Code of subject	M_WE_SEM1 BIOL KOM ANG
Field of study	Veterinary medicine
Name of the training module including the Polish name	Cell biology
	Biologia komórki
Language of instruction	English
Module type	Mandatory
Level of studies	Long-cycle master's degree studies
Form of study	Full-time
Location in the programme (year)	1
Location in the programme (semester)	1
Number of ECTS credits with a division into contact/noncontact	2 (1,64/0,36)
Name and surname of the person in charge	Dr Krzysztof Puk
Unit offering the subject	Deparment of Fish Diseases and Biology
Aim of the module	During the course of Cell biology, students acquires knowledge and skills in the field of structure and functioning of the cell and the processes taking place at the molecular level.
Learning outcomes – the total number of learning outcomes may not exceed (4-8) for the module. The description of the intended learning outcomes that a student should achieve after the completion of the module should be provided. The outcomes for all forms of classes used should be presented.	Konwledge:
	K1 Student knows and describes the structures and functions of cell organelles.
	K2 Students knows the mechanisms controlling the cell cycle, aging and cell death, apoptosis and necrosis.
	Skills:
	S1 Students can analyze the principles of the proper functioning of the cell and can describe the electronograms showing organelles of animal cells.
	Social competences:
	C1 Ready to analyze the basic phenomena and processes occurring in cells
Preliminary and additional requirements	No requirements

Contents of the training module – a compact description of approx. 100 words.	The classes include: 1. Cell nucleus - structure and function. Identification of organelles on the basis of electronograms. (2 hours.) 2. Mitochondria - structure and function. Identification of organelles on the basis of electronograms. (2 hours.) 3. Cytoskeleton - structure and function. Identification of organelles on the basis of electronograms. (2 hours.) 4. Analysis of blood cells on the basis of electronograms. (2 hours.) 5. Apoptosis. (2 hours.) 6. Necrosis. Practical test: recognizing electronograms. (2 hours.) 7. Methods of working with cells. (2 hours.) 8. Identification of electronograms (1 hour) The lectures include: 1. Organization. History of cytology. Prokaryotic and eukaryotic cells. (2 hours.) 2. Cell cycle - mitosis. (2 hours.) 3. Cell cycle - meiosis. (2 hours.) 4. Regulation of the cell cycle. (2 hours.) 5. Cell membrane. (2 hours.) 6. Cell death. (2 hours.) 7. Cell signaling. (2 hours.) 8. Visualizing cells. (1 hour)
Recommended and obligatory reading list	1. Samuelson Don A.: Textbook of Veterinary Histology; Saunders, Elsevier, 2007 2. Zoology: Stephen A. Miller, Todd A. Tupper. McGraw-Hill Education 3. Biology: Neil A. Campbell, Jane B. Reece, Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Robert B. Jackson 4. Molecular Biology of the Cell: Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter
The intended forms/activities/ teaching methods	Lectures, classes, reading recommended literature, preparation for classes, viewing microscope slides, identification of cell organelles, preparation for partial credits and exam, exam.
Methods of verification and documentation forms of the achieved learning outcomes	Konwledge. Short written tests on each class - a list with grades, presence lists. Final test - a list with grades, examination protocol. Skills. Active participation in laboratory classes (it is necessary to pass all classes) - absence on classes must be passed during consultations. Presence lists, examination protocol Social competences. Active participation in laboratory classes (it is necessary to pass all classes) - absence on classes must be passed during consultations. Presence lists, examination protocol.

<table>
<tr><td rowspan="6">Balance of ECTS credits</td><td>Type of course</td><td>Number of contact hours</td><td>ECTS points</td></tr>
<tr><td>Lectures
Classes
Consultation
Exam</td><td>15
15
5
6</td><td>0,6
0,6
0,2
0,24</td></tr>
<tr><td></td><td>Number of non contact hours</td><td>ECTS points</td></tr>
<tr><td>Preparation for classes
Preparation for tests
Exam preparation</td><td>4
4
1</td><td>0,16
0,16
0,04</td></tr>
<tr><td>Total</td><td>50</td><td>2</td></tr>
<tr><td></td><td colspan="3"></td></tr>
<tr><td>Number of contact hours</td><td colspan="3">- participation in lectures - 15 hours
- participation in laboratory classes - 15 hours
- participation in consultations - 5 hours
- participation in final exam - 6 hours
A total of 41 hours, which corresponds to 1,64 ECTS points</td></tr>
<tr><td>Relationship between subject learning outcomes and veterinary studies learning outcomes</td><td colspan="3">K1 – A_W1 +++
K2 – A_W4 +++
S1.- A_U8 ++
C1 – K5 +</td></tr>
<tr><td>Impact of selected compounds to final grade</td><td colspan="3">Classes:
- Short written tests (10 questions). Passing threshold is 6 points which is 60% of maximal score. First term and retake, both have the same form.
- Identification of cell organelles (10 electronograms) - Passing threshold is 6 points which is 60% of maximal score. First term and retake, both have the same form.
Final test exam (30 questions). The grading scale:
5.0 (28-30 correct answers)
4.5 (26-27 correct answers)
4.0 (24-25 correct answers)
3.5 (22-23 correct answers)
3.0 (18-21 correct answers)
2.0 (<18 correct answers)
The final grade:
Final test - 100%.</td></tr>
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