Code of subject	M_WE_SEM2 GEN ANG
Field of study	Veterinary medicine
Name of the training module including the Polish name	General and veterinary genetics
	Genetyka ogólna i weterynaryjna
Language of instruction	English
Type of the training module	Mandatory
Level of the training module	Long-cycle master's degree studies
Form of studies	Full-time
Location in the programme (year)	I
Location in the programme (semester)	2
Number of ECTS credits with a division into contact/noncontact	2 (1,36/0,64)
Name and surname of the person in charge	Beata Horecka, PhD
Unit offering the subject	Institute of Biological Bases of Animal Production
Aim of the module	Introduction to the basics of general and molecular genetics, material and molecular bases of heredity, basic methods and techniques in molecular biology, elements of genetic diseases diagnostics including pedigree analysis and genetic testing.
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 defines basic definitions and describes main processes of cytogenetics, general genetics and molecular genetics
	K2. Student knows basic molecular techniques used in veterinary practice in terms of testing of genetic diseases
	Skills:
	S1. Student solves simple crossings, analyses pedigrees, applies learned laboratory methods to perform pre-designed genetic test
	Social competences:
	C1. Student is aware of the importance and development of knowledge in the field of genetics and molecular biology in veterinary medicine and the need to acquire knowledge in this field.
Preliminary and additional requirements	n/a

Contents of the training module – a compact description of approx. 100 words.	Lectures: material bases of inheritance, cytogenetics, structure and types of chromosomes, cell cycle, cell division (mitosis, meiosis), structure of nucleic acids (DNA, RNA), gene structure and function, replication, transcription and translation processes, mutation types, non-nuclear inheritance, genetic diseases and disorders and their modes of inheritance based on pedigree analysis, on-line databases providing information about genetic diseases in animals Practicals: 1st and 2nd Mendelian law, gene linkage and gene mapping, sex-linked, sex-influenced and sex-limited traits, non-allelic gene interactions, multiple alleles and inheritance of blood groups, inheritance of quantitative and qualitative traits; laboratory techniques used in terms of animals genetic testing (DNA extraction, electrophoresis, PCR, sequencing, restriction enzymes)
Recommended and obligatory reading list	Obligatory: Nicholas, F. W.: Introduction to Veterinary Genetics. Wiley-Blackwell, 2010 Recommended: Long, S.: Veterinary genetics and reproductive physiology. Butterworth Heinemann Elsevier, 2006 Singleton, P.: Dictionary of DNA and genome technology. Wiley-Blackwell, 2013
The intended forms/activities/ teaching methods	lecture – multimedia presentation, auditorium classes, laboratory classes – group work, discussion
Methods of verification and documentation forms of the achieved learning outcomes	K1, K2: mid-term test with open questions (crossings); final exam – single-choice test Obtaining the appropriate percentage of the sum of points assessing the level of required knowledge/ skills: 2.0 <51% 3.0 - 51-60% 3.5 - 61-70% 4.0 - 71-80% 4.5 - 81-90% 5.0> 91-100% S1, S2: Reports from practical classes. Sc1: Group work, participation in the discussion.

Balance of ECTS credits	<u>CONTACT</u> Lecture 15 h 0.60 ECTS Practical classes 15 h 0.60 ECTS Consultations 2 h 0.08 ECTS Final exam 2 h 0.08 ECTS Total contact 34 h 1.36 ECTS <u>NON-CONTACT</u> Preparation of reports 5 h 0.20 ECTS Literature studying 5 h 0.20 ECTS Preparation to final exam 6 h 0.24 ECTS Total non-contact 16 h 0.64 ECTS **The total is 50 hours which corresponds to 2 ECTS**
Number of contact hours	Participation in lectures - 15 hours Participation in practical classes - 15 hours Participation in consultations - 2 hours Participation in the final exam - 2 hours **A total of 34 hours**
Relationship between subject learning outcomes and veterinary studies learning outcomes	K1, K2 – A.W14 + S1 – A.U9 +, B.U6 + C1 –K8 +
Impact of selected compounds to final grade	The final grade includes the grade from mid-term test (25%), evaluation of reports from practical classes (25%) and the final exam grade (50%).