SZKOŁA GŁÓWNA
GOSPODARSTWA
WIEJSKIEGO

Veterinary gerontology
Educational subject description sheet

Basic information

Field of study Veterinary Medicine	**Didactic cycle** 2024/25
Speciality -	**Subject code** WETFVMS_D.520P.01716.24
Organizational unit Faculty of Veterinary Medicine	**Lecture languages** english
Study level long-cycle	**Mandatory** Elective subjects
Study form full-time studies	**Block** Basic subjects
Education profile General academic	**Disciplines** Veterinary medicine

Coordinator	Piotr Ostaszewski

Teacher	Piotr Ostaszewski

Period Semester 6	Examination Pass with grade Activities and hours Lecture: 15 Laboratory exercises: 15	Number of ECTS points 2

Goals

Code	Goal
C1	„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).

Entry requirements

Required is the knowledge in molecular cell physiology, animal physiology, pathophysiology, pathology.

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge – Student knows and understands:			
W1	metabolic processes on the molecular, cellular, organ and organism level;	A.W1, A.W10, A.W4, A.W9	Written credit, Presentation
W2	mechanisms of neurohormonal regulation, reproduction, ageing and death;	A.W9	Written credit, Presentation
W3	mechanisms underlining animal health, disease and their therapy – from the cellular level, through organs, organism, herd to the whole population of animals;	A.W10	Written credit, Presentation
W4	relationship between factors influencing homeostasis of biological processes and physiological, and pathological changes;	A.W11	Written credit, Presentation
W5	laws governing intellectual property;	A.W23	Written credit, Presentation
Skills – Student can:			
U1	describe changes in the function of the organism occurring upon alteration of homeostasis;	A.U4	Written credit, Presentation
U2	define physiological status of the animal as an adaptive process to environmental variability;	A.U7	Written credit, Presentation
U3	listen and explain in the language that is understandable and appropriate for the situation;	A.U13	Written credit, Presentation
U4	operate in the interdisciplinary team;	A.U15	Presentation
U5	understand the need of continuous education for professional development;	A.U21	Written credit, Presentation
Social competences – Student is ready to:			

Code	Outcomes in terms of	Effects	Examination methods
K1	formulate constructive criticism regarding cell functions with their relation to organs;	KS.1, KS.4, KS.5, KS.6, KS.7	Written credit, Presentation
K2	evaluate physiological parameters of the cell;	KS.1, KS.4	Written credit, Presentation
K3	conduct basic physiological experiments (scientific) and draw correct conclusions based on the observations;	KS.5	Written credit, Presentation
K4	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.7, KS.8, KS.9	Written credit, Presentation
K5	communicate with co-workers and share the knowledge;	KS.3, KS.4, KS.7, KS.9	Written credit, Presentation
K6	formulate opinions regarding various aspects of professional conduct;	KS.1, KS.4, KS.5, KS.6, KS.7, KS.8, KS.9	Written credit, Presentation

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	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.	W1, W2, W3, W4, W5, U1, U2, U3, U4, U5, K1, K2, K3, K4, K5, K6	Lecture
2.	Short presentations prepared by the students, on the topics selected from the list given by the teacher, followed by discussion.	W1, W2, W3, W4, W5, U1, U2, U3, U4, U5, K1, K2, K3, K4, K5, K6	Laboratory exercises

Course advanced

Activities	Methods of conducting classes
Lecture	Lecture, Discussion
Laboratory exercises	Discussion, Presentation

Activities	Examination method	Percentage
Lecture	Written credit	70%
Laboratory exercises	Presentation	30%

Activities	Credit conditions
Lecture	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.
Laboratory exercises	In order to be able to participate in final test the positive grade from the semminar presentation is needed.

Literature

Obligatory

1. Hoskins J.D. 2006. Geriatrics and Gerontology of the Dog and Cat - 2nd Edition. Saunders.

Optional

1. Salvador Cervantes Sala 2017. Geriatria canina y felina. Edra Urban & Partner.
2. Relevant scientific publications, including those of the module coordinator.

