

Academic Year/course: 2022/23

28431 - Small Animal integrated Course

Syllabus Information

Academic Year: 2022/23

Subject: 28431 - Small Animal integrated Course

Faculty / School: 105 - Facultad de Veterinaria

Degree: 451 - Degree in Veterinary Science

ECTS: 14.0

Year: 4

Semester: Annual

Subject Type: Compulsory

Module:

1. General information

1.1. Aims of the course

The general goal of this subject is learning the most important diseases which affect cats and dogs, knowing the right diagnosis protocols and choosing the right preventive and therapeutic program.

To achieve these goals, students should be able to:

- Obtain all the information that it will be required in a sick patient.
- Obtain the maximum number of symptoms, through medical history and exploration techniques, and know how to interpret its meaning.
- Define different clinical patterns that could appear in the medical history and exploration.
- Stabilize a relationship between the possible reasons that could produce the disease and compare them.
- Choose the diagnostic test that could be necessary to reach a diagnosis.
- Select the right treatment for each case.
- Make surgery procedure if they are necessary.
- Make a complete pre-operative examination
- Anesthetize and apply anesthetic monitoring.
- Be familiar with CPR procedure and be able to control the common surgery complication.
- Be able to control the postoperative pain management.
- Identify medical emergencies and treat them.
- Take care and treat hospitalized patient.
- Make preventive programs against infection and parasitic diseases.

These approaches and aims are aligned with the following Sustainable Development Goals (SDG) addressed in the 2030 Agenda of the United Nations (<https://www.un.org/sustainabledevelopment/>), in such a way that the acquisition of the learning goals of the subject will provide skills and competences to achieve this to some extent:

- Goal 3: Good health and well-being
- Goal 4: Quality education
- Goal 5: Gender equality
- Goal 8: Decent work and economic growth
- Goal 10: Reduced inequalities
- Goal 12: Responsible consumption and production
- Goal 13: Climate action
- Goal 15: Life on land
- Goal 16: Peace, justice and strong institutions

1.2. Context and importance of this course in the degree

Students will study this subject in the fourth course because they should have a wide knowledge of Anatomy, Physiology,

Immunology, General Pathology and Propaedeutic, Surgery, Anesthetic... The foundations of this subject are anatomical pathology, infection and parasitic diseases in dogs and cats, clinical pathology, reproductive diseases and their treatment and the most important surgery procedures. In the final year, students will complete their knowledge in this subject with the practicum.

1.3. Recommendations to take this course

It is highly recommended that students have coursed all the previous year's subjects and they should pass Anatomy, Physiology, Microbiology and Immunology, General Pathology and Propaedeutic, Anatomical Pathology, Surgery, Pathology of Reproductive System, Veterinary Parasitology and Diagnostic Imaging. It is necessary to have a solid knowledge in these fields to be successful in Small Animal Clinical and Pathology Diagnosis.

On the other hand, it is very important that students participate actively in their compulsory practice.

2. Learning goals

2.1. Competences

On successful completion of this course, student should be able to:

- Use different kinds of medical procedures and techniques according to each case.
- Explain the results which are obtained with different procedure and using diagnose techniques.
- Recognize and diagnose different kinds of injuries and be able to associate them with specific pathologies.
- Diagnose the most common disease in domestic animals.
- Be able to prescribe and dispense drugs in a safety way according to the law.
- Be able to make common surgery procedure.
- Be able to make in a safety way anesthetic procedure as general anesthetic, regional anesthetic and sedation, and control the pain.
- Be able to treat emergency situation and first aid.
- Be able to detect infectious illness.
- Use assisted animal reproduction and control the pregnancy, birth and postpartum period.
- Be able to recognize when it is necessary to do euthanasia and make it in a humanitarian way.

2.2. Learning goals

If students manage to complete the course, they should be able to:

1. Make a methodical, systematic and complete medical history of sick animals.
2. Know which clinical symptoms they should pay attention after a physical examination.
3. Analyse the most relevant aspects of the medical record and the physical examination to be able to identify the problem.
4. They should be able to make a list of differential diagnosis for each one of the most common symptoms in dogs and cats.
5. Know the diagnosis and prognosis of the most common diseases in cats and dogs.
6. Know the most common and frequent diseases in cats and dogs.
7. Use and understand the common diagnosis techniques to be able to identify the most common diseases in cats and dogs.
8. Use properly therapeutic protocols for each case and they ought to know the beneficial effects for each drug and their side effects.
9. Know and put into effects the most common surgical and anaesthetic procedures, taking into account the risk of each patient.
10. Take into account the different aspects of the reproductive system in cats and dogs. Also they should identify and treat the health problem that could happen in neonate animals.
11. Know and use preventive programs against the most common diseases in cats and dogs.
12. Identify and evaluate if a patient needs emergency care and they should know how to stabilize the patient.
13. Use different diagnostic procedures (ante-mortem and post-mortem), and they should be able to make medical certificates and send samples for other studies.
14. Draft correctly medical and pathological report and they should be able to explain the medical procedures.
15. Be able to manage the information sources in which the most common veterinary diseases are explained.

