Module code	M_WE_SEM5 FARMAK 1
Field of study	Veterinary medicine
Module name, also the name in English	Veterinary pharmacology 1
	Farmakologia weterynaryjna 1
Language of instruction	English
Module type	obligatory
Level of studies	Long-cycle master's degree studies
Form of study	Full-time
Year of study in the field of study	III
Semester of study in the field of study	V
ECTS credits, divided into contact/non-contact hours	5 (2,97/2,03)
Academic title/degree, name of the person responsible for the module	Prof. dr hab. Cezary J. Kowalski
Unit teaching the module	Department of Pharmacology, Toxicology and Environmental Protection
Module objective	Introduction to general pharmacology (mechanisms of drug action at molecular, cellular, organ and entire organism level; pharmacokinetics; drug interactions), as well as specific pharmacology of nervous system drugs (characteristics of selected veterinary drugs, representing the specific ACTVet Anatomical Therapeutic Chemical Classification group). Familiarisation with the classification of active ingredients used in animal treatment. Introduction to the fundamentals of veterinary pharmacotherapy (indications, contraindications, adverse effects and basic interactions in each group of nervous system drugs in various animal species). Familiarisation with the correct writing of medical prescriptions. Development of competences in the field of informed and responsible application of knowledge acquired during 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 – Students know the definitions and concepts of general pharmacology, pharmacokinetics and experimental pharmacology;
	K2 – Students know the detailed pharmacology of nervous system drugs: pharmacodynamics, pharmacokinetics, side effects and contraindications in major domestic animal species;
	K3 – Students are able to classify about 100 active nervous system substances, along with their assignment to the appropriate ACTVet group up to and including classification level 3;
	K4 – Students understand drug interactions and their importance in polytherapy
	K5 – Students have the basic knowledge of pharmaceutical law, including prescribing drugs
	K6 – Students understand the issues of the environmental impact of drugs and issues of drug residues in animal products.

	Skills:
	S1 Students are able to use medicine to achieve desired changes in the functioning of a healthy organism, taking into account the dose and route of administration
	S2 Students are able to choose an appropriate drug to modify the functions of the organism in a given pathological condition, taking into account the indications and contraindications for the use of drugs in animals
	S3 – Students are able to write prescriptions for medicinal products
	S4 – Students are able to determine the withdrawal period for the drug
	S5 – Students are able to convey knowledge of drug action and justify the choice of a drug used for treatment
	Social competences:
	C1 – Students apply drugs based on the knowledge of pharmacokinetic and pharmacodynamic properties
	C2 – Students independently find information about new nervous system drugs
	C3 – Students understand the advances in the introduction of new nervous system drugs .
Prerequisites and additional requirements	Animal physiology

Module program content	*Lecture topics:* 1. Veterinary pharmacology – course description. Pharmacodynamics: types of drug action, receptor theories of drug action, consequences of receptor stimulation, dose-effect relationship, drug interactions, hypersensitivity and insensitivity of the body to drugs, side effects and adverse effects of drugs. [6 hrs.] 2. Pharmacokinetics: drug disposition in the body, ADME, selected pharmacokinetic parameters, residues of veterinary drugs in animal source food. [6 hrs.] 3. ATCvet classification. Pharmacology of the nervous system – introduction. QN02 – narcotic analgesics [3 hrs.] *Exercise topics:* 1. Organisation of pharmacology practical classes. Basic concepts of drugs and therapeutic agents. Legislation (Pharmaceutical Law). [2 hrs.] 2. Structure of a medical/veterinary prescription. Principles of prescribing ready-to-use medicine. [2 hrs.] 3. Narcotic medication prescription (Legislation, Schedules A, B, N), therapeutic dose [2 hrs]. 5. Pharmacokinetic parameters. [2 hrs.] 7. Autonomic system pharmacology – the adrenergic system. [2 hrs.] 8. Autonomic system pharmacology – the cholinergic system. [2 hrs.] 9. Characteristics of selected autonomic system medicinal products [2 hrs]. 10. QN05 – Psycholeptics (05A neuroleptics, 05B anxiolytics). [2 hrs.] 11. QN05 – Psycholeptics (05C sedative-hypnotic drugs including alpha2-agonists). [2 hrs.] 12. QN03 – Anticonvulsants, QN06 – Psychoanaleptics (antidepressants) [2 hrs.] 13. QN group medicines: QN01B – Local anaesthetics, QN02 – Analgesics – NSAIDs [2 hrs.] 14. QN01A – General anaesthetics, QN06 –Psychoanaleptics (caffeine) + QR07AB – Respiratory stimulants. [2 hrs.] 15. Characteristics of selected central nervous system medicinal products [2 hrs].
List of core and supplementary literature	1. Veterinary Pharmacology and Therapeutics, Jim E. Riviere, Mark G. Papich 2. Plumb s Veterinary Drug Handbook, Donald C. Plumb 3. Handbook of Veterinary Pharmacology, Walter H. Hsu.
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.	Checking of knowledge is done in written form, after completion of a given subject block. There will be four written colloquia per semester (weight 12.5%) consisting of open-ended and closed-ended 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 and practical class topics. Percentage points from each colloquium are converted into grades according to the following scale: very good - 91-100%., plus good - 81-90%, good - 71-80%., plus satisfactory - 61-70%., satisfactory - 51-60%., unsatisfactory - 0-50%.
	In addition, to pass module 1, attendance in at least 85% of the practical classes in the module plan is required.

ECTS credits	CONTACT HOURS		
		Hours	ECTS credits
	Lectures	15	0,6
	practical classes	30	1,2
	Consultations	5	0,2
	colloquium/retake	18	0,73
	Examination / retake examination	6	0,24
	TOTAL contact hours	74	2,97
	NON-CONTACT HOURS		
	preparation for classes	20	0,8
	project preparation	6	0,23
	literature study	10	0,4
	preparation for the exam	15	0,6
	TOTAL non-contact hours	51	2,03

The workload related to the classes requiring direct participation of academic teachers:	attendance at lectures	15	0,6
	attendance at practical classes	30	1,2
	Consultations	5	0,2
	colloquium/retake	18	0,73
	Examination / retake examination	6	0,24
	TOTAL	74	2,97

Relation of module learning outcomes to course learning outcomes.	K1 --- WE_W10 ++, WE_W07++ K2 --- WE_W10 ++, WE_W07++ K3 --- WE_W10 ++, WE_W07++ K4 --- WE_W10 ++, WE_W07++ K5--- WE_W12++, WE_W13++ K6 --- WE_W29 + S1 --- WE_U22 ++, WE_U23+, WE_U25++ S2 --- WE_U22 ++, WE_U23+, WE_U25++ S3 --- WE_U23++ S4 --- WE_U5+ S5 --- WE_U23+, WE_U25++ Sc1 WE_K1+ Sc WE_K 8+ Sc3 WE_K 6+
Elements and values affecting the final grade	Module 1 grading: Colloquium 1 – 25% value Colloquium 2 – 25% value Colloquium 3 – 25% value Colloquium 4 – 25% value The final course grade is calculated based on the grade for module I (12.5% value), the grade for module II (12.5% value) and the final examination grade (75% value).