



Joint Bachelor Degree in Animal Science

Nord University and
University of Veterinary Medicine and Pharmacy in Kosice

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Study model Joint Bachelor in Animal Science

Sem. 1 Nord	KJ103F Chemistry and Biophysics (10 sp)		AK122F Aquaculture (10 sp)		BI133F Ecology and Biodiversity (10 sp)		KJ105F Laboratory safety (0 sp)	
Sem. 2 Nord	BI105F Zoo Physiology (Physiology I) (10 sp)			BI122F Genetics and Evolution (10 sp)		BI132F Biochemistry and Cell Biology (Cell Biology I) (10 sp)		
Sem. 3 Nord	BI217F Microbiology (10 sp)			BI231F Histology and Embryology (10 sp)		BI210F Molecular Cell Biology (Cell Biology II) (10 sp)		
Sem. 4 UVMP	MclmPs/13 Microbiology, immunology, parasitology (5 sp)	Bioch/11 Biochemistry (5 sp)	LT/11 Latin terminology (3 sp)		VetEth/13 Veterinary ethics and legislation (3 sp)	AmIHusb/13 Animal husbandry (4 sp)	VtAnHist I/13 Veterinary anatomy and histology (7 sp)	Compulsory ¹ electives (3 sp)
Sem. 5 UVMP	VtClSci I&II/14 Veterinary clinical sciences (4+3= 7 sp)	AnmNt/14 Animal nutrition (4 sp)	AnmHwB/12 Animal hygiene, welfare and behaviour of animals (5 sp)	IVE/12 Introduction to veterinary epizootiology (5 sp)	IntPharm/14 Introduction to pharmacology (4 sp)		VtAnHist II/12 Veterinary anatomy and histology (5 sp)	PP/12 Pathological physiology (3 sp)
Sem. 6 UVMP		PVMSPH/13 Preventive veterinary medicine, sanitation and public health (4 sp)	FB/13 Fish breeding (5 sp)	FS/12 Food safety (5 sp)	BSI/13 Biomedical statistics and informatics (3 sp)	DBTh/14 Bachelor thesis (5 sp)	SE/14 State exam (5 sp)	BLD/12 Basics of laboratory diagnostics (3 sp)

Courses at Nord University:

BI133F Ecology and Biodiversity
 AK122F Aquaculture
 KJ105F Laboratory safety
 BI105F Zoophysiology (Physiology I)
 BI122F Genetics and Evolution
 BI132F Biochemistry and Cell Biology (Cell Biology I)
 BI217F Microbiology (Microbiology I)
 BI231F Histology and Embryology
 BI210F Molecular Cell Biology (Cell Biology II)

¹Choose between

- Breeding of game (3 sp)
- Slovak language (3 sp)

Courses at UVMP:

Microbiology, immunology, parasitology

Department: Department of Microbiology and Immunology

Guarantor: Prof. E. Pilipčinec, DVM, PhD / Prof. Ľ. Tkáčiková, DVM, PhD

Year of study / duration of the course: 2nd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, two credit tests and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has knowledge of potentially pathogenic and pathogenic bacteria of man and animals.

Has knowledge of important viral and parasitic pathogens of man and animals.

Has knowledge of mechanism of pathogenicity of prions.

Has knowledge of the structure and function of the immune system.

Has knowledge of the mechanisms of the innate immune response.

Has knowledge of the mechanisms of the acquired immune response.

Has knowledge of a pathological immune response - the hypersensitivity reactions.

Has knowledge of specific immunoprophylaxis - vaccination.

Can update his/her knowledge in the field of Microbiology, Immunology and Parasitology.

Skills

The student:

Can perform laboratory methods used for isolation and detection of potentially pathogenic and pathogenic bacteria of man and animals.

Can perform within safety limits and under supervision the main virological and parasitological methods used for isolation and detection of viruses and parasites of man and animals.

Can perform laboratory methods used for detection of specific antibodies in biological samples.

Can perform laboratory methods used for isolation and identification of blood cells.

