UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Veterinary Medicine

Course title: DIAGNOSTIC IMAGING

ECTS credit allocation (and other scores): 4

Semester: spring

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Agricultural sciences

Language: English

Number of hours per semester: classes 30; lectures 18

Course coordinator/ Department and e-mail: Zbigniew Adamiak ; chirwet@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES:

Regulations in X-ray laboratory. Radiologic protection, X-rays properties, RTG lamp. The role of voltage, intensity . Soft and hard X- rays. Radiography, image digital processing. Quality evaluation of radiographic image. Radiologic diagnostics of bones and joints. Normal images. Basic pathological changes in images. Foreign bodys. Artifacts. Artificial contrast mediums. Radioscopy. Positive image. Basic RTG projections. Radiologic diagnostics in farm animals. Radiographic, endoscopic, ultrasound examination techniques. Endoscopic techniques. Equipment, practical use of endoscopic examination. Principles of USG examination. Patient preparation, methods of echo presentation. Ultrasonographic diagnostics of chest and abdomen. MRI- principles of caring out examination with use of magnetic resonance imaging.

LECTURES:

Imaging methods in diagnostics of diseases In animals, images interpreting , radiographic image (radiogram). Physical properties of Roentgen rays, equipment and radiographic laboratory. Radiologic protection. Technique of radiologic examination. Radioscopy, radiography. Use of artificial contrast media. Radiologic examination of bones in dog and horse. Standard views, nomenclature. Normal radiographic images. Density, opacity of shadow. Technique of viewing the radiographs. Diagnostic imaging of basic pathological changes in images of soft and hard tissues. Foreign bodies in tissues. Tomography (CT). Technique of CT examination, tomograms recording, advantages of tomograms. Magnetic resonance imaging (MRI). Image generation with use of magnetic field. Application of MRI in examination of brain and spinal cord. Ultrasonography. Principles of examination and equipment. Ultrasound waves generation. Influence of ultrasound on tissues. Presentation of echo. Technique of USG examination, artifacts in USG image. Endoscopy. Endoscopy unit, vision track, accompanying devices. Principles of use. Laparoscopy, arthroscopy, rhinoscopy, cystoscopy, gastroscopy, bronchoscopy.

Learning purpose: The goal of the subject is to provide theoretical and practical knowledge on principles of diagnostic medical imaging including image interpretation and radio-protection

On completion of the study programme the graduate will gain:

Knowledge:

- appreciate the role of radiology and ultrasound in diagnosis of animal illness

- know the health and safety requirements surrounding the use of imaging equipment

Skills:

- formulate hypotheses about cause and result, resulting in a differential diagnosis

- interpret the results of the additional examination

- discuss the findings of the additional examination

Social Competencies:

- a habit of systematic work

-an understanding of ethical aspects of veterinary activities

Basic literature:

1. Donald E. Thrall. Textbook of Veterinary Diagnostic Radiology. 5th edition, Saunders Elsevier, 2007
2. Coulson A., Lewis N. An Atlas of Interpretative Radiographic Anatomy of the Dog and Cat . 2nd ed. Blackwell Publishing, 2008
3. Kealy JK., McAllister H., Graham J Diagnostic Radiology and Ultrasonography of the Dog and Cat. 5th ed. Elsevier, 2010

Supplementary literature:

1. Wisner E, Zwingenberger A. Atlas of Small Animal CT and MRI, 1 st ed, Willey Blackwell, 2015
2. Schwarz T, Saunders J. Veterinary Computed Tomography. 1 st ed, Willey Blackwell, 2015
3. Mai W. Diagnostic MRI in dogs and cats. 1 st ed, CRC Press, 2018

The allocated number of ECTS points consists of:

1.Contact hours with an academic teacher:

Classes : 30h Lectures: 18h (1,92 ECTS)

2. Student's independent work: formulate hypotheses about cause and result, interpret the results of the additional examination 52h (2,08 ECTS)

ECTS = 100 h : 25 h/ECTS = 4,00 ECTS