2.3. Importance of learning goals

The content of this course is essential for the student to acquire the knowledge and skills necessary to develop, in their professional life, clinical activities in the field of pets, since in this All aspects related to the application of diagnostic techniques, identification of syndromes, application of medical and surgical treatments, establishment of preventive measures, elaboration of reports will be addressed... That is to say, it brings together in a systematic way the most important knowledge around the clinic of dogs and cats.

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

The student must demonstrate that has achieved the intended learning outcomes through the following assessment activities:

- Two written tests consisting of short answer questions (50%) and multiple-choice questions (1 true choice and 3 false answers) (50%) on the content of the theoretical program. One test will be taken in January/February, and the other in the final exam in June. Theoretical tests will account for 70% of the subject grade.
- One written test to assess the practical activity, solving 10 questions on the sort of cases in which students have participated in clinical consultations. In order to take the practical exam, a minimum of 90% of attendance and the list of cases attended submission are required. This evaluation will suppose 30% of the qualification of the subject (15% will correspond to the practical exam and 15% to the attendance and the list of cases).
- To pass the subject the student must obtain in the written test a minimum of 50% of the examination score and in the practical part must reach a minimum of 50% of the score.
- The score of the evaluation of the practical part will be maintained, if so requested by the student, for future calls.

Global Test

The overall test will consist of a written part consisting of 120 questions (maximum 70% of the mark) plus the practical test score (30% of the mark).

Marking system:

According to the national regulation Law 1025/2003, 5th of September which lays down the European system of credits and marking system for the university degree.

0-4,9: FAIL.

5,0-6,9: PASS

7,0-8,9: GOOD (NT).

9,0-10: EXCELLENT (SB).

As the article 158 of the Statutes of the University of Zaragoza lays down, provisional grades will be displayed at least for 7 days and students will be able to review them on the date, time and place provided for that purpose.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The learning process that has been designed for this subject is based on the following:

Theoretical classes, practices, case discussion seminars, papers, presentation of clinical cases.

- Theoretical classes: 120 hours of theoretical classes of magisterial type will be given. They will be given in the classroom determined by the Centre, with the students divided into two groups.
- Practical classes: A total of 55 hours of practice will be given in the consulting rooms and operating theatres of the Veterinary Hospital of the UZ, in the laboratories and necropsies room of Pathological Anatomy (Classroom Building), in the teaching laboratories of Infectious Diseases and Parasitology (Hospital building, first floor, third corridor). The practices will be distributed as follows:

* 20 hours of Internal Medicine clinics (in consultations 1, 2, 5 and 6 of the Hospital).

* 12 clinical hours of Surgery (in consultations 3, 4, 7 and surgical unit of the Hospital).

* 8 clinical hours of Reproduction (in consultation 8 of the Hospital).

* 5 hours of seminars, clinical sessions, Histopathology laboratory (in Pathological Anatomy Unit, classroom building).

* 5 hours of seminars and discussion of cases and preventive programs of Infectious Diseases (Seminar room and infectious teaching laboratories on the first floor of the Hospital building).

* 5 hours of interactive seminars on cases and preventive programs of Parasitic Diseases (Seminar room of the Parasitic Diseases Unit, first floor of the Hospital building).

4.2. Learning tasks

Theoretical classes, practices, case discussion seminars, papers, presentation of clinical cases.