Can perform laboratory methods used for testing of function of phagocytes.

Can satisfactory report, results of microbiological, immunological and parasitological laboratory techniques.

Can collect and use relevant published information for the interpretation of results from microbiology, immunology and parasitology.

General competence

The student:

Can collaborate with fellow students, for the completion of laboratory techniques and for the preparation of scientific reports.

Knows and understands the risks when working in a microbiological, virological and parasitological

laboratory.

Can communicate results and theories both orally and in writing.

Is familiar with new thinking and innovation processes in the field of Microbiology, Immunology and Parasitology.

Additional information:

Literature

1. Prescott L.M., Harley J.P., Klein D.A.: Microbiology I. – III.. WCB Publish., Edit. K. Kane, WCB Communications Inc., 1993.
2. Prescott L.M., Harley J.P.: Laboratory Exercises in Microbiology. WCB Publish., Edit. K. Kane, WCB Communications Inc., 1993.
3. Topley W.W.C., Wilson G.S." Principles of Bacteriology, Virology and Immunity I.–V, Edit. By M.T. Parker and B.I. Duerden, B.C. Decker Inc., 1995.
4. Murphy F.A. et al.: Veterinary Virology. Third edition. Academic Press, 1999.
5. Quinn P.J. et al.: Veterinary Microbiology and Microbial diseases. Blackwell, 2002. ISBN 0- 632-05525-1.
6. Tortora G. J., Funke B.R., Case CH.L.: Microbiology. An introduction. Pearson, Benjamin Cummings, 2005, ISBN 0-8053-7753-0.
7. Tizard I.R.: Veterinary immunology Seventh edition. Elsevier, 2004, ISBN 0-7216-0136-7. Holoda E., Pistl J., Pilipčinec E.: Microbiology - General Microbiology, Study outlines, Dep. Microbiol. and Immunol., 2007.
8. Holoda E., Pistl J., Pilipčinec E.: Microbiology – Bacterial Genetics, Study outlines, Dep. Microbiol. and Immunol., 2008.
9. Pistl J., Holoda E., Pilipčinec E.: Microbiology – Special bacteriology, G-negative bacteria, Study outlines, Dep. Microbiol. and Immunol., 2007.
10. Pistl J., Holoda E., Pilipčinec E.: Microbiology – Special bacteriology, G-positive bacteria, Study outlines, Dep. Microbiol. and Immunol., 2007.
11. Pistl J., Pilipčinec E., Holoda E.: Microbiology – Virology, Study outlines, Dep. Microbiol. and Immunol., 2009.
12. Holoda E., Pistl J., Pilipčinec E.: Microbiology – General Microbiology and Genetics of Microorganisms. Practical exercises, UVM Košice, 2006.

Biochemistry

Department: Department of Chemistry, Biochemistry and Biophysics

Guarantor: Assoc. prof. Z. Kostecká, DVM, PhD

Year of study / duration of the course: 2nd year / one semester

Teaching hours:

Lectures 13 x 3 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, performance of experiments and presentation of protocols, two credit tests and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Is able to explain the basic principles in biochemistry, especially in the enzyme catalysed reaction, bioenergetics, metabolic regulation at the cell level as well as at animal organism.

Is able to read metabolic map of saccharide, lipid and steroid, protein and amino acid metabolism.

Is familiar with metabolism specifics at subcellular, cellular, and organ levels in animal organism.

Is familiar with basic research fields in biochemistry, selected tools and methods used in study of metabolic disorders.

Can update his/her knowledge in the field of Clinical Biochemistry.

Skills

The student:

Can apply relevant theoretical knowledge in kinetics of enzyme reactions to the performance of laboratory tasks.

Can determine the diagnostically important metabolites and enzymes.

Can collect and use relevant published information for the interpretation of observations obtained from measurement of patient's blood serum and other biological material.

General competence

The student:

Has knowledge and understanding of the risks when working in a biochemical laboratory.

Can communicate results and theories both in writing and orally.

Can exchange opinions with fellow students and work alone or as part of a group.

