

Academic Year:	2023/2024	Group of subjects: <del>basic</del> / professional	Catalogue number:	E31
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Module title <sup>1)</sup> :	Ultrasound diagnostics of the reproductive tract in farm animals		ECTS <sup>2)</sup>	2
Polish Translation <sup>3)</sup> :	Diagnostyka ultrasonograficzna układu rozrodczego u zwierząt gospodarskich			
Faculty <sup>4)</sup> :	Faculty of Veterinary Medicine			
Person in charge of the module <sup>5)</sup> :	Bartosz Pawliński DVM PhD Dr Sc			
Teachers responsible for laboratory classes, workshops and seminars <sup>6)</sup> :	Academic teachers of the Institute of Veterinary Medicine; Department of Large Animal Diseases with Clinic; PhD students in accordance to the internal legal acts; visiting professors; other specialists in the field of study			
Unit responsible for the module <sup>7)</sup> :	Institute of Veterinary Medicine; Department of Large Animal Diseases with Clinic			
Faculty in charge <sup>8)</sup> :	Faculty of Veterinary Medicine			
Module status <sup>9)</sup> :	a) <del>mandatory</del> / elective	b) stage JM year 6	c) intramural	
Teaching cycle <sup>10)</sup> :	Semester: winter / <del>summer</del>	Module language <sup>11)</sup> : English		
Objectives of the module <sup>12)</sup> :	Clinical classes include elements of ultrasound technique in relation to the physiology and pathology of the female reproductive system of farm animals. Clinical exercises include clinical assessment on isolated organs of physiological and pathological conditions of the reproductive system of farm animals using the method of ultrasound. During the course, students learn about the principles of ultrasound (1 hour), construction of ultrasound equipment (1 hour), selection of the appropriate probe for the test (1 hour), the principle of ultrasound examination of the reproductive system in farm animals (2 hours), standards ultrasound examination in relation to the reproductive system (2 hours), interpretation of sonograms (2 hours), interpretation of artefacts (1 hour) - clinical exercises. Examination of the bovine reproductive system (ovaries and uterus) on isolated organs (3 hours); Examination of the pig's reproductive tract (ovaries and uterus) on isolated organs (3 hours); Ultrasound clinical examination of the reproductive system in farm animals (8 hours), clinical case analysis and management (8 hours) - fieldwork.			
Teaching forms and number of hours <sup>13)</sup> :	a) Lectures: 5 h b) Practicals and field exercises: 25 h			
Teaching methods <sup>14)</sup> :	Students will work in a team both during classes on isolated organs, phantoms and later with animals. The practical task is preceded by a film, which shows the entire process of preparation of ultrasound equipment, clothing, necessary equipment and health and safety rules. Students analyse the individual sonograms with the teacher and interpret by themselves. During fieldwork, students will improve their skills in using the ultrasound method in the clinical diagnosis of livestock reproductive tract under the supervision of the teacher. Students learn to recognize artefacts and eliminate errors in research technique. Consultations for students 1h / week. Detailed schedule will be defined by the coordinator of the course at the beginning of semester. Detailed organization of consultations will be defined by the coordinator of the course at the beginning of semester.			
Detailed module description <sup>15)</sup> :	<b>Lectures:</b> the basics of ultrasound diagnostic techniques in farm animals, ultrasound equipment, interpretation of ultrasound images, interpretation of common mistakes. <b>Practicals:</b> ultrasound evaluation of the isolated cow's reproductive organs (ovaries and uterus), ultrasound examination of the sow's isolated reproductive organs (ovaries and uterus) <b>Field exercises:</b> clinical examination of the reproductive tract of farm animals using ultrasound.			
Formal prerequisites <sup>16)</sup> :	Animal anatomy modules 1-2, Topographic anatomy, Animal physiology modules 1-2, Biophysics, Farm animal diseases, Equine diseases, Diagnostic imaging			
Initial requirements <sup>17)</sup> :	Student should know basics of USG technique, understand topology and diseases of the female reproductive tract in large animals.			
Learning outcomes <sup>18)</sup> :	01 – ability to choose a proper USG equipment 02 – basic and detailed clinical examination of the reproductive tract both manually and by ultrasound 03 – ability to interpret USG images presenting normal ovaries and uterus	04 – ability to interpret USG images presenting pathologic status of ovaries and uterus 05 – ability to maintain animal welfare during ultrasound examination that is non invasive 06 – ability to recognize abnormalities on the USG images		
Assessment methods <sup>19)</sup> :	The basis for passing the elective is attendance and active participation in the implementation of the curriculum, the correct implementation of all techniques presented. Knowledge of the theoretical basis in relation to physiology and pathophysiology of the reproductive system of farm animals Theoretical test, written one or multiple choice test. The second test date is in the same form. Scoring for the written test: 61-69% - (3.0) 70-76% - (3.5)			

	77-84% - (4.0) 85-92% - (4.5) 93-100% - (5.0)  20% of absence is allowed in accordance with the study regulations. No extra assessment methods are anticipated. In case of unforeseen, unusual circumstances mandatory remote teaching and remote assessment methods might be adopted.
Formal documentation of the learning outcome <sup>20)</sup> :	Exam papers, grade in eHMS
Elements impelling final grade <sup>21)</sup> :	To verify the learning outcomes: 1. attendance at exercises 50% 2. exam grade 50%
Teaching base <sup>22)</sup> :	Infrastructure of the Department of Large Animal Diseases with Clinics (classrooms, ambulatory), RZD Obory, L
Obligatory and supportive materials <sup>23)</sup> : Textbooks: 1. Large Animal Theriogenology, R.F. Youngquist, W.L. Threlfall. 2nd ed. Saunders, Elsevier. 2007 2. Wolfgang Kähn, Dietrich Volkmann, Robert Kenney Veterinary Reproductive Ultrasonography , 2004 3. M.A.M. Taverne, A.H. Willemse Diagnostic Ultrasound and Animal Reproduction 2013 Journals: Theriogenology, Animal Reproduction Science, Reproduction of Domestic Animals, Biology of Reproduction, Reproduction, Molecular Reproduction and Development, Reproductive Biology, Cloning, Archives of Andrology, International Journal of Andrology, Life Veterinary, Veterinary Medicine	
Annotations <sup>24)</sup> :	

Quantitative summary of the module<sup>25)</sup>:

Estimated number of work hours per student (contact and self-study) essential to achieve presumed learning outcomes of the module <sup>18)</sup> - base for quantifying ECTS <sup>2)</sup> :	30 h
Total ECTS points, accumulated by students during contact learning:	1 ECTS
Total ECTS points, accumulated by student during practical classes (laboratories, projects, seminars, etc.):	1 ECTS

Learning outcomes of the module relative to the learning outcomes of the subject<sup>26)</sup>:

Outcome No / symbol	Learning outcomes:	Relative to the learning outcomes of the subject:
01	ability to choose a proper USG equipment	K_KP5, U_PUZ7, U_PUZ13
02	basic and detailed clinical examination of the reproductive tract both manually and by ultrasound	U_PUZ1, U_PUZ2, U_PUZ3, K_KP2
03	ability to interpret USG images presenting normal ovaries and uterus	U_PUZ7
04	ability to interpret USG images presenting pathologic status of ovaries and uterus	U_PUZ7
05	ability to maintain animal welfare during ultrasound examination that is non invasive	U_PUZ2, U_PUZ13, U_PUZ17
06	ability to recognize abnormalities on the USG images	U_OUZ10, U_OUZ14, U_OUZ7
07		