4.3. Syllabus

THEORETICAL PROGRAMME 120 Hours

Dermatology: Diseases of the skin, hair and ears (12 hours)

1. General approach to the diagnosis of skin and hair diseases.
2. Sarcoptic mange, trombiculidiasis, notoedric mange, cheyletiellosis: clinical aspects, diagnosis and treatment.
3. Canine and feline demodicosis: clinical features, diagnosis and treatment.
4. Dermatophytosis: clinical features, diagnosis and treatment.
5. Canine atopic dermatitis: clinical features, diagnosis and treatment.
6. Food hypersensitivity and contact hypersensitivity: clinical signs, diagnosis and treatment.
7. Hypersensitivity to insect bite, ticks and fleas: clinical signs, prevention and treatment.
8. Focal-Multifocal canine alopecia: diagnosis and treatment.
9. Generalized canine alopecia: diagnosis and treatment.
10. Canine pyoderma: clinical features, diagnosis and treatment.
11. Autoimmune and immunomediated skin diseases: clinical signs, diagnosis and treatment.
12. Otitis externa: diagnostic and treatment approach.
13. Ablation of the tympanic bulla, otomastoidectomy and skin folds surgery.

Ophthalmology (5 hours)

1. Ophthalmology patient approach. Main disorders in a diseased eye. Basic eye examination. Diagnostic methods. Changes in eyeball appearance: Exophthalmos, enophthalmos, eyeball prolapse, neoplasias, retrobulbar abscesses.
2. Changes in the eye discharge: keratoconjunctivitis sicca, conjunctivitis, uveitis. Epiphora.
3. Painful eye: superficial, deep and descemetocoeles corneal injury. Uveitis.
4. Red eye: conjunctivitis, uveitis, corneal neovascularization, glaucoma.
5. Loss of vision, blindness: Glaucoma, causes of blindness due to passage problems of light (keratitis, neoplasia, cataracts, retinal causes of blindness and extraocular causes).

Gastroenterology (14 hours)

1. Mouth-esophagus: clinical aspects, diagnosis and treatment.
2. Lip and tongue pathology: Lip folds, lip and tongue surgery. Dental pathology: Periodontal disease, fistulas. Dental fractures Cavities. Retention of baby teeth. Dental extractions vs. Conservative treatment. Inflammatory diseases of the cat oral cavity. Salivary glands: Sialoceles.
3. Diseases of the esophagus and dysphagia. Megaesophagus, foreign bodies, perforations, narrowings, obstructions, diverticula, fistulas. Hiatal Hernias Diagnosis, prognosis and treatment.
4. Esophageal resection and anastomosis techniques. Resolution of fistulas, diverticula, restrictions and hiatus hernias. Forced feeding. Pharyngostomy tube Postoperative care and complications of esophageal healing.
5. Stomach diseases. Vomiting: etiology, diagnosis and treatment. Gastritis, foreign bodies.
6. Surgical resolution of dilation- torsion, gastric syndrome. Gastrectomy. Surgical techniques.
7. Bowel diseases. Acute and chronic diarrhea: etiology, diagnosis and treatment. Inflammatory bowel disease. Intestinal obstruction. Constipation, intussusception, volvulus.
8. Enterotomies. Resolution of intestinal obstructions. Aftercare and complications.
9. Anorectal diseases. Stool retention, proctitis, perineal hernias, foreign bodies, fistula.
10. Liver pathology, liver and gallbladder disorders. Feline hepatic lipidosis. Portosystemic shunt.
11. Liver and gallbladder surgery. Liver biopsy and hepatectomy, portosystemic communications.
12. Pancreas diseases. Acute and chronic pancreatitis; exocrine pancreatic insufficiency: etiology, diagnosis and treatment.
13. Peritonitis. Etiology, diagnosis and treatment.
14. Hernias. Inguinal, umbilical, abdominal, ventral. Symptoms, diagnosis and surgical treatment.
15. Dog and cats differential diagnosis of most common necropsy lesions in mouth, esophagus, stomach, intestine and peritoneum.
16. Dog and cats differential diagnosis of most common necropsy lesions in liver and pancreas.

Urinary diseases (9 hours)

1. Introduction to structural pathology of renal pathology.
2. Glomerulonephritis and nephrotic syndrome: symptoms, differential diagnosis of glomerulopathies, treatment and follow-up. Acute renal failure: symptoms, risk factors and differential diagnosis of their types. Treatment of established renal failure. Control of patients at risk.
3. Chronic kidney disease (CKD): symptoms and diagnosis. Prognostic factors and treatments.
4. Polyuria polydipsia syndrome: approach to diagnosis and treatment protocol.
5. Canine urinary tract infections: Clinical manifestations. Diagnosis and treatment. Differential diagnosis of hematuria.
6. Feline lower urinary tract disease (FLUTD): Forms, diagnosis, treatment and prevention. Feline interstitial cystitis: causes, diagnosis, treatment and prevention.
7. Urinary incontinence: congenital and acquired forms. Differential diagnosis and treatment.
8. Surgery of the urinary system.