Is familiar with new thinking and innovation processes in the field of basic and clinical biochemistry.

Latin terminology

Department: Department of General Education Subjects

Guarantor: V. Bartková, PhDr.

Year of study / duration of the course: 2nd year / one semester

Teaching hours:

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has basic theoretic knowledge on word categories of Latin and Greek languages, of which majority of Latin veterinary terminology consists.

Has knowledge on structure of Latin anatomical terms.

Has knowledge on principles and ways of formation of compounds.

Skills

The student:

Can apply knowledge on word categories in using Latin veterinary vocabulary.

Is able to use Latin veterinary vocabulary into multiword structures.

Can explain meaning of derived and compound anatomical and clinical terms.

General competence

The student:

Is able to communicate and use obtained knowledge of Latin veterinary terminology in oral and written form.

Is able to use knowledge of Latin and Greek veterinary terminology in study of specific subjects.

Additional information:

Literature

1. Valéria Bartková, Katarína Kamenská; Latin for Students of the UVM, 2002

Veterinary ethics and legislation

Department: Department of the Environment, Veterinary Legislation and Economy

Guarantor: Prof. J. Kottferová, DVM, PhD / Assoc. prof. D. Takáčová, DVM, PhD

Year of study / duration of the course: 2nd year / one semester

Teaching hours:

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, preparation and presentation of seminar work, final examination.

Admission to course:

All students. Obligatory part of study programme. Practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has a broad knowledge of the concept of animal welfare and animal rights.

Has knowledge of the ethical role of veterinarians in society.

Has knowledge of the basic legislation in the fields of animal protection as well as in animal welfare.

Is familiar with the basic specific fields of veterinary communication in veterinary practice.

Can update his/her knowledge in the field of professional ethics and legislation.

Skills

The student:

Can collect and use relevant published information both in the fields of veterinary ethics and legislation.

Can critically analyse different sources of information in animal right and welfare.

Is familiar with the appropriate techniques to communicate efficiently with others with a background in professional ethics.

General competence

The student:

Can communicate own opinions and ethical theories both orally and in writing.

Can exchange opinions with fellow students and work alone, or as a part of a group.

Is familiar with new thinking in the field of animal welfare.

Additional information:

Literature

1. Rollin, B.E. Veterinary Medical Ethics, Blackwell Publ., 2006 Tannenbaum, J. Veterinary Ethics, 2008

Animal husbandry

Department: Department of Nutrition, Dietetics and Animal Breeding

Guarantor: F. Zigo, DVM, PhD

Year of study / duration of the course: 2nd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Acquires knowledge about the importance of breeding animals, their domesticated, selection and breeding as well as the use and orientation of individual breeds of farm animals.

Has knowledge of the principles of the approach and treatment of animals, about the safety principles for the handling of animals, about the origin and domestication of farm animals.

Has the ability to master of the basic zoo technical taxonomy, and the impact of external factors on the farm animals.

The mere animal science is the doctrine of the constitution, the exterior and interior of the farm animals, biometrics, selection and inbreeding of animals.

It has the outline about the utility performances, the growth and development of the livestock, and the evaluation of production performance of livestock.

Skills

The student:

Familiar with the characteristics of breeds and their hybrid combinations, hybridization programmes, a description of the production systems, the assessment of the shape and performance of animals.

Learn the evaluation form and performance of all types of livestock including pigeons, exotic birds, fur animals and zoo animals.

Has knowledge of the methods of animal husbandry, care and accommodation.

Gets the basics of breeding work.

General competence

The student:

After passing the course the student will acquire the theoretical and practical experience with the handling and fixation of livestock, their assessment and the description of the exterior as well as the use of acquired knowledge about their performances, and the selection and breeding techniques of breeding ways of holding each type of farm animals.

