

Module code	M_WE_SEM4 PW 1C/2C PHYSI POST
Field of study	Veterinary medicine
Module name	Physiology of postnatal animal development Fizjologia postnatalnego rozwoju zwierząt
Language of instruction	English
Module type	(elective)
Level of studies	Long-cycle Master's Degree studies
Mode of study	Full-time/ <del>part-time</del>
Year of study in the field of study	II
Semester of study in the field of study	IV
ECTS credits, divided into contact/non-contact hours	1 (0.66/0.34)
Academic title/degree, name of the person responsible for the module	Dr. Sylwia Szymańczyk
Unit teaching the module	Department of Animal Physiology
Module objective	The objective is to provide knowledge in the field of animal neonatology to understand the physiological mechanisms that ensure normal growth and maturation during postnatal animal development.
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. has knowledge of the functions of major organs and systems in the body of newborn and developing animals. K2. knows the basic physiological processes conditioning the growth and maturation of organs and systems during postnatal animal development K3. understands the physiological mechanisms of homeostasis, hormonal and metabolic regulation during postnatal development of the animal body
	Skills:
	S1. can assess the nutritional status of newborns, distinguish between neonates born on time and those with intrauterine growth and developmental stunting, S2. can make a correct analysis and interpretation of the values of physiological parameters and laboratory test results in relation to physiological norms S3. is able to give advice on neonatal and postnatal physiology
	Social competences:
	Sc1. is oriented toward expanding knowledge of the laws that guide the functioning of the animal body during the neo and postnatal periods, Sc2. is able to disseminate knowledge on the characteristic needs of animals in the postnatal period during a group discussion Sc3. is aware of the limitations and immaturity of the young organism's systems and organs and is able to properly handle animals
Prerequisites and additional requirements	none

Module programme content	<p>Practical classes</p> <ol style="list-style-type: none"> <li>1. Animal body development and growth. Structural and functional development of individual systems and organs in the postnatal period (neonatal independence).-2h</li> <li>2. Determinants of organ and systemic adaptation in neonates. Immune adaptation of the neonatal and postnatal period of farmed mammals.-2h</li> <li>3. Neonatal thermoregulation. Development of the hypothalamic thermoregulatory center. Neonatal thermal comfort conditions, neonatal hypothermia. Thermoregulatory adaptation of neonatal animals to diverse environmental conditions. Role of uncoupling proteins in thermoregulation of young animals- 2h</li> <li>4. Development of the gastrointestinal tract of domestic animals - structural features of the neonatal gastrointestinal tract. Intestinal maturation in the neonatal and postnatal period. -2h</li> <li>5. Role of colostrum regulatory peptides and exogenous bioactive substances in gastrointestinal development. - 2h</li> <li>6. Physiology of preterm infants. Effects of developmental delay in the early postnatal period on adult body function. Consequences of neonatal developmental delay in animal production. Intrauterine growth retardation in terms of nutrition.- 2h</li> <li>7. Development of the respiratory system in animals. Respiratory adaptation and the incidence of neonatal inflammation.. Cardiovascular development in the neonate. Characteristics of ECG recording during postnatal development in domestic animals. Physiological blood parameters of newborn domestic animals. Neonatal anemia. Isoimmune thrombocytopenia in piglets -2h</li> <li>8. Development and maturation of the neonatal excretory system. Water spaces and renal function in postnatal life. Neonatal Proteinuria. -1h</li> </ol>
List of core and supplementary literature	<ol style="list-style-type: none"> <li>1. Biology of the Intestine in Growing Animals. Vol. 1. Editors, R. Zabielski, P.C. Gregory, B. Weström. ELSEVIER Series , "Biology in Growing Animals" 2003.</li> <li>2. BSAVA Manual of Canine and Feline Reproduction and Neonatology 2e, by G. England, A. von Heimendahl, 2010.</li> <li>3. Bovine Neonatology, An Issue of Veterinary Clinics: Food Animal Practice, 1e (The Clinics: Veterinary Medicine) by Geof W. Smith 2009.</li> <li>4. Growth of Farm Animals, 2nd Edition (T.L.J. Lawrence and V.R. Fowler), CAB International 2002</li> <li>5. Sterowanie rozwojem przewodu pokarmowego u nowo narodzonych ssaków pod redakcją R. Zabielskiego. W-wa 2007</li> </ol>
Planned forms/activities/teaching methods	Exercises, multimedia presentations, computer simulations, evaluation of physiological functions of selected systems

Verification methods and ways of documenting the achieved learning outcomes.	<p>K1, K2, K3. Written final credit, discussion during and after each topic panel.</p> <p>S1, S2, S3 Participation in a group discussion on a topic given by the teacher, preparation of a group presentation on a selected topic</p> <p>Sc1, Sc2, Sc3 Activity and oral answers in classes, evaluation of the work and cooperation in a group.</p>
ECTS credits	<p>Contact hours:</p> <p>exercises = 15 hrs. - 0.5 ECTS credits  consultations = 4 hours. -0.13 ECTS credits  credit= 1 hour, 0.03 ECTS credits  total = 20 hours - 0.66 ECTS credits</p> <p>Non-contact hours:</p> <p>literature study =2 hours- 0.07 ECTS point  preparing the project =5 hours- 0.17 ECTS point  Preparing for the assessment =3 hours- 0.1 ECTS point  total = 10 hours. - 0,34 ECTS credits</p>
The workload of activities that require direct participation of an academic teacher	<p>Participation in classes =15 hours - 0.5 ECTS points  Participation in consultation= 4 hours. -0.13 ECTS credits  Credit hours= 1 hour, 0.03 ECTS points  total = 20 hours - 0.66 ECTS points</p>
Relation of module learning outcomes to major learning outcomes	<p>K1- A.W2++, A. W5++; W2 - A.W3 ++, W3 - A.W11++,  S1 - A.U4++, A.U7+; U2 – A.U7+ , U3- A.U13+  Sc1 - K4 ++,K8++; K2 – K7 ++,K9++; K3 – K2++</p>
Elements and values affecting final grade	<p>Participation in class discussions -25% of the grade  Project preparation - 25% of the grade  Final credit 50% of the grade</p>