Endocrinology and metabolic diseases (5 hours)

1. Disturbances of the hypothalamic-posterior pituitary axis. Canine diabetes insipidus. Diagnosis and treatment.
2. Adrenal cortex disorders. Canine hypoadrenocorticism and hyperadrenocorticism. Diagnosis and treatment. Feline hyperaldosteronism. Diagnosis, control and treatment. Addisonian crisis.
3. Disturbances of the thyroid and parathyroid glands. Canine hypothyroidism and feline hyperthyroidism. Diagnosis, control and treatment. Differential diagnosis of hypercalcemia and hypocalcemia.
4. Endocrine pancreas disorders. Canine and feline diabetes mellitus. Diabetic ketoacidosis. Canine insulinoma. Diagnosis and treatment.
5. Obesity. Primary and secondary obesity. Evaluation of body condition score, treatment and prevention.

Clinical Reproduction and obstetrics (12 hours)

1. Reproduction of the dog and the cat. Choice and management of future breeding males and females in canine and feline species. Particularities of the sexual cycle of the dog and the cat. Determination of the fertile period by vaginal cytology, vaginoscopy, ultrasound and interpretation of reproductive hormone values. Control of natural riding in small animals.
2. Sterilization of the male and female. Sterilization methods in non-breeding males and females of canine and feline species. Advantages and disadvantages of temporary methods vs. definitive methods. Inhibition of heat. Surgical sterilization.
3. Assisted reproduction. Seminal extraction, evaluation and processing of semen for artificial insemination. Seminal refrigeration and freezing. Transport of seminal doses: systems and regulations. Artificial insemination techniques in the dog and cat.
4. Infertility in the male and female. Diagnosis, decision-making, treatment options.
5. Gestation. Diagnosis of gestation in the dog and cat. Recommendations during pregnancy. Non-infectious abortions. Indications and methods of interruption of pregnancy.
6. Birth. Preparation and care of birth. Resolution of dystocias. Scheduling a caesarean section. Caesarean section. Postpartum review of the bitch and cat. Puerperal tetania. Weaning and control of milk secretion. Mastitis. Metritis and other postpartum complications. Immediate care and care of the newborn. Diagnosis of congenital alterations.
7. Reproductive pathology of the dog and the cat. Pseudopregnancy in the bitch, feline mammary hypertrophy, ovarian cysts, pyometra, vaginal hyperplasia, vaginitis and tumors of the genital tract of the female. Diagnosis of the anestro and induction of heat during it.
8. Surgery of the genital tract of the female. Ovarian, uterine and mammary tumors. Vaginal polyps. Episiotomy. Ovarian remnant syndrome. OHT due to pyometra. Pyometra of the stump.
9. Reproductive pathology of the male. Pathology of the scrotum, cryptorchidism, orchitis, epididymitis, testicular degeneration, balanoposthitis, transmissible venereal tumor, phimosis, paraphimosis. Prostatic pathology: benign prostatic hypertrophy (BPH), prostatitis, abscesses, prostatic and paraprostatic cysts, squamous metaplasia of the prostate and tumors of the male's genital tract. Medical and surgical treatments.

Cardiology and Respiratory diseases (11 hours)

1. Disorders of the upper respiratory tract. Runny nose, sneezing and rales. Laryngitis, rhinitis, tracheal collapse: diagnosis, treatment. Brachycephalic dog syndrome.
2. Surgical management of obstructive lesions in nostrils, sinuses and upper respiratory tract. Surgical treatment of brachiocephalic syndrome.
3. Bronchopulmonary diseases. Acute and chronic bronchitis. Acute and chronic pneumonias. Pleural effusions. Etiology, diagnosis, treatment and prevention. Parasitic bronchopneumonia.
4. Pathology of pleural cavity: pneumothorax, chylothorax, diaphragmatic hernias. Pathology of the mediastinum.

Diagnosis and treatment.

5. Pathological anatomy of the respiratory system.
6. Heart rhythm disorders and cardiac impulse conduction: types, diagnosis, treatment. Prevention.
7. Congestive heart failure. Causes, diagnosis and treatment. Prevention. Cardiomyopathies.
8. Valvular heart disease: valvular endocardiosis, bacterial endocarditis. Pericardial disease. Types, causes, diagnosis and treatment.
9. Congenital cardiovascular diseases. Diagnosis and surgical treatment of the most common congenital malformations.
10. Pathological anatomy of the circulatory system.