Additional information:

Literature

1. Ďuran, A.: Animal Breeding Practical Book, UVM Košice, 2001, 222 s., ISBN 80-88985-46-3
2. Ďuran, A.: Animal Husbandry, UVM Košice, 2003, 196 s., ISBN 80-88985-89-7

3. Zoldág, L., Gáspárdy, A., Maróti-Agóts, A., Buleca, J., Seregi, J., Matiuti, M.: Veterinary Genetics and Animal Breeding, Sz. István University, Budapest, 2008, 434 s., ISBN 978-963- 88110-0-4
4. Sheldon, C. C., Sonsthagen, T., Topel, J. A.: Animal Restraint for Veterinary Professionals, Mosby, 2006, 230 s., ISBN-13: 978-0-323-03465-4

Slovak language

Department: Department of General Education Subjects

Guarantor: A. Eibenová, Mgr.

Year of study / duration of the course: 2nd year / one semester

Teaching hours:

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons and final examination.

Admission to course:

Compulsory optional part of study programme. Practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has knowledge of the Slovak alphabet and its pronunciation.

Has an overview of the basic grammatical categories (gender, case, number, person, tense, etc.) and word classes (verbs, nouns, pronouns, numerals, etc.)

Has knowledge of the basic principles of conjugation and declension of particular word classes.

Has an overview of basic vocabulary of different conversational topics.

Skills

The student:

Master basic grammatical rules and conversational topics.

General competence

The student:

Can communicate on the basic level in everyday life in our country.

Has knowledge of some history, traditions and interesting places of Slovakia.

Additional information:

Literature

1. Bohmerová, A.: Slovak for you, Perfect, Bratislava, 2006.

Breeding of game

Department: Department of Nutrition, Dietetics and Animal Breeding

Guarantor: Assoc. prof. P. Lazar, DVM, PhD

Year of study / duration of the course: 2nd year / one semester

Teaching hours:

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, credit test and final examination.

Admission to course:

Compulsory optional part of study programme. Practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has knowledge about taxonomical status, nomenclature, biology, ecology and geographical distribution of economically and ecologically important game species of mammals and birds.

Has an overview of the anatomy and physiology of game mammals and birds.

Has a broad knowledge of the historical development, traditions, new trends, production volume and challenges in game breeding.

Is familiar with new thinking and innovation processes in intensive breeding of fallow deer and mouflons.

Has a broad knowledge about breeding of game birds, mainly about pheasant breeding.

Has knowledge about nutrition and dietetic of game in captivity.

Is familiar with game transport - immobilization, methods of transport and legislation.

Has insight of the welfare aspects of the game production, zoological medicine, health management on farms and the sustainability, as well as of the main factors affecting meat quality of game.

Has a basic knowledge about game disease and disorders.

Skills

The student:

Can explain the principles used in population medicine of game.

Can collect and use relevant published information on various issue related to game farming.

Can evaluate health status and fitness of investigated game, methods and techniques of game breeding.

General competence

The student:

Can discuss and exchange opinions on the actual challenges and trends in the fish breeding.

Can communicate results and theories both orally and in writing forms (by using of field protocols).

Can exchange opinions with fellow students and teacher about management and health control of breeding system in the concrete cases.

Is familiar with the techniques of manipulation with game, application of drugs or marks, field investigation and sampling of biological material.

Can discuss about real problems and innovations in management at some concrete farms for breeding of game.

Is familiar with the modern scientific research and management of game breeding.

Can work on diploma thesis about challenges in game breeding.

Additional information:

Literature

1. Nova J. Silvy: The wildlife techniques manual
2. W. Trense: The big game of the world M.Heidenreich: Birds of prey L.Stoker: Practical wildlife care

Veterinary clinical sciences

Department: Clinic of Ruminants

Guarantor: Prof. G. Kováč, DVM, DrSc.

Year of study / duration of the course: 3rd year / two semesters

Teaching hours:

Lectures 2 x 13 x 1 hr

Practical lessons 2 x 13 x 2 hr

Course evaluation:

Active participation on practical lessons and lectures, credit tests and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has experience in the organisation of the work on the clinics (Clinic for ruminants, horses, small animals, exotic animals and swine).

Has knowledge about the handling of animals, methods of their restraint, and characterisation of the animals.

