Course Unit Descriptor

Study Programme: Veterinary Medicine

Course Unit Title: Radiology and Ultrasound Diagnostics

Course Unit Code: 3IVM7O31

Name of Lecturer(s): Assistant Professor Annamaria L. Galfi Vukomanović

Type and Level of Studies: Undergraduate studies

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): Winter

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 3

Prerequisites: Anatomy, General and Special Pathophysiology, General and Special pathological morphology

Course Aims:

Training veterinary students to acquire professional knowledge and practical application skills in the field of radiology diagnostic techniques and measures of protection against X-ray radiation, the use of ultrasound in the diagnosis of diseases of domestic animals.

Learning Outcomes:

Upon completion of the course from this subject and passing the exam, the student should be able to: 1) define and briefly describe the basic principles of radiological methods; 2) distinguishes and describes tissue shadows and projection effects in radiology; 3) apply appropriate radiological methods in the diagnosis of animal diseases; 4) performs an analysis of the obtained radiological images, establishes a differential diagnosis and concludes the type and intensity of the pathological process; 5) to collect and compile a precise radiological diagnosis based on findings and to propose adequate therapy; 6) Solve and recommend the application of basic principles and elements of prevention and protection against ionizing radiation.

Syllabus:

Theory

Basics and development of X-ray diagnostics, X-ray cabinet and X-ray device, origin and X-ray properties; General diagnostic concepts and methods of X-ray diagnostics, control of primary X-ray and bulk radiation, Protection against X-ray radiation, legislation and dosimetry; Origin, characteristics and quality of X-ray image; Elements of anatomy, physiology and pathology in radiology; Possibilities and limits of X-ray diagnostics; Writing X-ray finding and diagnostics; Radiology diagnostics of cardiovascular, respiratory, digestive, urogenital and bone systems; Physical characteristics of ultrasonic waves, working principle of ultrasonic devices, parts of ultrasonic apparatus and probe types, basics of ultrasonic examination technique, ultrasonic image quality and interpretation. Ultrasound examination of abdominal organs and heart. Other "image" techniques of computed radiography, digital radiography, computed tomography, magnetic resonance imaging, nuclear scintigraphy.

Practice

Space, organization and operation of the X-ray cabinet; The main and auxiliary parts of the X-ray apparatus; X-ray techniques and and X-ray film processing technology; X-ray images and X-ray examination; Positive and negative contrast media; X-ray display of normal organs and systems; Analysis of radiographs, writing reports and placing diagnosis; Independent analysis of radiographs in pathological states of individual organs and systems with the writing of

findings and diagnosis; Ultrasound examination by organ systems and interpretation of ultrasound image.

Required Reading:

1. Petrović B., Zagorčić A.: Veterinarska rendgenologija, Veterinarski fakultet, Beograd, 1985.

2. Krstić, N., Lazarević-Macanović, M.: Praktikum iz rendgenologije za studente veterinarske medicine, izdavači autori, Beograd, 2002.

3. Krstić N., Lazarević Macanović M,, Milošević H.: Fizički principi radiološke i ultrazvučne dijagnostike, izdavači autori, Beograd, 2014.

4. Šehić M: Klinička rentgenologija u veterinarskoj medicini, Sveučilište u Zagrebu, Veterinarski fakultet, Zagreb, 2002.

5. Šehić M., Stanin D., Butković V.: Ultrasonografija abdomena i toraksa psa i mačke, Sveučilište u Zagrebu Veterinarski fakultet, Zagreb, 2006. and other literature from the available scientific journals.

Weekly Contact Hours: 45	**Lectures:** 30	**Practical work:** 15

Teaching Methods:

Lectures, Practical classes, Consultations

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Active class participation	5	written exam	20
Practical work	5	practical exam	20
Preliminary exam(s)	10	oral exam	30
Seminar(s)	10		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.