GENETICS

STRUCTURE

Study program	*Veterinary Medicine – English Program*
Year of study	1st: 2025-2026
Semester	1st
Type of discipline	mandatory specialty-specific subject
Total number of hours / week	Course - 2 hours; PW - 2 hours
Total number of hours according to curriculum	Course - 28 hours; PW - 28 hours
ECTS	5 credit points

DISCIPLINE OBJECTIVES

Foundation of knowledge in the field of heredity and variability of organisms, of the main genetically determined diseases and the acquisition of methods of diagnosis and remediation through the means of genetic prophylaxis. At the end of the courses and practical classes, the student: knows the concepts of cell and cellular elements with a genetic role (genes, alleles, chromosomes, etc.); knows and describes the laws of heredity and their manifestation in the transmission of qualitative and quantitative characters; explains the mechanisms of genetic determinism of autosomal and heterosomal traits; knows genetic-related disorders and their mode of transmission; knows and applies knowledge of genetic prophylaxis.

DISCIPLINE CONTENT

COURSE	No. of hours
Chapter I - Introduction to genetics' basics (definition, object, purpose and the significance of genetics and heredopathology; heredity and genetics concepts evolution)	2
Chapter II - Genetics elements (the cell and the cell elements with genetic role; chromosome's morphology and structure; phenomena with genetic interest in cell divisions)	4
Chapter III - Heredity laws and genetic phenomena which influence their activity (cross breeding; heredity laws; linkage; crossing over)	4
Chapter IV - Mutation phenomena (mutation; mutagenic factors; mechanisms of mutation processes)	2
Chapter V - The gene - the fundamental element of heredity (the gene - as structural element; the gene - as functional element)	4
Chapter VI - Genetic determination of sex and heredity of sex-linked traits	2
Chapter VII - Genetic engineering and its applications in animal sciences and veterinary medicine	2
Chapter VIII - Animal heredopathology (definition and classification of hereditary diseases, chromosomal diseases. genome diseases, heredity of animal resistance to diseases)	4
Chapter 9. Genetic prophylaxis (significance and applications, principles, methodology of genetic prophylaxis)	4

PRACTICAL WORKS PW	No. of hours
Chapter I – Applications for proving and interpreting the laws of heredity	7
Chapter II - Applications for the demonstration and interpretation of genetic phenomena that influence the way characters are transmitted	7

Chapter III - Applications for the demonstration and interpretation of genetic phenomena at the level of animal populations	7
Chapter IV - Applications for changing the frequency of manifestation of pathology with chromosomal and genetic determination in animals	7

REFERENCES

1. Furnaris, F. - Course and practical topics handouts 2025-2026 (academic.usamv.ro)
2. Neagu I., Tăpăloagă D., Georgescu M., Veterinary Genetics Fundamentals, 2014. Granada Publ. House, Bucharest, ISBN 978-606-8254-60-9 (available in the Library of the Faculty of Veterinary Medicine of Bucharest)
3. Pierce B.A., Genetics - a conceptual approach, Second Edition, 2005. Ed. W.H. Freeman and co., New York, ISBN 0-7 8881-0

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EVALUATION

Type of activity	Evaluation criteria	Method of evaluation	Percentage of final grade %
Courses	Acquiring theoretical notions regarding genetics, heredity and variability of organisms, the main genetically determined diseases, diagnostic methods and means of genetic prophylaxis Lecture attendance Active participation in practical classes/solving online home works	Written exam (multiple choice questions forms: including 60-questions, only one answer being correct among the five possible options), each correct answer being graded 0.15 points	70%
PW			30%
Other activities	The minimum passing grade for the exam is 5 and follows: acquisition of basic and specific knowledge, certification of the acquisition of skills by completing and signing the student's notebook by the student and the teacher.		

Course teaching staff: Assoc. Prof. Furnaris Ciprian Florin, D.V.M. PhD
Practical work teaching staff (PW): Assoc. Prof. Furnaris Ciprian Florin, D.V.M. PhD