Module title:	Clinical toxicology of large animals	**ECTS**	**1**
Polish translation:	Toksykologia kliniczna dużuch zwierząt		
Course:	**Veterinary Medicine**		

Module language: English			Stage: JM-FVM		
Form of studies: ☑ intramural ☐ extramural	Type of module: ☐ basic ☐ mandatory ☑ directional ☑ elective		Semester: 9		☑ winter semester ☐ summer semester
Academic year:	**Intake 2020/2021**	Catalogue number:	FVM-V-JMSS-09W-ED01_20		

Module coordinator:	**dr hab. Marta Mendel, prof. SGGW**
Teachers responsible for the module:	**Academic teachers of the Institute of Veterinary Medicine; Department of Preclinical Sciences. PhD students in accordance to the internal legal acts; visiting professors; other specialists in the field of study**
Unit responsible for the module:	**Institute of Veterinary Medicine; Department of Preclinical Sciences**
Faculty in charge:	**Faculty of Veterinary Medicine**
Objectives of the module:	During the course student acquires detailed information on most common poisonings noticed in large animals (horses, cattle, small ruminants, pigs), including prevention, diagnostics and treatment. Lecture content; Introduction to clinical toxicology of large animals (horses, cattle, pigs and small ruminants); Epidemiology of the most frequent poisonings in large animals (1 hour); Detailed characteristic of iron toxicity, including adverse reactions in piglets (1 hour); Detailed characteristic of metals (copper, sulphur, chronic selenium and fluoride) poisonings (2 hours); Detailed characteristics of animal and bacteria toxins (2 hours); Detailed characteristics of toxic plants (poisonings in grazing animals and intoxications caused by contaminated feed (3 hours); Toxicological significance of non-protein nitrogen (NPN) compounds in animal diet; Feed contamination with mycotoxins (2 hours); Salt poisoning (water deprivation), including film watching; The signification of water quality in animal production (2 hours); Introduction to anti-doping and controlled medication regulations in equine sport. Basics of herbal-drug interactions (2 hours).
Teaching forms, number of hours:	a) Lectures; hours 15
Teaching methods:	• Original multimedia presentations prepared by academic teachers which link theoretical knowledge with practical aspects of veterinary profession • Disscusions initiated by the teachers • Videos presenting clinical symptoms of poisonings • Consultations (7 h in semester) 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.
Formal prerequisites and initial requirements:	Passing the courses: Toxicology

Learning outcomes:	Knowledge Student: - knows the most common poisonings reported in large animals, including their causes and manifestations, - knows and understands the diagnostics rules and non-specific and specific therapy protocols used in acute and chronic poisonings, - knows the consequences of incorrect dosing of mineral and phytogenic feed additives in farm animals and horses,	Skills Student: - is able to collect toxicological data, including data specific for individual animal species, - is able to select samples and diagnostic tests to confirm a poisoning, - can chose the most suitable therapy protocol in acute and chronic poisonings, - is able to perform differential diagnostic process in case of poisoning suspicion,	Competences Student: - is prepared to make its mind in a situation of chemical hazard (decide about therapy protocols for affected animals and personal protective equipment for individuals involved), - is prepared to advise animal owner/farmer in regards to safe use of mineral and phytogenic feed additives, - is ready to critically interpret the results of laboratory tests in case toxicological analysis.

Assessment methods:

All lectures are obligatory. The attendance at 5 lectures or more will be benefited at the final test.
One verification (written) test at the end of semester – 3 questions for frequent attenders of the lectures or 4 questions for all other students.
To pass the test one must obtain at least 51% of total number of points (at least 8 out of 15 points or 10.5 out of 20 points in case of 3 and 4 questions, respectively).
Grading scale:

3-question test		4-question test	
Number of points:	Grade	Number of points:	Grade
0 – 7.5	2 (insufficient)	0 – 10.0	2 (insufficient)
8.0 – 9.0	3 (sufficient)	10.5 – 12.0	3 (sufficient)

