Syllabus

Module title:	Veterinary gerontology	ECTS	2
Polish translation:	Gerontologia weterynaryjna		
Course:	**Veterinary Medicine**		

Module language:	English			Stage:	JM-FVM
Form of studies: ☒ intramural ☐ extramural	Type of module: ☒ basic ☐ directional	☐ mandatory ☒ elective	Semester: 8		☐ winter semester ☒ summer semester
			Academic year:	**2022/2023**	Catalogue number: FVM-V-JMSS-04S-EB04_22

Module coordinator:	**Prof. dr hab. Piotr Ostaszewski**
Teachers responsible for the module:	**Academic teachers of the Institute of Veterinary Medicine; Department of Pathology and Veterinary Diagnostics; 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 Physiological Sciences**
Faculty in charge:	**Faculty of Veterinary Medicine**
Objectives of the module:	„Veterinary gerontology" is an elective which is believed to provide students with the updated knowledge referred to physiological mechanisms controlling aging process in companion animals. Initially, the lectures present the theories of aging with the empirical evidence confirming each theory. Next, the mechanisms of aging are described at the molecular, ultrastructural, cellular, and macroscopic level. Origin and progress of the aging phenomenon will be shown at the level of some tissue and organ including age-related diseases and disturbances such as Hutchison-Gilford, and Werner's syndrome or Leprechaunism in humans. There is a room for inter species differences and the interaction between the individual and external environment. Special concern will be put on dangers associated with elderly such as systemic diseases, neoplasms, or neuro-muscular disorders. Additionally, a methods of aging prevention and extended average animal life expectancy will be discussed. In particular, the molecular mechanisms and possibilities to prophylaxis will be presented. Practical aspects of geriatric medicine and gerontology in veterinary medicine are to be shown. Thanks to the lectures students should know the mechanisms of inevitable aging process and the strategy to improve the wellbeing of old animals. After completing the course students have to pass the final exam. After completing the course students can make use of knowledge acquired in other disciplines (i. e. diagnostics, palliative care etc). Lectures (15 lectures, 1 hour each): Theories of aging. Empirical evidence for underlying mechanisms of aging. Molecular indices of aging at substructural, cellular, tissue, organ and systemic level. Oxidative stress, origin, and impact on aging. Types of cell aging and the consequences on the whole-body organism. Metabolic changes in elderly. Markers of aging, laboratory diagnostics. Clinical symptoms of aging in the general examination. The role of central nervous system and endocrine function in the proces of aging. Diseases and disturbances in aging. Therapeutic approaches and modalities in elderly patient. Techniques use to improve the organ and tissue functions in old animals. Pain and suffering in older patients. Methods for reducing pain and suffering in older patients. Handling and care of older patient. Jurisdictional and ethical aspects of veterinary intervention in elderly. Euthanasia.
Teaching forms, number of hours:	a) Lectures; 15 hours b) Seminars; 15 hours
Teaching methods:	• **Lectures**: Original multimedia presentations prepared by academic teachers employed at the Institute of Veterinary Medicine. • **Seminars**: Short presentations prepared by the students, on the topics selected from the list given by the teacher, followed by discussion. • **Consultations** (1h/week). The method and the schedule of consultations will be shown at the start of the semester.
Formal prerequisites and initial requirements:	Required is the knowledge in molecular cell physiology, animal physiology, pathophysiology, pathology.
Learning outcomes:	Basic sciences/knowledge: Student: 1 - knows metabolic processes on the molecular, cellular, organ and organism level referred to aging; 2 – knows mechanisms underlining animal	Skills: Student: 1 – enable describe changes in the function of the organism occurring upon aging; 2 – define aging of the animal as an	Competences: Student: 1 – is able to evaluate and to interpret cell functions and their relationships in elderly; 2 – draw the conclusions from

