

Code of subject	M_WE_SEM2 BIOCH 1 ANG
Field of study	Veterinary medicine
Name of the training module including the Polish name	Biochemistry 1 Biochemia 1
Language of instruction	Polish
Module type	Mandatory
Level of studies	Long-cycle master's degree studies
Form of study	Full-time
Location in the programme (year)	I
Location in the programme (semester)	II
Number of ECTS credits with a division into contact/noncontact	5,0 (3,44/1,56)
Name and surname of the person in charge	Prof. dr hab. Marta Kankofer
Unit offering the subject	Department of Biochemistry; Faculty of Veterinary Medicine
Aim of the module	The aim of biochemistry 1 course is to acquaint students with structure, function and physico-chemical properties of aminoacids, peptides, proteins as well as nucleic acids. Based on static part of biochemistry properties and mechanism of action of enzymes, enzymatic kinetics and the meaning of vitamin coenzymes are discussed. This knowledge is necessary for using selected techniques used in biochemical laboratory as well as the preparation for discussing details about metabolic pathways and the interpretation of selected laboratory tests.
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.	Knowledge:
	Student knows and understands:
	K 1 – structure and physico-chemical properties of aminoacids, proteins, nucleic acids and their role in biochemical pathways
	K 2 – basics of enzymatic catalysis and the role of enzymes in the metabolism
	K 3 – processes lying upon the transfer of genetic information and protein biosynthesis
	Skills:
	Student is able:
	S 1 – to identify aminoacids, enzymes and nucleotides based on characteristic reactions
	S 2 – to use basic laboratory techniques (qualitative and quantitative analysis, chromatography) and laboratory equipment (centrifuge, spectrophotometer)
	S 3 – to perform enzymatic reactions
Social competences:	
Student is ready to:	
Sc1 – cooperation in team	
Sc2 – independent interpretation of results of performed analyses	
Sc3 – self study and self improvement	

Preliminary and additional requirements	Subject Chemistry passed		
Contents of the training module – a compact description of approx. 100 words.	<p>Lectures: the most important proteins of body in aspect of their aminoacid content, structure and biological function; enzymatic catalysis covering mechanism of enzyme action depending on the structure of active center, the influence of modulators and environment in aspect of their regulation and diagnostic meaning, role of vitamins as coenzymes; genomics, transcriptomics, proteomics,metabolimics covering biochemical mechanisms of the transfer of genetic information (replication, transcription) and protein synthesis (translation); mutagenic and repair processes – their regulation (inhibitory factors)</p> <p>Practicals: identification and characteristics of protein aminoacids; salting out, precipitation of plasma albumins and globulins, protein denaturation, quantitative methods of protein determination; the influence of pH, activators and temperature on enzyme activity, enzymatic kinetics (Michaelis constant); extraction and examination of RNA content, methods of separation of biological samples</p>		
Recommended and obligatory reading list	<ol style="list-style-type: none"> 1. Harpers Biochemistry 2. Kaneko – Clinical biochemistry 3. Stryer – Biochemistry 4. Specialistic scientific papers 		
The intended forms/activities/ teaching methods	Laboratory classes, lectures, materials for selfstudy available on Web page of Department as well as in Internet upon invitation (Causus, VikiWet)		
Methods of verification and documentation forms of the achieved learning outcomes	<p>Passing module Biochemistry 1 is possible based on:</p> <ul style="list-style-type: none"> - the presence during practicals (one absence is allowed) - obtaining minimum number of points for activity during practicals – details are in rules for passing module hanging in classroom; teacher verifies learning outcomes during each practical giving 0-2points for knowledge, 0-2 points for laboratory skills and 0-2 points for report about results of laboratory experiments (card of student). - the preparation of essay on selected topic; - obtaining positive grades in 3 inter-semester evaluations of knowledge (Proteins, Enzymes, Nucleic acids); - passing exam on practical laboratory skills based on individual determination of quantitative assay (the concentration of casein) 		
Balance of ECTS credits	Form of classes	Contact hours	ECTS
	Lectures	30,0	1,2
	Practicals	45,0	1,8
	Retake tests	6,0	0,24
	Consultations	5,0	0,2
	Non-contact hours	ECTS	

	Preparation to practicals:	12,0	0,48
	Preparation to seminars:	6,0	0,24
	Preparation of essay:	10,0	0,4
	Preparation to evaluation of knowledge:	11,0	0,44
	Total	125 godz.	5,0
Number of contact hours	30 h Lectures; 45 h Practicals; 6 h consultations Total 81 h – reflects 3,0 ECTS points.		
Relationship between subject learning outcomes and veterinary studies learning outcomes	K1 – A.W1.+; B.W1.+; K2 - A.W4.+++; K3 - A.W11.+;A.W14.+ S1 - A.U2.+; B.U6.+; S2 - A.U2.+; B.U7.+; S3 - A.U1.+ C1 - K9)+K10+; C2 - K5)+K7)+; C3 - K4)+K8)+		
Impact of selected compounds to final grade	Final grade is mean value of 3 evaluations of knowledge (90% plus 10% for practical exam). Final grade can be increased or decreased for half of grade based on obtained points for activity during practicals and essay.		