



General and veterinary genetics

ECTS: 5.00

SUBJECT MATTER CONTENT

AUDITORIUM CLASSES

The course is divided into 2 parts. The first one is devoted to the classical mendelian genetics principles, as inheritance of one pair of alleles, independent inheritance of traits, multiple alleles, sex-linked genes. The second part is devoted to the problems of linked genes and their importance for creating genetic maps and identification of lethal genes, genetic interpretation of relativity and inbred, as well as to the selected inheritable diseases of large domestic animals.

PRACTICAL CLASSES

The course is divided into 2 parts. The first one is devoted to the classical mendelian genetics principles, as inheritance of one pair of alleles, independent inheritance of traits, multiple alleles, sex-linked genes. The second part is devoted to the problems of linked genes and their importance for creating genetic maps and identification of lethal genes, genetic interpretation of relativity and inbred, as well as to the selected inheritable diseases of large domestic animals.

LECTURE

Lectures are devoted to the topics of the classical and molecular general genetics, as well as to the topics of the veterinary genetics with the stress put on the general and specific pathogenetics. The topics include the mendelian and non-mendelian genetics, as well as epigenetics, the formation and functioning of lethal genes and the common inheritable diseases and developmental malformations. Additionally, the lectures deal with the selected problems of immunogenetics (blood groups, MHC molecules) and ecogenetics (genetically determined susceptibility to drugs and toxins). The problems of genetical aspects of oncogenesis and control of development are also included.

TEACHING OBJECTIVE

The aim of the course is to provide knowledge on general genetics at the classical level and an introduction to molecular genetics, as well as to extend this knowledge to issues specific to veterinary genetics (pathogenesis and diagnostics of hereditary diseases of domestic animals).

DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:

Symbols for outcomes related to the discipline:

R/WA_P7S+++

Legal acts specifying learning outcomes:
682/2020
Disciplines: Veterinary science
Status of the course: Obligatoryjny
Group of courses: A - przedmioty podstawowe
Code: ISCED 0841
Field of study: Veterinary Medicine
Scope of education:
Profile of education: General academic
Form of studies: full-time
Level of studies: uniform master's studies
Year/semester: 1/2

Types of classes: Lecture, Auditorium classes, Practical classes
Number of hours in semester: Lecture: 30.00, Auditorium classes: 24.00, Practical classes: 6.00
Language of instruction: Polish
Introductory subject: none
Prerequisites: none

Name of the organisational unit conducting the course: Katedra Patofizjologii, Weterynarii Sądowej i Administracji
Person responsible for the realization of the course: dr hab. wet. Piotr Podlasz, prof. UWM
e-mail: piotr.podlasz@uwm.edu.pl

Additional remarks: no

Symbols for outcomes related to the field of study:

K.12.++, B.U6. +, K.10.++, A.U15. +, K.1.++, K.8., K.5++,
K.7.++, K.6.++, A.W14. +, K.11.++, K.3.++, K.9.++, K.4.++,
K.2.+, A.U9. +, A.W1. +, C.U3. +

LEARNING OUTCOMES:

Knowledge:

W1 – defines the principles and processes of inheritance as well as genetic disorders and the basics of genetic engineering

Skills:

U1 – analyzing genetic crosses and pedigrees of characteristics of individuals from particular species

Social competence:

K1 – presenting an attitude consistent with ethical principles and taking actions based on the code of ethics in professional practice and showing tolerance for attitudes and behaviors resulting from different social and cultural conditions

K2 – broadening knowledge and improving skills

TEACHING FORMS AND METHODS:

Lecture(W1;U1;K1;K2;):thematic lectures with the use of multimedial techniques

Auditorium classes(W1;U1;K1;K2;):multimedial presentation

Practical classes(W1;U1;K1;K2;):laboratory and seminar classes, tasks solving

FORM AND CONDITIONS OF VERIFYING LEARNING OUTCOMES:

Lecture (Written exam) - To pass the final exam, you must obtain a positive grade for each of the received exam questions. The final grade for the exam is issued on the basis of the arithmetic mean value of the grades obtained for each question. The rounding of the rating is based on the following ranges: mean ≥ 4.76 : very good (5.0); average in the range of 4.26 - 4.75: good plus (4.5); average in the range: 3.76 - 4.25: good (4.0); average in the range of 3.26 - 3.75: sufficient plus (3.5); mean ≤ 3.25 : satisfactory (3.0). The student may take the exam improvement twice. In the event of a top-down suspension of classroom classes and the necessity of distance learning, the methods of verifying the achievement of learning outcomes declared in the syllabus, i.e. the forms of passing the exam and classes, may change in a manner appropriate to the situation. -

Auditorium classes (Colloquium test) - There are 2 written tests per semester. The test mark is issued on the basis of the arithmetic mean value of the marks obtained for each question. The rounding of the evaluation is done on the basis of the following value ranges: mean ≥ 4.76 : very good (5.0); average in the range of 4.26 - 4.75: good plus (4.5); average in the range: 3.76 - 4.25: good (4.0); average in the range of 3.26 - 3.75: sufficient plus (3.5); average in the range of 3.25 - 3.0: satisfactory (3.0); mean ≤ 2.99 : unsatisfactory (2.0). The student may attempt to correct the test twice. The condition for receiving the final pass from the exercises is to obtain positive marks from all tests taking place in the course of the classes. In case of passing all the tests, the final grade for the classes is issued on the basis of the arithmetic mean value of all the grades obtained from the tests (including failing grades). The rounding of the evaluation is done on the basis of the above-mentioned ranges of values. Failure to pass any of the tests is tantamount to obtaining an unsatisfactory final grade in the classes. In the event of a top-down suspension of classroom classes and the need for distance learning, the methods of verifying the achievement of learning outcomes declared in the syllabus, i.e. the forms of passing the exam and classes, may change in a manner appropriate to the situation. -

Practical classes (Colloquium test) - Verification of the achievement of learning outcomes in the field of the material discussed in practical classes is an integral part of the test conducted as part of the auditorium classes, hence the description of the form and conditions for passing the auditorium classes also apply to the completion of the practical classes. -

BASIC LITERATURE:

1. Kosowska B., Nowicki B., *Genetyka weterynaryjna.*, Wyd. PZWL, R. 1999
2. Charon K., Świtoński M., *Genetyka i genomika zwierząt.*, Wyd. PWN, R. 2012

3. Nowak Z., *Genetyka zwierząt w teorii i praktyce*, Wyd. Wydawnictwo SGGW, Warszawa, R. 2015

SUPPLEMENTARY LITERATURE:

1. Nicholas F.W., *Introduction to veterinary genetics.*, Wyd. Wiley-Blackwell, R. 2009
2. Fasso D., *Animal genetics: theories and applications.*, Wyd. Callisto Reference, R. 2019
3. Khatib H., *Molecular and quantitative animal genetics.*, Wyd. Wiley-Blackwell, R. 2015