Calculation of ECTS points

Activity form	Activity hours*
Lecture	15
Laboratory exercises	15
Preparation for the exam	10
Preparation of a multimedia presentation	10
Self-study on the content covered in class	10
Student workload	**Hours** 60
Number of ECTS points	**ECTS** 2

* hour means 45 minutes

Effects

Code	Content
KS.1	label.effect.prefix.competenceAbsolwent jest gotów do wykazywania odpowiedzialności za podejmowane decyzje wobec ludzi, zwierząt i środowiska przyrodniczego
KS.3	label.effect.prefix.competenceAbsolwent jest gotów do udziału w rozwiązywaniu konfliktów, a także wykazywania się elastycznością w reakcjach na zmiany społeczne
KS.4	label.effect.prefix.competenceAbsolwent jest gotów do korzystania z obiektywnych źródeł informacji
KS.5	label.effect.prefix.competenceAbsolwent jest gotów do formułowania wniosków z własnych pomiarów lub obserwacji
KS.6	label.effect.prefix.competenceAbsolwent jest gotów do formułowania opinii dotyczących różnych aspektów działalności zawodowej
KS.7	label.effect.prefix.competenceAbsolwent jest gotów do rzetelnej samooceny, formułowania konstruktywnej krytyki w zakresie praktyki weterynaryjnej, przyjmowania krytyki prezentowanych przez siebie rozwiązań, ustosunkowywania się do niej w sposób jasny i rzeczowy, także przy użyciu argumentów odwołujących się do dostępnego dorobku naukowego w dyscyplinie
KS.8	label.effect.prefix.competenceAbsolwent jest gotów do pogłębiania wiedzy i doskonalenia umiejętności
KS.9	label.effect.prefix.competenceAbsolwent jest gotów do komunikowania się ze współpracownikami i dzielenia się wiedzą
A.U4	label.effect.prefix.skillAbsolwent potrafi opisać zmiany funkcjonowania organizmu w sytuacji zaburzeń homeostazy
A.U7	label.effect.prefix.skillAbsolwent potrafi definiować stan fizjologiczny jako adaptację zwierzęcia do zmieniających się czynników środowiska
A.U13	label.effect.prefix.skillAbsolwent potrafi słuchać i udzielać odpowiedzi językiem zrozumiałym, odpowiednim do sytuacji
A.U15	label.effect.prefix.skillAbsolwent potrafi pracować w zespole multidyscyplinarnym
A.U21	label.effect.prefix.skillAbsolwent potrafi zrozumieć potrzebę kształcenia ustawicznego w celu ciągłego rozwoju zawodowego
A.W1	label.effect.prefix.knowledgeAbsolwent zna i rozumie strukturę organizmu zwierzęcego: komórek, tkanek, narządów i układów
A.W4	label.effect.prefix.knowledgeAbsolwent zna i rozumie procesy metaboliczne na poziomie molekularnym, komórkowym, narządowym i ustrojowym
A.W9	label.effect.prefix.knowledgeAbsolwent zna i rozumie mechanizm regulacji neurohormonalnej, reprodukcji, starzenia się i śmierci
A.W10	label.effect.prefix.knowledgeAbsolwent zna i rozumie zasady i mechanizmy leżące u podstaw zdrowia zwierząt, powstawania chorób i ich terapii - od poziomu komórki, przez narząd, zwierzę, stado zwierząt do całej populacji zwierząt
A.W11	label.effect.prefix.knowledgeAbsolwent zna i rozumie związek pomiędzy czynnikami zaburzającymi stan równowagi procesów biologicznych organizmu zwierzęcego a zmianami fizjologicznymi i patofizjologicznymi
A.W23	label.effect.prefix.knowledgeAbsolwent zna i rozumie pojęcia z zakresu ochrony własności intelektualnej