	health, aging theories – from the cellular level, through organ to the system; 3 – knows mechanisms of neurohormonal regulation, reproduction, ageing and death; 4 – knows relationship between factors influencing homeostasis of biological processes and physiological, and pathological changes; 5 – knows laws governing intellectual property; 6 – knows conditions of animal welfare.	adaptive process to environmental variability; 3 - listen and explain in the language associated with gerontology; 4 – operate in the interdisciplinary team; 5 – understand the need of continuous education for professional development; 6 – critically analyze veterinary literature and formulate conclusions based on available literature.	experiments and observations related to aging; 3 – perform critical self-evaluation, formulate constructive criticism regarding postulated solutions based on the current scientific knowledge with regard to aging; 5 – communicate with co-workers and share the knowledge; 6 – is able to make use of the acquired knowledge in the future education.
Assessment methods:	Final exam: Final exam contains 25 questions (multiple choice test, 1 point per correct answer). To pass, student must collect 13 points (51%). Retake is provided for students who failed or could not attend the first term. Both terms have the same form. 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 (general rules of the course, students' presentations, database of questions, written colloquiums and final tests), grades record.		
Elements impelling final grade:	Attendance to the lectures is mandatory, student can be absent on 20% of lectures according to the current academic regulations. The following scale is used to **grade the semester**: 0 - 12 points - failing grade (2), 13 – 15 points – passing grade (3), 16 – 17 points – passing plus grade (3.5), 18 – 20 points – good grade (4), 21 – 22 points – good plus grade (4.5), 23 – 25 points – excellent grade (5). Once the student failed to pass the final exam twice she/he obtained failing grade.		
Teaching base:	Lecture facilities of the Institute of Veterinary Medicine.		
Mandatory and supportive materials : 1. Hoskins J.D. 2006. Geriatrics and Gerontology of the Dog and Cat - 2nd Edition. Saunders. 2. Salvador Cervantes Sala 2017. Geriatria canina y felina. Edra Urban & Partner. 3. 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:	**50 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 each course outcomes
Knowledge – 1	1 – knows metabolic processes on the molecular, cellular, organ and organism level;	A.W.1 A.W.4, A.W.9, A.W.10	1 3 2
Knowledge – 2	2 – mechanisms of neurohormonal regulation, reproduction, ageing and death;	A.W.9	3
Knowledge – 3	3 – mechanisms underlining animal health, disease and their therapy – from the cellular level, through organs, organism, herd to the whole population of animals;	A.W.10	1
Knowledge – 4	4 - relationship between factors influencing homeostasis of biological processes and physiological, and pathological changes;	A.W.11	1
Knowledge – 5	5 – knows laws governing intellectual property;	A.W.23	1
Knowledge – 6	6 - knows conditions of animal welfare.	B.W.9	1

Skills – 1	1 – describe changes in the function of the organism occurring upon alteration of homeostasis;	A.U.4	1
Skills – 2	2 – define physiological status of the animal as an adaptive process to environmental variability;	A.U.7	1
Skills – 3	3 – listen and explain in the language that is understandable and appropriate for the situation;	A.U.13	1
Skills – 4	4 – operate in the interdisciplinary team;	A.U.15	1
Skills – 5	5 – understand the need of continuous education for professional development;	A.U.21	1
Skills – 6	6 – utilise computer systems and current sources of veterinary knowledge for effective use and process of information;	C.U.2, C.U.3	1
Competences – 1	1 – formulate constructive criticism regarding cell functions with their relation to organs;	KS.1, KS.4, KS.5, KS.6, KS.7	2
Competences – 2	2 – evaluate physiological parameters of the cell;	KS.1, KS4	2
Competences – 3	3 – conduct basic physiological experiments (scientific) and draw correct conclusions based on the observations;	KS.5	2
Competences – 4	4 – perform critical self-evaluation, formulate constructive criticism regarding veterinary practice, accept criticism regarding postulated solutions, factual respond to that criticism based on the current scientific knowledge;	KS.4, KS.8, KS.7, KS.9	2
Competences – 5	5 – communicate with co-workers and share the knowledge;	KS.3, KS.4, KS.7, KS.9	1
Competences – 6	6 – formulate opinions regarding various aspects of professional conduct.	KS.1, KS.4, KS.5, KS.6, KS.7, KS.8, KS.9,	2