Neurology (5 hours)

1. Diagnostic Approach to the neurological patient.
2. Epilepsy. Symptoms, diagnosis and treatment.
3. Vestibular syndrome. Symptoms, diagnosis and treatment.
4. Meningoencephalitis and other disorders that affect the brain. Symptoms, diagnosis and treatment.
5. Ataxia and problems affecting the spinal cord. Symptoms, diagnosis and treatment.
6. Pathology of the peripheral nervous system and diseases of the neuromuscular junction and muscle. Symptoms, diagnosis and treatment.
7. Differential diagnosis of the more frequent injuries at necropsy of the central and peripheral nervous system. Pathogenetic mechanisms. Pathological anatomy of congenital malformations, degenerations, circulatory disorders and inflammation. Most common injuries in neuroendocrine ductless glands.

Behavioral Medicine (3 hours)

1. Introduction to clinical ethology. General approach to the diagnosis and treatment of behavioral problems.
2. Separation-related disorders in the dog. Diagnostic approach and treatment.
3. Inappropriate elimination problems in the cat. Diagnostic approach and treatment.

Traumatology (7 hours)

1. Traumatology examination. Traumatic lameness vs. non-traumatic lameness.
2. Head fractures. Maxillary fracture. Palate fracture. Broken jaw. Paratrooper cat syndrome.
3. Traumatic lameness. Muscle, tendon and ligament injuries. Hip dislocation. Elbow dislocation. Fractures: treatment, decision making of fractures, fractures in young animals.
4. Non-traumatic lameness. Non-traumatic lameness of the forelimb: shoulder OCD, elbow dysplasia, supraspinatus tendinopathy, biceps tendinopathy, medial shoulder instability. Non-traumatic lameness of the hindlimb: hip dysplasia, Legg-Calvé-Perthes disease, patellar luxation, rupture of the anterior cruciate ligament of the knee, OCD of the knee and tarsus. Other non-traumatic lamenesses: panosteitis, degenerative joint disease, bone tumors.
5. Spine. Herniated discs. Discospondylitis. Vertebral fractures and dislocations.
6. Differential diagnosis of the most common injuries in bone and muscle. Developing bone disease. Fibrous osteodystrophy. Hypertrophic osteopathy. Osteochondrosis. Chronic degenerative joint disease. Immune-mediated joint diseases. Biopsies and muscle diseases.

Hematology and Oncology (9 hours)

1. Anemia and polycythemia: Clinical study. Anemia: definition and clinical signs, diagnosis and treatment of regenerative and non-regenerative anemia. Polycythemia: clinical signs, diagnosis and treatment.
2. Leukopenia and leukocytosis: Neutropenia and neutrophilia, approach to treatment.
3. Disorders of haemostasis: clinical signs, differential diagnosis of the patient with hemorrhagic symptomatology. Disorders of primary hemostasis: thrombocytopenia: diagnosis and treatment; Von Willebrand disease: diagnosis and treatment. Disorders of secondary hemostasis: coagulation factor deficiency, vitamin K deficiency. DIC: clinical manifestations, diagnosis and treatment.
4. General diagnostic procedures and therapeutic modalities. Approach to the cancer patient; paraneoplastic syndromes. Diagnostic cytology and biopsy procedures. Bases of antineoplastic chemotherapy and other medical therapies.
5. Soft tissue sarcomas: Hemangiosarcoma, injection-site sarcomas in cats. Incidence, risk factors and pathology. Most relevant clinical-pathological aspects, diagnosis and treatment guidelines.
6. Skin neoplasms: Mastocytoma, squamous cell carcinoma, melanoma. Incidence, risk factors and pathology. Most relevant clinical-pathological aspects, diagnosis and treatment guidelines.
7. Mammary neoplasms: Incidence, risk factors and pathology. Most relevant clinical-pathological aspects, staging,

diagnosis and treatment guidelines.

8. Hemolymphatic neoplasms: Lymphomas and leukemias. Incidence, risk factors and pathology. Most relevant clinical-pathological aspects, staging, diagnosis and treatment guidelines.