Has knowledge about the principles and methods of the clinical examination of animals (with protect coat or jacket, trousers and boots; manipulation with thermometer, pleximeter, percutoric hammer, stethoscope, gloves).

Has basal knowledge on the plan of individual clinical examination (hair, skin, subcutaneous tissue and lymphatic system; cardiovascular and respiratory system; digestive system, liver, spleen; urinary system and mammary gland; locomotor and nervous system).

Has an overview of the health and disease characteristics, procedures in the study of diseased individuals.

Has knowledge on the preventive diagnosis and health control, and the application of HACCP - like system.

Skills

The student:

Can perform basal individual clinical examination of patients based on the steps of the clinical examination protocol.

Can perform the clinical examination methods (adspection, palpation, auscultation and percussion) at the different body systems.

Can perform collection, preparation, screening analysis of biological materials.

Can conclude the results of the clinical examination to the diagnosis.

General competence

The student:

Can collaborate with assistance from other students, stable-man, farmers before and during examination of animals.

Is aware of the risks associated to handling and examining of the animals at the clinics.

Can discuss the results and theories during complex of clinical examination of animals with the clinicians and fellow students.

Is informed about new knowledge, prospects and perspectives in the field of veterinary work at the clinics.

Animal nutrition

Department: Department of Nutrition, Dietetics and Animal Breeding

Guarantor: Assoc. prof. M. Demeterová, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons and lectures, presentation of reports, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Understands the basic principles of animal nutrition gaining the knowledge for the study of the applied nutrition of different animal species.

Demonstrates and understands the nutrient digestion, absorption and metabolism in ruminants and monogastric animals.

Identifies nutrients, their major functions, sources, and recommended intakes and signs of deficiency.

Has knowledge of nutritive value of the feeding stuffs (forages and concentrates) and understands processing technologies of forages as well as technologies of their preserving and storage.

Has an overview of the current routine laboratory methods used for analysis of feeds and knowledge necessary for the appreciation of the nutritive value of feeding stuffs.

Has knowledge of current feeding standards used in animals.

Skills

The student:

Understands the theory of proximate analysis of feeds and the techniques needed to apply it, estimates the nutritive value and the production effect of feed stuffs.

Identifies and evaluates the feeding stuffs and recommends their use in animal nutrition.

Can evaluate the results of laboratory analysis of feeds and write the reports (IT and information handling).

Can collect and use published scientific information for interpretation of results in the field of animal nutrition.

General competence

The student:

Has critical and creative thinking.

Can communicate and cooperate with fellow students for the completion of laboratory analysis techniques and for elaboration of scientific reports.

Is familiar with the rules used in laboratory of feed analysis and knows the risks of laboratory work.

Can present results and theories orally and in writing.

Is familiar with new thinking and innovation processes in the field of nutrition.

Additional information:

Literature

1. Donald Mc P., Edwards,R.A., Greenhalgh,J.E.D.: Animal Nutrition
2. Pond. W.G., Church, D.C., Pond, K.R.: Basic Animal Nutrition and Feeding
3. Ensminger,M.E., Olentine,J.E., Heineman,W.W.: Feeds and Nutrition

Animal hygiene, welfare and behaviour of animals

Department: Department of the Environment, Veterinary Legislation and Economy

Guarantor: G. Gregová, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, presentation of protocols, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has knowledge of the general principles of farming including animal health, behaviour and welfare that influence production and reproduction in farm and companion animals.

Understands the concepts of animal welfare and has sufficient knowledge of relevant legislation, historical perspective, ethical considerations, the five welfare freedoms, stress and pain and welfare of farm and laboratory animals.

Has a broad knowledge on the impact of microclimatological factors of housing systems on animal health, welfare and productivity. Recognizes the external and internal sources of microbial contamination and importance of their prevention.

Has adequate knowledge of the general principles veterinary-hygiene protection of animal farms, hygiene planning programme and protection of the environment.

Has basic knowledge of factors affecting air quality in animal housings.

Has basic knowledge of hygiene requirements on construction materials used in animal housings and relevant design details important for animal well-being and health.

