point preparation and oral presentation of a clinical case in groups (10%).

Each of the practical parts, except the power point and oral presentation will be evaluated by 3 written or oral eliminatory tests in which the student will have to show their capacity to put into practice the acquired knowledge, either through test questions, problem solving or image recognition. Each of the tests will be performed on established dates at the end of each block of the practical activities. There is no possibility no resit practical parts.

The schedule and dates of the practical evaluation tests will be indicated in the document of the Development Plan of the subject within the Virtual Campus.

Evaluation of the power point and oral presentation will be carried as follows: 40% power point content, 30% oral presentation, 15% capacity to answer questions by other students and professor, 15% evaluation by the other members of the group.

The assistance to practical sessions is mandatory, except for those properly justified cases, and required to be able to sit and perform the scheduled evaluation activities for each of the practical blocks.

Positive and participative attitude during practical sessions and performing proposed activities throughout the course may represent, at the teacher's discretion, up to 1 extra point to the final mark of the practical block, only in case the practical block is passed. Non-justified attendance to a practical session will have a penalty of 0.5 points out of the final mark of the practical block, on each case. Similarly, bad attitude, attendance of a practical training or seminar in the wrong group (without having previously requested authorization from the professor), unjustified lateness at a session or partial assistance will have a penalty of 0.25 points out of the final mark of the practical block, on each case.

A minimum final mark of 4.5/10 on the practical block will be required to pass the subject and take into account the mark of the theoretical block. Otherwise student will fail the subject.

For those students who pass the practical exams with a minimum mark of 4/10, their grades will be valid for 2 years, as long as the teaching project does not change.

Final qualification of the subject:

To pass the subject a final qualification of 5/10 on the final mark (60 % theory + 40% practical block) will be required and, as above mentioned, **a minimum mark of 4.5/10 on the theoretical and practical block (separately).**

Final marks for the subject will be obtained as follows: 30% theory exam I + 30% theory exam II + 10% test images general anatomic pathology + 10% test propaedeutics + 10% test physiopathology + 10% power point and oral presentation (work team)

If the student has not reached the minimum required marks to pass the subject the final qualification will be calculated as follows:

- Mark < 4 in any exam from theoretical content or < 4.5 in the theory block: the final qualification of the subject will be the weighted marks of the theory block (average of theory exams x 0.6).
- Final mark from practical block < 4.5 and final mark of the theory block > 4.5: the final qualification of the subject will be the weighted marks of the practical block (final mark practical block x 0.4).

Final mark: Fail (< 5.0), pass (5-6.9), outstanding (7-8.9), excellent (9-10).

From 8.5 in the final qualification of the subject, the final mark may be upgraded to "with honours" if it is considered convenient according to the student's progress during the semester.

The qualification of "Not-presented" is reserved for those students who have taken a maximum of one partial evaluation test, either theoretical or practical, during the course.

Second-chance examination

The second-chance examination of theory will be carried out at the end of the course at established dates for that

purpose on the official academic calendar of the Double Degree. There will be no second-chance examination of the practical parts of the subject.

**** All the theoretical and practical evaluation exams are planned in face-to-face format unless the current health situation or derived organizative problems make it impossible. In that case, the dates, format and type of the exams may vary to adapt to the new circumstances.***

Bibliography

Basic bibliography

ROBBINS & COTRAN. 2015 Pathologic Basis of Disease, 9th ed, by Kumar, Abbas, and Aster. Saunders Elsevier, Professional Edition.

ZACHARY JF, McGAVIN MD. 2017. Pathological basis of Veterinary Disease. 5th ed. Elsevier-Mosby.

CHEVILLE, N. F. 2006. Introduction to Veterinary Pathology. Ed. Blackwell Publishing, Oxford, UK.

VAN DJICK, J.E., GRUYS, E., MOUWEN, J. M. V. M. (2007). Color Atlas of Veterinary Pathology. 2^a ed. Saunders-Elsevier.

CEBRIÁN YAGÜE, L. M.; PASTOR MESEGUER, J.; RAMOS ANTÓN, J. J.; FERRER MAYAYO, L. H. 2005. La exploración clínica del ganado vacuno.

ervet, Zaragoza.

RADOSTITIS M.; MAYHEW IG.; HOUSTON DM. 2000. Veterinary clinical examination and diagnosis. WB Saunders. London. SMITH, BP. Large animal internal medicine. 2008. 4^a Ed. Ed. Mosby.

DUNLOP, RH. 2007. Fisiopatología Veterinaria. Acribia.

ETTINGER, S. J. and FELDMAN, E. C. 2010. Textbook of Veterinary Internal Medicine. 7th ed, Saunders

McPHEE, S.J. and HAMMER, D. G. 2009. Pathophysiology of Disease. An introduction to clinical Medicine. 6th edition. Prentice-Hall International Inc.

SMITH, BP. 2008 Large animal internal medicine. 4^a Ed. Ed. Mosby.

Digital resources

<http://vet.uga.edu/vpp/noahsarkive/>

<https://www.askjpc.org/vspo/>

<http://handresen.perulactea.com/fisiopatologia-veterinaria/>

<http://veterinariavirtual.uab.es/archivopatologia/>

<https://www.3tres3.com/atlas/>