Code of subject	M_WE_SEM7 PW 1E/2E TRANSF NOW ANG
Field of study	Veterinary medicine
Name of the training module including the Polish name	Neoplastic transformations in animals
	Transformacje nowotworowe u zwierząt
Language of instruction	English
Type of the training module	elective
Level of the training module	Master level
Form of studies	Stationary
Location in the programme (year)	IV
Location in the programme (semester)	7
Number of ECTS credits with a division into contact/noncontact	1(0,64/0,36)
Name and surname of the person in charge	Dr hab Marta Wójcik
Unit offering the subject	Sub-Department of Pathophysiology, Department of Preclinical of Veterinary Sciences
Aim of the module	Mastering the knowledge of the role of etiological factors: systemic (genetic, metabolic and immunological) and environmental (physical, chemical, biological) in the susceptibility of individuals and species to the occurrence of cancer in various animal species. Molecular basis of cancer development in dogs, cats, horses and cattle. Molecular mechanisms of blocking of tumor signaling pathways.
Learning outcomes	Konwledge:
	K1 - knows and understands the structure, function and regulation mechanisms of the organs and systems of the animal organism (respiratory, digestive, circulatory, excretory, nervous, reproductive, endocrine, immune and skin integuments) and their integration at the organism level;
	K2- knows and understands metabolic processes at the molecular, cellular, organ and systemic level;
	K3- Knows and understands the principles and mechanisms underlying animal health, the development of diseases and their therapy - from the cell level, through the organ, animal, herd of animals to the entire animal population;
	K4- knows and understands pathophysiological changes of cells, tissues, organs and systems of animals as well as biological mechanisms, including immunological, as well as therapeutic possibilities enabling recovery;
	Skills:
	S1- can describe changes in the functioning of the body in the event of homeostasis disorders;
	S2- can predict the direction of biochemical processes depending on the energy state of cells,
	S3- understand the need for lifelong learning for continuous professional development

	Social competences:
	C1- is ready to use objective sources of information
	C2- is ready to draw conclusions from its own measurements or observations;
	C3- broadening knowledge and improving skills
Preliminary and additional requirements	Animal Anatomy, Physiology and Biochemistry
Contents of the training module – a compact description	Disturbances of proliferation, differentiation and cells' apoptosis and their influence on carcinogenesis. -contribution of tyrosine kinase in disturbances of cell cycle signalization -proapoptotic influence of tissue transglutaminase (TGaseII) in canine and feline tumours Angiogenesis importance within the carcinogenesis. - inhibitory action of trombospodine -1 (TSP1) in thyroid tumours Canine transmissible venereal tumour. Gene therapy of cancer. Canine tumours -oral cavity melanoma, splenohepatic lymphoma in Syberian Haski, -contribution of 15-PGDH in carcinogenesis of mammary gland. Eqiune tumours -cutaneous lymphomas and melanomas in gray horses, contribution of BPV-1 and BPV-2 virus in development of sarcoidosis Feline tumours - FeSV virus as an etiologic compound of feline sarcomas - contribution of FeLV virus in the development of feline leukemia Bovine leukemia - importance of BLV virus in etiopatogenesis of enzootic leukemia, Determination of proliferation activity of hepatocytes isolated from diethylnitrosoamine (DEN)-treated rats. Determination of oxidative stress parameters of hepatocytes isolated from DEN-treated rats.
Recommended and obligatory reading list	lecture and classes notes, manuscripts published in veterinary journals 1. North S., Banks T.: Small animal oncology 2. Sherbert G.V, Lakshmi M.S.: The genetics of cancer
The intended forms/activities/ teaching methods	Teaching methods: classes, presentations, practical work discussion,
Methods of verification and documentation forms of the achieved learning outcomes	Written work - one credit, assessment in accordance with the criteria contained in Book of quality of education. Assessment of the presentation according to the criteria in point. Evaluation of the experiments according to the criteria set out in point.

<table>
<tr><td>Balance of ECTS credits</td><td>
<table>
<tr><th colspan="3">Contact hours</th></tr>
<tr><td></td><td>hours</td><td>ECTS</td></tr>
<tr><td>classes</td><td>15</td><td>0,6</td></tr>
<tr><td>Colloquium of classes</td><td>1</td><td>0,04</td></tr>
<tr><td>All contact</td><td>16</td><td>0,64</td></tr>
<tr><th colspan="3">Non contact hours</th></tr>
<tr><td>Preparation for classes</td><td>4</td><td>0,14</td></tr>
<tr><td>studying literature</td><td>2</td><td>0,08</td></tr>
<tr><td>Preparation for colloquium</td><td>4</td><td>0,14</td></tr>
<tr><td>All non contact / ECTS</td><td>10</td><td>0,36</td></tr>
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<tr><td>The workload of activities that require direct participation of an academic teacher</td><td>
<table>
<tr><td>Participation in classes</td><td>15</td><td>0,6</td></tr>
<tr><td>consultation</td><td></td><td></td></tr>
<tr><td>Colloquium of classes</td><td>1</td><td>0,04</td></tr>
<tr><td>All with the direct participation of the teacher</td><td>16</td><td>0,64</td></tr>
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<tr><td>Relationship between subject learning outcomes and veterinary studies learning outcomes</td><td>W1 – WE_W02
W2- WE_W04
W3 - WE_W05
W4 - WE_W06
W5 - WE_W07
U1- WE_U7
U2- WE_U9
U3- WE_U12
U4- WE_U19
K1- WE_K 2
K2- WE_K 6
K3- WE_K 8</td></tr>
<tr><td>Impact of selected compounds to final grade</td><td>Assessment of the presentation maximum number of points = 10, including 5 points for the content, 2 points for the presentation layout, 2 points for the topicality of the topic, 1 point for the presentation.
The pass mark is the correct completion of the exercise. The condition for admitting to the final credit 30%.
70% is final.</td></tr>
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