

Course code: 06-EMS-HEMAT-SP1 / 06-EMS-HEMAT-SP2

Plan position:

A. INFORMATION ABOUT THE COURSE

B. Basic information

Name of course	Animal hematology
Field of studies	
Level of studies	
Profile of studies	
Form of studies	
Specialty	
Unit responsible for the field of studies	Faculty of Animal Breeding and Biology
Name and academic degree of teacher(s)	Bartosz Bojarski, PhD
Introductory courses	
Introductory requirements	

C. Semester/week schedule of classes

Semester	Lectures (W)	Auditorium classes (Ć)	Laboratory classes (L)	Project classes (P)	Seminar (S)	Field classes (T)	Number of ECTS points
	10		15				5

2. LEARNING OUTCOME

No.	Learning outcomes description	The reference to the learning outcomes of specific field of study	The reference to the learning outcomes for the area
KNOWLEDGE			
W1	He has knowledge about the functioning of the circulatory system of fish, birds and mammals.		
W2	He knows the morphology of various types of red and white blood cells in fish, birds and mammals of selected species.		
W3	He has information on the reference values of individual hematological indicators in health and disease.		
SKILLS			
U1	He is able to make a blood smear and stain it using various methods used in hematological laboratories.		
U2	He is able to determine hematological parameters such as hematocrit level, hemoglobin concentration, number of red blood cells and white blood cells in a unit of blood volume.		

U3	He is able to interpret the results of commonly conducted hematological laboratory tests.		
SOCIAL COMPETENCES			
K1	He is able to work independently and in a team; to cooperate and perform entrusted tasks, control and discuss the effects of work.		

3. TEACHING METHODS

A. Traditional methods used ***

multimedia presentations, demonstration of hematological techniques and preparations, individual students' laboratory work, films

B. Distance learning methods used ***

Synchronous method: remote lecture in the form of videoconference, remote discussion

Asynchronous method: online educational videos, online multimedia presentations

4. METHODS OF EXAMINATION

worksheets, presentation, referat

5. SCOPE

Lectures	The circulatory system of bony and cartilaginous fish, amphibians, reptiles, birds and mammals. General functions of the blood of endothermic and ectothermic animals. Functions of individual types of blood cells: erythrocytes, leukocytes and thrombocytes. Hemostasis. Methods used in the hematology of fish, birds and mammals – principles and mechanisms. Hematological changes in ontogeny. Results of hematological tests as markers of health and welfare of fish, birds and mammals. Principles of interpretation of the results of hematological analyses.
Laboratories	Determination of hemoglobin concentration and hematocrit level in blood using the manual method. Determination of the number of white and red blood cells using the manual method. Calculation of MCV, MCH and MCHC. Preparation and staining of fish blood smears. Preparation and staining of bird blood smears. Preparation and staining of mammalian blood smears. Determination of erythrogram and leukogram. Conducting hematological analyses using a veterinary automatic analyzer. Interpretation of hematological test results of selected animal species in health and disease.

6. METHODS OF VERIFICATION OF LEARNING OUTCOMES

LEARNING OUTCOME	Form of assessment					
	Oral examination	Written exam	Colloquium	Worksheet	Presentation	Referat
W1				x	x	x
W2				x	x	x
W3				x	x	x
U1				x		x
U2				x		x
K1				x	x	

7. LITERATURE

Basic literature	Thrall M. A., Weiser G., Allison R. W., Campbell T. W. Veterinary Hematology, Clinical Chemistry, and Cytology. John Wiley & Sons, 2022 Harvey John W. Veterinary Hematology. A diagnostic guide and color atlas. Elsevier Health Sciences, 2012
Supplementary literature	Butler P. J., Brown J. A., Stephenson D. G. , Speakman J. R. Animal Physiology: An Environmental Perspective. Oxford University Press, 2021

8. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity		Student workload– number of hours
Classes conducted under a direct supervision of an academic teacher or other persons responsible for classes	Participation in classes indicated in point 1B	25
	Supervision hours	5
Student's own work	Preparation for classes	30
	Reading assignments	40
	Other (preparation for exams, tests, carrying out a project etc.)	25
Total student workload		125
Number of ECTS points		5