Infectious diseases (11 hours)

1. Feline Leukemia. Etiology, epidemiology. Pathogenesis and clinical summary. Diagnostic tests and interpretation. Prevention and control plans.
2. Feline immunodeficiency. Etiology, epidemiology. Pathogenesis and clinical summary. Diagnostic tests and interpretation. Prevention and control plans.
3. Feline infectious peritonitis. Etiology, epidemiology. Pathogenesis and clinical summary. Diagnostic tests and interpretation. Treatment, prevention and control plans
4. Canine distemper. Etiology Epidemiology. Pathogenesis and clinical summary. Diagnostic tests and interpretation. Prevention and control plans.
5. Rabies and pseudorabies. Etiology and epidemiology. Pathogenesis and clinical summary. Diagnostic tests and interpretation. Prevention and control plans.
6. Leptospirosis, brucellosis and other bacterial diseases of the dog and cat. Etiology and epidemiology. Pathogenesis and clinical summary. Diagnostic tests and interpretation. Prevention and control plans.
7. Intestinal dog-Virus (parvovirus, coronavirus, rotavirus) and cat (feline panleukopenia, coronavirus, rotavirus). Etiology, epidemiology and transmission. Pathogenesis and clinical summary. Diagnosis, treatment plans, prevention and control.
8. Canine Infectious Hepatitis. Etiology and epidemiology. Pathogenesis and clinical summary. Diagnostic tests and interpretation. Prevention and control plans.
9. Canine infectious respiratory complex (parainfluenza, Bordetella, mycoplasma). Infectious canine tracheobronchitis. Etiology, epidemiology. Pathogenesis and clinical summary. Diagnosis. Plans treatment, prevention and control.
10. Feline infectious respiratory complex. Etiology, epidemiology (Includes: Feline calicivirus, feline herpesvirus, Chlamydomphila felis). Pathogenesis and clinical summary. Diagnostic tests and interpretation. Plans treatment, prevention and control.
11. Systemic mycosis of dog and cat. Etiology and epidemiology. Pathogenesis and clinical summary. Diagnostic tests and interpretation. Prevention and control plans.

Parasitic diseases (9 hours)

1. Vector-borne parasitic diseases. Babesiosis and Theileriosis.
2. Parasitic diseases transmitted by vectors. canine visceral leishmaniasis.
3. Vector-borne parasitic diseases. canine and feline dirofilariasis.
4. Protozooses: Giardiasis and Coccidiosis.
5. Hemintosis roundworm: Ascariosis, Ancilostomosis, strongiloidosis.
6. Parasitic bronchopneumonia: Angiostrongylos and others.

Basic principles of emergencies (8 hours)

1. General approach to canine and feline emergencies. The A-B-C in emergencies. Initial assessment of the patient.
2. Approach to the dyspneic patient. Diagnosis, evaluation and stabilization of airway, thoracic wall and lung parenchyma dyspnea.
3. The shock in emergencies. Diagnosis, evaluation, stabilization.
4. Blood transfusions: Donors. Blood products. Control of incompatibilities. Indications and administration.
5. The hospitalized patient: Maintenance of the internal environment: diagnosis and treatment of water and electrolyte imbalances. Fluid therapy guidelines.
6. The hospitalized patient: Maintenance of the internal environment: diagnosis and treatment of acid-basic imbalances. Gasimetry.

PRACTICAL PROGRAM

40 CLINICAL HOURS in the consulting rooms of companion animals and operating rooms of the hospital:

20 h Internal Medicine

- 24 groups x 4 h x 5 days (for 1 week) Internal Medicine consultations

12 h Surgical Pathology

- 24 groups x 3 hours x 2 days (Surgical Pathology consultation)
- 24 groups x 3 hours x 2 days (Traumatology consultation)

8 h Reproduction

- 24 groups x 2 h x 4 days (M, T, W and T) in Reproduction consultation

15 HOURS ANIMAL HEALTH in seminar rooms and laboratories:

5 h Pathological Anatomy

- 12 groups x 2.5 h x 2 days (T and W) in Necropsy Room

5 h Infectious diseases

- 24 groups x 2.5 h x 2 days (M and T) in Seminar and Laboratory Infectious Diseases

5 h Parasitic diseases (M, T and W)

- 12 groups x 1.5 h x 1 day, in Interactive Seminar (Canine Leishmaniasis)
- 12 groups x 1.5 h x 1 day, in Interactive Seminar (Canine Heartworm)
- 12 groups x 2 h x 1 day, in Interactive Seminar (Helminthosis by seeing flat and round)

4.4. Course planning and calendar

Keys dates of this subject will be described in detail in the webpage (<https://veterinaria.unizar.es/>).