

Ecopathology of Wild Animals

Code: 102639
ECTS Credits: 6

Degree	Type	Year	Semester
2502445 Veterinary Medicine	OT	5	0

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

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Use of Languages

Principal working language: spanish (spa)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Other comments on languages

Una pequeña parte de la docencia se impartirá en inglés

Teachers

Ignacio Marco Sánchez
Emmanuel Antonio Serrano Ferron
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Prerequisites

It is recommended that you should previously have studied the following subjects: Pathology, Surgery and Anesthesiology, Animal health I, II and III, Animal health and Epidemiology and Statistics.

Objectives and Contextualisation

The main objective of the subject is to provide the student with a basic knowledge, from the veterinary point of view, of the wild autochthonous species and, fundamentally, in the aspects of handling (handling) and their diseases. This subject responds to the increasing importance and social demand of this knowledge in the veterinary collective.

1. To access and use autonomously sources of information and documentation, as well as regulations applicable to management and pathology.
2. To classify and know the main characteristics of the autonomous wild species.
3. To know the basic principles of management (including the sanitary part) and conservation.

4. To know the methods of capture and subsequent handling, transport and release, as well as the problems associated with the different methodologies.

5. To know the dominant diseases in amphibians, reptiles, birds and mammals.

Competences

- Analyse, synthesise and resolve problems and make decisions.
- Assess and undertake epidemiological studies and therapeutic and preventive programs in accordance with the standards of animal welfare, animal health and public health.
- Attend to emergencies and perform first aid in veterinary science.
- Collect, preserve and issue all types of samples with the corresponding report.
- Demonstrate generic knowledge of animals, their behaviour and the bases of their identification.
- Demonstrate knowledge and understanding of standards and laws in the veterinary field and regulations on animals and their trade.
- Demonstrate knowledge and understanding of structural and functional disorders of the animal organism.
- Demonstrate knowledge of the rights and duties of the veterinarian, with a special focus on ethical principles
- Diagnose the most common diseases using different general and instrumental techniques.
- Make clinical records and accurate and complete clinical exploration of animals.
- Perform basic analytical techniques and interpret the clinical, biological and chemical results, and interpret the results of tests generated by other laboratories.
- Perform the most common medical and surgical treatments of animals.
- Prescribe and dispense medicines correctly and responsibly in accordance with legislation, and ensure that the medicines and waste are stored and eliminated properly.
- Recognise when euthanasia is necessary and perform it humanely by employing the appropriate method.
- Safely perform sedations and regional and general anaesthesia, and evaluate and control the pain.
- Treat and handle animals in a safe and humanitarian manner, and instruct other people to properly employ these techniques.

Learning Outcomes

1. Analyse, synthesise and resolve problems and make decisions.
2. Apply containment measures to animals as necessary to protect the integrity of the veterinarian without causing them damage or stress, and be able to explain to other people how to do the same and evaluate the efficiency and risks.
3. Apply ethical values that govern the behavior of veterinarians in clinical practice in relations with other veterinarians.
4. Apply the concepts acquired for recognition and manipulation of instruments, manipulation of tissues, haemostasis, drainage and sutures, as well as helping effectively in surgical interventions recognising the typical instruments of surgical specialities (traumatology and orthopaedics, thoracic surgery, ophthalmology, neurology, exotic...).
5. Collect samples from different species of autochthonous wildlife in accordance with destination (place obtained, analysis of what should be done?).
6. Defend the ethical values that determine the decision making in diagnostic procedures, medical or surgical treatment or any medical procedure, subject to the rights of animals and their owners.
7. Define the problems found in physical examinations or clinical record of an animal, and produce a list of problems, differential diagnosis and the diagnostic protocol in all clinical specialities and for different species.
8. Describe regulations on autochthonous wildlife that may have implications for veterinary activity.
9. Describe the behaviour of different species of autochthonous wildlife.
10. Diagnose the dominant diseases of the different species of autochthonous wildlife.
11. Dispense and administer fluids, drugs and other treatments indicated (O2?) for sick animals.
12. Employ the main methods of anaesthesia on different species of autochthonous wildlife.
13. Fill in anamnesis and exploration records in all clinical specialities.