	<table><tr><td>9.5 – 10.5</td><td>3.5 (sufficient +)</td><td>12.5 – 14.0</td><td>3.5 (sufficient +)</td></tr><tr><td>11.0 – 12.0</td><td>4.0 (good)</td><td>14.5 – 16.0</td><td>4.0 (good)</td></tr><tr><td>12.5 – 13.5</td><td>4.5 (good +)</td><td>16.5 – 18.0</td><td>4.5 (good +)</td></tr><tr><td>14.0 – 15.0</td><td>5.0 Very good)</td><td>18.5 – 20.0</td><td>5.0 Very good)</td></tr></table> Failed test can be repeated once. 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 learning outcomes:	eHMS entry. Records collected in the course portfolio i.e. individual records of student results, presence lists, database written questions.
Elements impelling final grade:	Final grade is equal with the grade of the final test.
Teaching base:	Lecture facilities of the Institute of Veterinary Medicine
Mandatory and supportive materials : 1. Clinical Veterinary Toxicology, ed. KH Plumlee,. Mosby, 2004 2. Veterinary Toxicology, ed. RC Gupta, Elsevier, 2018 3. FEI Regulations https://inside.fei.org/fei/cleansport https://pzj.pl/sport/antydoping/ 4. Blackwell's Five-Minute Veterinary Consult Clinical Companion: Equine Toxicology, ed. Lynn R. Hovda, Dionne Benson, Robert H. Poppenga, Wiley, 2021 5. Medical Toxicology of Natural Substances: Foods, Fungi, Medicinal Herbs, Plants, and Venomous Animals, ed. Donald G. Barceloux, Wiley, 2008 6. Drug-Drug Interactions for Therapeutic Biologics, ed. Honghui Zhou, Bernd Meibohm, Wiley, 2013 7. Toxic Plants of North America, 2nd Edition, ed. George E. Burrows, Ronald J. Tyrl, Wiley, 2012 8. Blackwell's Five-Minute Veterinary Consult: Ruminant, 2nd Edition, ed. Christopher Chase, Kaitlyn Lutz, Erica McKenzie, Ahmed Tibary, Wiley, 2017 9. Blackwell's Five-Minute Veterinary Consult: Equine, 3rd Edition, ed. Jean-Pierre Lavoie, Wiley, 2019 10. Toxicology for the Equine Practitioner, Ahmad Al-Diss, Vet Clin North Am Equine Pract, 2015 Aug;31(2):269-79. doi: 10.1016/j.cveq.2015.04.009 Relevant scientific publications, including those of the module coordinator.	
ANNOTATIONS	

Quantitative summary of the module:

Estimated number of work hours per student (contact and self-study) essential to achieve presumed learning outcomes of the module - base for quantifying ECTS:	**30 h**
Total ECTS points, accumulated by students during contact learning:	**1 ECTS**

Learning outcomes of the module relative to the learning outcomes of the subject:

Outcome category	Learning outcomes:	Learning outcomes relative to the course outcomes	Impact on the course of each outcomes
Knowledge -	knows the most common poisonings reported in large animals, including their causes and manifestations,	A.W.21, A.U.17 B.W.1, B.W.2, B.W.3	3 1
Knowledge -	knows and understands the diagnostics rules and non-specific and specific therapy protocols used in acute and chronic poisonings,	A.W.21 A.W.16, B.W.4	3 2
Knowledge -	knows the consequences of incorrect dosing of mineral and phytogenic feed additives in farm animals and horses,	A.W.16	2
Skills -	is able to collect toxicological data, including data specific for individual animal species,	A.U.12, A.U.13 B.U.2	1 2
Skills -	is able to select samples and diagnostic tests to confirm a poisoning,	B.U.6, B.U.23	2
Skills -	can chose the most suitable therapy protocol in acute and chronic poisonings	B.U.13	2
Skills -	is able to perform differential diagnostic process in case of poisoning suspicion	B.U.6	1
Competences -	is prepared to make its mind in a situation of chemical hazard (decide about therapy protocols for affected animals and personal protective equipment for individuals involved)	K.S.1, K.S.5, K.S.10	2
Competences -	is prepared to advise animal owner/farmer in regards to safe use of mineral and phytogenic feed additives	K.S.9	1
Competences -	is ready to critically interpret the results of laboratory tests in case toxicological analysis	K.S.7	1