

Module code	M_WE_SEM3 PW 1B/2B GEN BIOM
Field of study	Veterinary medicine
Module name, also the name in English	Biomedical genetics
	Genetyka biomedyczna
Language of instruction	English
Module type	Elective
Level of studies	Long-cycle master's degree studies
Form of study	Full-time
Year of study in the field of study	II
Semester of study in the field of study	3
ECTS credits, divided into contact/non-contact hours	1 (0.7/0.3)
Academic title/degree, name of the person responsible for the module	Dr hab. Leszek Guz, prof. ucz.
Unit teaching the module	Department of Fish Diseases and Biology
Module objective	Knowledge of biomedical genetics, understanding the molecular basis of genetic polymorphism and its relationship to morbidity and effectiveness of treatment. General knowledge of developmental genetics, cytogenetics, single-gene inheritance in animals, mitochondrial genome diseases, multifactorially determined traits, pedigrees and affinity.
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 molecular processes of inheriting.
	K2. Has knowledge of the principles and processes of inheriting and genetic disorders, as well as of the fundamentals of genetic engineering.
	Skills:
	S1. Is able to describe/interpret changes in body function in the event of genetic disorders.
	Social competences:
C1. Is willing to draw appropriate conclusions from genetic disease analysis.	
Prerequisites and additional requirements	None

Module program content	<p>The use of traditional genetics in veterinary medicine. (2 hrs.)</p> <p>Molecular mechanisms of selected monogenic inherited (recessively and dominantly) diseases in animals (i.e. hemolytic anaemia, congenital disorders of collagen synthesis, glycogen/lysosomal storage diseases, mucopolysaccharidoses, mucolipidoses, sphingolipidoses, citrullinemia). Mitochondrial genome diseases in animals (inheritance, mtDNA point mutations, mtDNA rearrangements, nuclear DNA mutations). (4 hrs.)</p> <p>Molecular methods for studying the genome – analysis of developmental defects and genetically determined diseases. (2 hrs.)</p> <p>Gene therapies (types of gene therapies, gene insertion methods; viral, plasmid and chemical vectors) and selected topics in biotechnology (transgenic animals and methods for obtaining them). (2 hrs.)</p> <p>Cytogenetic diagnostic tests. (2 hrs.)</p> <p>Pedigrees and affinity. (2 hrs.)</p>		
List of core and supplementary literature	<p>Ahluwalia, K.B.: Genetics. 2nd ed. New Delhi: NEW AGE International Publishers. 2009.</p> <p>Nicholas, F. W.: Introduction to veterinary genetics. Chichester ; Ames : Wiley-Blackwell, cop. 2010.</p>		
Planned forms/activities/teaching methods	<p>Laboratory classes, studying recommended reading, preparing for classes, preparing a presentation on a given topic, solving genetic assignments, discussion, consultations.</p>		
Verification methods and ways of documenting the achieved learning outcomes.	<p>Knowledge. Practical classes, presentations/projects, genetic assignments. It is necessary to pass all exercises (i.e. attendance at all classes - absences from classes must be passed at a date agreed with the teacher). Final Test. Documentation: list with grades and question sheet with grades.</p> <p>Skills. Active participation in classes, solving genetic assignments (it is necessary to complete all classes, i.e. attendance at all classes - absences from classes must be passed/made up during the consultations or at another time agreed with the teacher) - a prerequisite for passing the final test. Documentation: attendance list.</p> <p>Competences. Active participation in classes, solving genetic assignments (compulsory attendance at all classes - a prerequisite for passing the final test). Absences from classes must be made up during consultations or at another time agreed with the instructor. Documentation: attendance list.</p>		
ECTS credits	CONTACT HOURS		
		<i>Hours</i>	<i>ECTS credits</i>
	Practical classes	14	0.56
	Consultations	3	0.1
	Colloquium in practical classes		
	Credit pass/resit exam	1	0.04
	18	0.7	

	NON-CONTACT HOURS		
	Preparation for classes	3	0.1
	Preparing a project - a multimedia presentation	4	0.13
	Literature study	2	0.07
	TOTAL non-contact hours/ ECTS credits	9	0.3
	Attendance at practical classes	14	0.56
	Consultations	3	0.1
	Getting credit for classes	1	0.04
	TOTAL with direct involvement of the teacher	18	0.7
Workload associated with practical activities:	Attendance at practical classes	14	0.56
	Preparation for classes	6	0.2
	Participation in consultations	3	0.1
	Getting credit for classes	1	0.04
	TOTAL of practical character	24	0.9
Relation of module learning outcomes to course learning outcomes.	K1 – A_W4 +++ K2 – A_W14 ++ S1 – A_U4, A_U9 ++ C1 – K5 +		
Elements and values affecting the final grade	Final credit (20 question test). Grading scale applicable for final credit: 5.0 (19-20 correct answers), 4.5 (17-18), 4.0 (15-16), 3.5 (13-14), 3.0 (11-12), 2.0 (<11). The final grade for the course consists of 100% of the final test score (a passing grade is required).		