Has broad knowledge of the research and challenges in farm animal production systems and animal housings designs in the context of Slovakia and world agriculture.

Understands current animal housing legislation.

Understands necessity of constant updating his/her knowledge in the field of animal hygiene.

Skills

The student:

Can discuss the importance and advantages/disadvantages of various animal production systems in agricultural enterprises.

Can interpret a range of normal behaviours of farm and companion animal species.

Is able to recognize abnormal behaviours and explain them in terms of cause, function and overlying motivation.

Can explain the principles used in the farming of different animal species.

Can collect and use relevant information published on various issue related to Animal Hygiene.

General competence

The student:

Can discuss and exchange opinions on relevant challenges regarding livestock housing systems and

management.

Can communicate results and theories both orally and in writing.

Understands common welfare and behavioural problems of companion and farm animals and is able to propose methods/approaches for their elimination/control.

Can apply current methods of animal welfare assessment to practical situation.

Can compare efficiency of different housing systems of production.

Is able to identify the scope for the application of the results of research in animal production.

Can collaborate with fellow students in completion and preparation of scientific reports.

Is familiar with new thinking and innovation processes in the field of animal hygiene, production and welfare.

Additional information:

Literature

1. M.Ondrašovič, O. Ondrašovičová, M. Vargová, J. Sokol: Animal Hygiene. Magnus Košice, 1994.
2. Webster, J.: Animal Welfare. Blackwell Science. Oxford, 1997.
3. Fraser, A.F., Broom, D.M.: Farm animal behaviour and welfare. Bailliere Tindall, 1990. Fraser, D. 2008 : Understanding Animal Welfare, Willey-Blackwell, 2008
4. Rushen, J. et al.: The welfare of Cattle, Springer Publishing, 2008
5. Grandin, T.: Improving Animal Welfare: A practical Approach, Colorado, 2009

Introduction to veterinary epizootiology

Department: Department of Epizootiology and Parasitology

Guarantor: B. Vojtek, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has an overview of the main goals of veterinary epidemiology.

Gathers basic knowledge of the infectious diseases, the infectious process, the sources and transmission of etiological agents.

Has knowledge of the factors affecting the communicability of disease agents.

Has knowledge of zoonoses and factors affecting their occurrence.

Has knowledge of the outbreak investigation and organisation of epizootological activities.

Can update his knowledge in the field.

Skills

The student:

Can perform within safety limits and under supervision the main techniques of material sampling for laboratory examination.

Can evaluate diagnostic tests and their properties (accuracy, sensitivity, specificity).

Can measure the commonality of disease occurrence (prevalence, incidence, mortality, morbidity).

Can evaluate disease outbreak reports and formulate conclusions.

General competence

The student:

Can discuss basic epidemiological principles in animal populations.

Can perform and discuss the monitoring and analysis of epidemiological situation, prepare and discuss disease control and prevention strategies in animal populations.

Can communicate results and theories both orally and in writing.

Additional information:

Literature

1. Ronald, D. Smith: Veterinary clinical epidemiology. The third edition. CRC Press Taylor & Francis Group, 2006.
2. Kouba, V. General epizootology, UVL in Košice, 1994.

Introduction to pharmacology

Department: Department of Pharmacology and Toxicology

Guarantor: P. Váczi, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, partial controls, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Gets an overview of historical development of medicinal formulations and treatment. Has a knowledge of pharmacological nomenclature and assortment of veterinary preparations.

Has an overview of dosage regimen, administration of doses, the fate of drug in the body - the absorption, distribution, biotransformation and elimination of drugs; and important mechanisms of drug action.

Gets the most significant information about division of antibacterial drugs (antibiotics and chemotherapeutics) and about medication classes regarding to the treatment of major organ systems.

Gets an overview of the most used dosage forms (solid, semisolid and liquid) in veterinary medicine. In addition he/she has a knowledge of veterinary mass produced preparations which are the most applied in European countries.

Gets a brief overview of phytotherapy in veterinary medicine.