14. Fill in reports on surgical and diagnostic techniques used on patients.
15. Handle different autochthonous wildlife species in a safe way for them and the veterinarian.
16. Hold animals when performing examinations, caring or taking samples in a way that causes the minimum possible stress and be able to explain to other people how to do the same.
17. Identify autochthonous species of wildlife.
18. Identify the conditions in which euthanasia is the only possible option, or the most suitable, depending on the general state of the sick animal and appropriately propose this to the owners.
19. Monitor animals during surgical and/or anaesthetic recovery in different species, including wildlife.
20. Objectively evaluate the pain of sick animals and decide on the analgesia scheme depending on the species, age, location and cause of the pain and the state of the patient.
21. Obtain blood (jugular, cephalic, saphenous, arterial), synovial, peritoneal, AT, LBA and urine samples from different animal species, and process them for dispatch to the laboratory.
22. Perform a hemogram and blood test with emergency equipment, and recognise the limitations of these systems and defend interpretations.
23. Perform differential diagnoses and diagnostic plans, taking into account the available complementary techniques applied to all clinical specialities and different species.
24. Plan the most suitable anaesthetic protocol depending on the animal species and the general state of the patient, as well as the type of intervention required.
25. Properly apply euthanasia to small, equine and exotic animals.
26. Properly calculate the doses of medicine for different animal species. Know the limitations of some drugs depending on the species or even the breed, as well as the specific contraindications.
27. Properly fill in forms requesting biopathological and histopathological analyses of pertinent samples of pet, equine, exotic or zoo animals.
28. Recognise how the production of domestic animals can affect autochthonous wildlife.
29. Recognise personal limitations and know when to ask for professional advice and help.
30. Recognise regulations related with animal trading and actions and responsibilities of the veterinary surgeon (pre and post purchase reports and examinations of small, equine and exotic animals).
31. Recognise the adverse effects that different medications can cause and observe established pharmacovigilance legislation
32. Recognise the disorders that require urgent assistance and know how to prioritise them by severity.
33. Show responsibility regarding the need to perform necessary complementary tests on the patient and know how to evaluate the meaning and integrate it in the evolution of hospitalised patients of different species.
34. Stabilise critical animals.
35. Undertake follow-up health programs with species of autochthonous wildlife.

Content

PRESENTATION OF THE SUBJECT

Introduction to the subject. Professional outings. 1 hour.

THEORETICAL CLASSES

20 topics of one hour duration. Total 20 hours.

Section I: General aspects of wild autochthonous species (2 hours).

1. Classification and main characteristics of the autochthonous wild species.
2. Sources of information and documentation. Regulations related to wildlife.

Section II. Management (3 hours).

3. Management and conservation of wildlife.
4. Wildlife recovery centers. Captive breeding.

5. Transfer of wild species.

Section III: Capture and handling (4 hours).

6. Methods of capture I. General principles. Chemical capture.

7. Methods of capture II. Physical capture.

8. Post-capture management, transport and release. Pathology associated with capture, post-capture management, transport and release.

9. Marking (identification) and follow-up.

Section IV: Pathology (11 hours).

10. Diseases of wildlife.

11. Dominant pathology of amphibians and reptiles.

12. Dominant pathology of birds I.

13. Dominant pathology of birds II.

14. Dominant pathology of ungulates I. Ruminants.

15. Dominant pathology of ungulates II. Wild pig.

16. Dominant pathology of carnivores.

17. Dominant pathology of lagomorphs.

18. Dominant pathology of other species of terrestrial mammals.

19. Dominant pathology of marine mammals.

20. Forensic medicine

SEMINARS

5 one-hour seminars on topics of interest or to complement some topics that, due to their extension, could not be adequately developed in the theoretical classes. Total 5 hours.

