

Module code	M_WE_SEM7 PW 1E/2E FARM KLIN
Field of study	Veterinary medicine
Module name, also the name in English	Clinical pharmacology
	Farmakologia kliniczna
Language of instruction	English
Module type	elective
Level of studies	Long-cycle master's degree studies
Form of study	Full-time
Year of study in the field of study	IV
Semester of study in the field of study	VII
ECTS credits, divided into contact/non-contact hours	1 (0.7/0.3)
Academic title/degree, name of the person responsible for the module	Dr hab. Beata Łebkowska-Wieruszewska
Unit teaching the module	Department of Pharmacology, Toxicology and Environmental Protection
Module objective	Acquainting students with the knowledge of veterinary pharmacology including pharmacotherapy of selected animal diseases; theoretical and practical knowledge in the scope of the latest achievements of pharmaceutical sciences, with particular attention paid to clinical pharmacokinetics; principles of safe and rational pharmacotherapy; physiological conditions affecting drug use; pathological conditions affecting pharmacokinetics and pharmacotherapy; biopharmaceutical aspects of drug administration. Developing competence in the informed and responsible application of knowledge gained in the course.
The learning outcomes for the module include a description of the knowledge, skills and social competences that the student will gain after completing the module.	Knowledge:
	K1 Knows how to optimize antibiotic therapy of diseases in different animal species as well as pharmacotherapy in emergencies and acute poisonings
	K2 Knows the value of bioavailability as a criterion for assessing the quality of a drug formula and the testing methods of bioavailability and bioequivalence for systemically acting drugs
	K3 Knows the possibility of changing the pharmacotherapy depending on the pathological condition of the patient including failure of vital organs (liver, kidneys, heart)
	K4 Knows the standardization of pharmacological testing, parameter analysis, analytical determination of medicinal substance and/or its products of biotransformation
	K5 Knows treatment options for pediatric and geriatric patients (knows teratogenic substances and OTC drugs)
	K6 Knows alternative natural methods of chemotherapy (probiotics, feed enzymes, herbs) and innovative therapies (phage, gene)
	Skills:

	S1 is able to optimise the use of antibiotics and chemotherapeutics, including in emergencies and acute poisoning
	S2 is able to optimise pharmacotherapy of diseases of different systems in different animal species and practically solve pharmacotherapeutic problems in selected patients
	S3 is able to apply drugs during pregnancy and lactation: assess the effects of pregnancy on pharmacokinetics, changes in pharmacodynamics; placental barrier in different animal species, estimate the harmful effects of drugs on the fetus; classify the effects of drugs during pregnancy; estimate the safety of drugs during lactation and lactation in different young animal species.
	S4 is able to administer medications to pediatric and geriatric patients
	S5 can optimise pharmacotherapy in patients requiring monitoring (in organ failure)
	S6 is able to use natural medicines as an alternative to chemotherapy and innovative therapies (phagotherapy, gene therapy)
	Social competences:
	C1 optimises antimicrobial therapy and adapts systemic therapy depending on the physiological and pathological state of the patient
	C2 understands the progress in new drug implementations, assesses the differences between a new drug and a novel drug
	C3 understands to what extent the applied drug interacts outside the animal organism, human organism and environment
Prerequisites and additional requirements	-
Module program content	<p><i>Lecture topics:</i></p> <ol style="list-style-type: none"> 1. Practical aspects of clinical pharmacokinetics. Drug complications [2hrs]. 2. Optimisation of antibiotic therapy of diseases in different animal species as well as pharmacotherapy in emergencies and acute poisonings [2hrs]. 3. Management aimed to individualize pharmacotherapy dependent on pathological conditions. Pharmacotherapy monitored by drug concentrations in the body as one of the important ways to individualize treatment. [3hrs]. 4. The role of age (geriatric therapy, pediatric therapy from the perspective of pharmacokinetics), environmental factors, time of day, genetically based individual differences in patient response to drugs. Pharmacotherapy of females during pregnancy and lactation. [3hrs]. 5. Alternative therapies to chemotherapy (probiotics, feed enzymes, herbs)[2hr]. 6. Innovative therapies (phage therapy, gene therapy) [2hrs].

List of core and supplementary literature	<p>1. Small Animal Clinical Pharmacology 2nd Edition by Jill E. Maddison, Stephen W Pag, Elsevier Health Sciences, 2002</p> <p>2. Clinical Pharmacology and Therapeutics for Veterinary Technicians Robert L. Bill, Mosby, 2016,</p> <p>3. The Physiological Basis of Veterinary Clinical Pharmacology J. Desmond Baggot, Wiley-Blackwell, 2001</p> <p>Scientific articles</p>		
Planned forms/activities/teaching methods	Lecture, multimedia presentations, group work on issues, discussion, preparation for the credit, preparation for the classes		
Verification methods and ways of documenting the achieved learning outcomes.	<p>Checking of knowledge is done in written form, after completion of all subject blocks. There will be one written colloquium per semester consisting of open and closed descriptive tasks and test tasks. The total points earned on the colloquium are expressed on a relative percentage scale, where 100% is the maximum number of points possible to gain on the colloquium. The scope of knowledge tested on the colloquium includes lecture topics. The basis for passing the module is obtaining a minimum of 51% of percentage points from the written colloquium. In addition, attendance at at least 85% of the classes in the module plan is required to pass the course.</p> <p>Percentage points from the colloquium are converted into grades according to the following scale: very good -91-100%., plus good - 81-90%, good -71-80%., plus sufficient -61-70%., sufficient -51-60%., insufficient -0-50%.</p>		
ECTS credits	CONTACT		
		Hours	ECTS credits
	exercises	15	0.6
	Examination / retake examination	3	0.1
	TOTAL contact hours	18	0.7
	NON-CONTACT		
	preparation for lecture/exercises	3	0.1
	project preparation	2	0.07
	preparation for the credit/examination	4	0.13
	TOTAL non-contact hours/ ECTS credits	9	0.3
Total with direct involvement of the teacher	participation in exercises	15	0.
	Pass/retake exam	3	0.1
	TOTAL	18	0.7

<p>Relation of module learning outcomes to course learning outcomes.</p>	<p>W1 --- A.W16.++, A.W17.++, A.W18.++, B.W9+. W2 --- A.W16.++, B.W3.+ , B.W4.++, B.W9+. W3 --- A.W16.+ , B.W3.+ , B.W4.+ , B.W9.+ , B.W5.+ , B.W6.++ W4 --- A.W16.++, B.W3.+ , B.W4.+ , B.W9.+ , B.W6.+ W5 --- A.W16.+ , B.W3.+ , B.W4.+ , B.W9.+ W6 --- A.W16.+ , B.W3.+ , B.W9.+ U1 --- A.U11.++, B.U13.++. U2 --- A.U7.+ , B.U13.++. U3 --- A.U7.+ , B.U13.++. U4 --- A.U7.+ , B.U13.++ U5 --- A.U7.+ , B.U13.++ U6 --- A.U7.+ , B.U13.++ K1 --- K3++,K5+, K7+ K2 --- K7+, K8,++ K3 --- K1+</p>
<p>Elements and values affecting the final grade</p>	<p>Module Assessment: Colloquium - 100% of weighting The basis for passing the module is obtaining a minimum of 51% of percentage points from the written colloquium.</p>