

## 28422 - Image Diagnosis

### Información del Plan Docente

<b>Academic Year</b>	2016/17
<b>Academic center</b>	105 - Facultad de Veterinaria
<b>Degree</b>	451 - Degree in Veterinary Science
<b>ECTS</b>	6.0
<b>Course</b>	3
<b>Period</b>	Annual
<b>Subject Type</b>	Compulsory
<b>Module</b>	---

### **1.Basic info**

#### **1.1.Recommendations to take this course**

#### **1.2.Activities and key dates for the course**

### **2.Initiation**

#### **2.1.Learning outcomes that define the subject**

#### **2.2.Introduction**

### **3.Context and competences**

#### **3.1.Goals**

#### **3.2.Context and meaning of the subject in the degree**

#### **3.3.Competences**

#### **3.4.Importance of learning outcomes**

### **4.Evaluation**

### **5.Activities and resources**

#### **5.1.General methodological presentation**

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

The learning process consists in a theoretical part and practical part. The theoretical part consists of a total of 42 hours and for its teaching in class, basic and advanced resources will be used, from the most basic and universal support as blackboard and chalk to more advanced resources as multimedia systems and network connection to access to imaging databases.

## 28422 - Image Diagnosis

The practical sessions will be held with a total of 18 hours, and with them the student will practice the most common techniques used in diagnostic imaging veterinary: ultrasound, radiology and endoscopy, focusing mainly on methodological aspects, safety and interpretation of patterns.

### 5.2.Learning activities

The teaching of this subject will be taught according to the following activities:

- \* 42 Theoretical classes of 50 minutes.
  
- \* 9 Practices in small groups, ranging between 1 and 2 hours.
  
- \* 3 Voluntary Seminars, 1 hour.

In addition there will be e-learning support with Moodle2, in which teachers, voluntarily, may include summaries of their lectures or practical seminars, additional content, web pages, etc.

### 5.3.Program

The program that the student is offered to achieve the expected results includes the following activities ...

1: THEORETICAL PROGRAM:

GENERAL MODULE

Unit 1. Fundamentals of Radiology (2 h)

Unit 2. Fundamentals of Ultrasound (2 h)

Unit 3. Other imaging means: CT, MRI, nuclear medicine. Fundamentals and diagnostic applications (2 h)

Unit 4. Basics of endoscopy (1 h)

MODULE SMALL ANIMALS

## 28422 - Image Diagnosis

Unit 5. Thorax 1: Anatomy applied to imaging in thoracic cavity (1 h)

Unit 6. Chest 2: Chest Radiology (4 h)

Unit 7. Thorax 3: Echocardiography (2 h)

Unit 8. Abdomen 1: Radiological anatomy and radiology of the abdomen (4 h)

Unit 9. Abdomen 2: Ultrasonographic anatomy and abdominal ultrasound (4 h)

Item 10. Anatomy applied to the imaging of the head and neck. Radiology of the head and neck (2 h)

Unit 11. Anatomy applied to column imaging. Radiology of the column (2 h)

Unit 12. Anatomy applied to extremities imaging. Radiology of the limbs (2 h)

### MODULE HORSES

Unit 13. Diagnostic imaging of the head (1 h)

Unit 14. Diagnostic imaging of the neck and axial region (1 h)

Unit 15. Diagnostic imaging of the chest. Upper respiratory tract, lungs and lower airways. (2 h)

Unit 16. Diagnostic imaging of the abdomen 1: gastrointestinal and urinary tract (1 h)

Unit 17. Diagnostic imaging of the abdomen 1: reproductive system (1 h)

Unit 18. Diagnostic imaging of the limb 1: finger (hoof and pastern) (1 h)

Unit 19. Diagnostic imaging of the limb 2: fetlock joint and cannon (metacarpus and metatarsus) (1 h)

Unit 20. Diagnostic imaging of the limb 3: proximal regions of the forelimb (carpus, forearm, elbow, upperarm, elbow, shoulder) (1 h)

Unit 21. Diagnostic imaging of the limb 4: proximal regions of the hindlimb (hock, gaskin, stifle, thigh, hip) (1 h)

## 28422 - Image Diagnosis

### MODULE OTHER SPECIES

Unit 22: Diagnostic Imaging in exotic species(1 h)

Unit 23: Diagnostic Imaging in livestock species (2 h)

### 2:PRACTICAL PROGRAM:

PRACTICE 1. General Ultrasound: Ultrasound types, basic technique, artifacts. (2 hours)

PRACTICE 2. General Radiology: Quality Control (detail, contrast), appliances, security. (1 hour 30 min)

PRACTICE 3. Abdominal ultrasound of small animals: protocolized abdominal ultrasound scan, normal patterns. (2 hours)

PRACTICE 4. Small Animal Radiology: positioning, handling and exposure parameters. (2 hours)

PRACTICE 5. Echocardiography: Technique, access windows, normal patterns. (1 hour)

PRACTICE 6. Radiology in horses: quality control (detail, contrast), appliances, security, management, positioning. (2 hours 30 min)

PRACTICE 7. Ultrasound horses techniques, access windows, normal patterns. (2 hours 30 min)

PRACTICE 8. Endoscopy basic techniques, management and description of equipment (1 hour)

PRACTICE 9. Diagnostic imaging in livestock animals. (2 hours)

### 3:VOLUNTARY SEMINARS

SEMINAR 1. Echocardiography and augmented reality (1 hour)

SEMINAR 2. Use of CT for surgical planning (1 hour)

SEMINAR 1. Clinical imaging cases in horses (1 hour)

**5.4.Planning and scheduling****5.5.Bibliography and recomended resources**

<http://psfunizar7.unizar.es/br13/eBuscar.php?tipo=a>