- . Ecology of the disease.
- . Health Surveillance Plan in Wildlife.
- . Discussion of cases.
- . Damage of wildlife to agricultura and livestock.
- . Conservation of wild species.

PRACTICAL CLASSES (PRACTICES)

The student must complete 5 practices, to choose among the 7 proposals. Total 25 hours.

1. Determination of sex and age in wild animals.
2. Phototrapping and teleanesthesia of wild animals. Campus Bellaterra of the UAB and Barcelona.
3. Control of urban and peri-urban fauna. Campus Bellaterra of the UAB.
4. Observation of mountain goat. Natural Park of the Montserrat.
- 5 and 6. Observation of the bellowing of the deer and the chamois. Natural Park of the Cadí-Moixeró.
7. Necropsies of autochthonous wild fauna.

Methodology

To achieve the established objectives, this subject mainly involves the following methodology:

Attendance-based

Theoretical classes. These sessions will be devoted to the presentation of theoretical most relevant aspects of the subject. The students will have to complement the information provide with the self-learning or autonomous work.

Seminars. Seminar are complementary to theoretical classes. Some important veterinary topics that have not been discussed in depth in the lectures will be discussed.

Practices: These sessions are performed with small groups where the student develops skills such as curiosity and observation skills.

Autonomous work

Through self-learning work the students will solve problems that occur on a daily basis when working with wildlife. At the beginning of the course, students will receive a list of cases so they can choose one and work it in groups of four.

Students must inform themselves of the news and information published on the Virtual Campus/ Moodle.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Practical classes	25	1	
Seminars	5	0.2	
Theoretical classes	21	0.84	
Type: Supervised			
Self-learning work	10	0.4	
Type: Autonomous			
Individual study	87.5	3.5	

Assessment

Assessment is continuous. Students must provide evidence of their progress by completing tasks and tests. Task deadlines will be indicated in the course Schedule on the first day of class.

Theoretical exam: It corresponds to 50% of the total of the final grade of the subject.

The exam consist of a multiple-choice written test that will consist of 50 questions with four options per question and a single valid answer. The evaluable contents will be all the theories and seminars.

* A minimum score of 5 points in 10 points will be required in order to pass the exam.

Assessment of the practices: It corresponds to 40% of the total of the final grade of the subject.

Attendance is mandatory.

Students must complete a minimum of 4 of the 5 proposed practices.

Self-learning work: It corresponds to 10% of the total of the final grade of the subject.

Each group of students will have to develop and solve a case raised by the teacher. It is mandatory to deliver the case. All students in the group will have the same grade.

Students who have not passed the theoretical exam will have the possibility of recovering it during the exam period at the end of the semester. The reassessment of the theoretical contents will be carried out in the manner indicated above at the beginning of this section.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Practices	40	0	0	1, 25, 4, 3, 2, 26, 6, 7, 33, 9, 8, 10, 11, 34, 23, 22, 18, 17, 15, 19, 21, 27, 14, 13, 24, 35, 5, 28, 31, 30, 32, 29, 16, 12, 20
Self-learning work	10	0	0	1
Theoretical exam	50	1.5	0.06	3, 2, 9, 8, 10, 17, 15, 19, 24, 35, 28, 16, 12

Bibliography

Key references:

- Atkinson, C.T.; Thomas, N.J. y Hunter, D.B. (2008). *Parasitic Diseases of Wild Birds*. Ed. Wiley-Blackwell, Ames, Iowa. 595 págs.
- Barbadillo, L.J.; Lacomba, J.I.; Pérez-Mellado, V.; Sancho, V. y López-Jurado, L.F. (1999). *Anfibios y reptiles de la Península Ibérica, Baleares y Canarias*. Editorial GeoPlaneta, Barcelona. 419 págs.
- Begon, M.; Harper, J.L. y Colin, R.T. *Ecology* (1999). *Individuals, populations and communities*. Blackwell Science. 1.092 págs.
- Blanco, J.C. (1998). *Mamíferos de España. Tomos I y II*. Editorial Planeta, Barcelona. 383 págs.
- Bookhout, T.A. (1996). *Research and management techniques for wildlife and habitats*. 5ª edición revisada. The Wildlife Society, Bethesda Md. 740 págs.
- Cooper, J.E. y Cooper, M.A. (2013). *Wildlife Forensic Investigation: principles and practice*. Ed. CRC Press, Boca Raton, Florida. 742 págs.
- Fairbrother A.; Locke, L.N. y Hoff, G.L. (1996). *Noninfectious Diseases of Wildlife*. Ed. Iowa State University Press, Ames, Iowa. 219 págs.
- Gavier-Widén, D.; Duff, J.P. y Meredith, A. (2012). *Infectious diseases of wild mammals and birds in Europe*. Wiley-Blackwell, West Sussex, UK. 568 págs.

- Hudson, P.; Rizzoli, A.; Grenfell, B.; Heesterbeek, H. y Dobson, A. (2002). *The Ecology of wildlife diseases*. Oxford University Press. 216 págs.
- Jacobson, E. (2007). *Infectious Diseases and Pathology of Reptiles. Color Atlas and Text*. CRC Press, Boca Raton, USA, 716 págs.
- Marti, R. y Del Moral, J.C. (2003). *Atlas de las aves reproductoras de España*. Dirección general de Conservación de la Naturaleza - Sociedad Española de Ornitología. Madrid. 731 págs.
- Palomo, L.J.; Gisbert, J. y Blanco, J.C. (2007). *Atlas de los mamíferos terrestres de España*. Dirección General para la Biodiversidad - SECEM - SECEMU, Madrid. 564 págs.
- Samuel, W.M.; Pybus, M.J. y Kocan, A.A. (2001). *Parasitic Diseases of Wild Mammals*. Ed. Iowa State University Press, Ames, Iowa. 559 págs.
- Silvy, N.J.; Lopez, R.R. y Peterson, M.J. (2012). *Techniques for marking wildlife. A: The Wildlife Techniques Manual*. Silvy, N.J. (ed.). The Johns Hopkins University Press, Baltimore. Pp. 230-257.
- Thomas, N.J.; Hunter, D.B. y Atkinson, C.T. (2007). *Infectious Diseases of Wild Birds*. Ed. Blackwell Publishing, Ames, Iowa. 484 págs.
- Terio, K.; McAloose, D. y Leger, J. St. (2018). *Pathology of Wildlife and Zoo Animals*. Ed. Academic Press, London. 1136 págs.
- Williams, E.S. y Barker, I.K. (2001). *Infectious Diseases of Wild Mammals*. Ed. Iowa State University Press, Ames, Iowa. 557 págs.
- Wright, K. M. y Whitaker, B. R. (2001) *Amphibian Medicine and Captive Husbandry*. Krieger *Publishing* Company. Malabar, Florida. 499 págs.

Web sites:

- *American Association of Zoo Veterinarians* (AAZV). <http://www.aazv.org>
- *Asociación Española para la Conservación y el Estudio de los Murciélagos* (SECEMU). <http://www.secemu.org/es>
- *Asociación Herpetológica Española* (SHE). <http://www.herpetologica.es>
- *Institut Català d'Ornitologia* (ICO). <http://www.ornitologia.org/ca/>
- *Sociedad Española de Ornitología* (SEO). <http://www.seo.org>
- *Sociedad Española para la Conservación y Estudio de los Mamíferos* (SECEM). <http://www.secem.es/>
- *Wildlife Disease Association* (WDA). <http://www.wildlifedisease.org>

Software

No computer program is used.