Skills

The student:

Can independently calculate and determine the dose required for treatment of various animal species.

Can work with professional literature related to drugs and substances (Pharmacopoeia, Veterinary compendia).

General competence

The student:

Can participate in the clinical examination of the patient, work with package leaflets, on the basis of which he/she can help to recommend or refuse the medication for the treatment of particular disease.

Additional information:

Literature

1. Šutiak V., Berecký I., Lopuchovský J.: Guide-book of Prescriptions and Practical Pharmacological Exercises, UVM Košice, 2002, 1 – 270.
2. Adams H.R.: Veterinary Pharmacology and Therapeutics, 8th Edition, Iowa State Press - A Blackwell Publishing Company, 2001, 1174 pp.
3. Brenner G.M., Craig W.S.: Pharmacology, 2nd Edition, Saunders, 2006, 510 pp.
4. Wanamaker B. P., Massey K. L.: Applied Pharmacology for the Veterinary Technician, 3rd Edition, Saunders, 2004, 436 pp.

5. The Merck Veterinary Manual: <http://www.merckvetmanual.com>
6. Plumb D.C.: Plumb's Veterinary Drug Handbook, 6th Edition, Blackwell Publishing, 2008, 1463 pp.
7. Šutiak V.: The Concise Catalogue of Selected Pharmaceuticals. UVM Košice, 1997, 27 pp. Sovík L. et al.: Vademecum veterinárnych liekov a prípravkov v Slovenskej republike ÚŠKVBL Nitra, 2008, 973 pp.

Veterinary anatomy and histology I & II

Department: Department of Anatomy, Histology and Physiology

Guarantor: S. Flešárová, DVM, PhD / M. Maloveská, DVM, PhD

Year of study / duration of the course: 2nd year / one semester and 3rd year / one semester

Teaching hours:

Lectures 2x 13 x 2 hr

Practical lessons 2 x 13 x 3 hr

Course evaluation:

Active participation on practical lessons, credit tests and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Receives basic knowledge about the position and direction of parts of the body and about the structures, forms and sizes of bones.

Has an overview about the bones of the axial and appendicular skeleton, including interspecies differences in domestic mammals.

Has knowledge of the anatomy of the joints of the head, body, thoracic and pelvic limbs, including interspecies differences in domestic mammals.

Has anatomical knowledge of the muscular system, including interspecies differences in domestic mammals.

Receives basic knowledge about the anatomy of the organs of the digestive, respiratory and urogenital system, including interspecies differences in domestic mammals.

Has an overview of the blood circulation schema and of the heart anatomy. Obtains the knowledge of the arteries and veins participating on the blood supply of the head, neck, trunk, limbs and visceral organs, including interspecies differences in domestic mammals.

Has knowledge of the anatomy of the brain, spinal cord, cranial nerves, spinal nerves and the arrangement of the autonomic nervous system, including interspecies differences in domestic mammals.

Has an overview of the anatomy of the skin, skin derivatives, mammary gland and sensory organs (ear, eye), including interspecies differences in domestic mammals.

Receives basic knowledge of the anatomy of domesticated birds with pointing on their typical morphological characteristics.

Has knowledge of the anatomy of the mostly used species of laboratory animals - rabbit, rat, guinea pig, mouse, hamster.

Has knowledge of the histological structure of the most important organs of the nervous system, respiratory system, endocrine glands and sense organs.

Has an overview of the anatomy of the lymphatic organs, lymphatic vessels, lymph nodes and endocrine glands.

Skills

The student:

Has the routine dissection techniques to dissect the arteries, veins, nerves, lymphatic organs which are also pointed on interspecies differences.

Can use different technique to dissect the mammals and birds.

Can recognize the organs of the cardiovascular system, nervous system, endocrine glands according to the interspecies differences.

Can recognize the bones and organs of different mammalian species.

Has the routine dissection techniques to dissect the joints, muscles and the organs of the digestive, respiratory, and urogenital system with accordance to the interspecies differences.

Can understand and reflect upon the relation between the structure of mammalian organs and their function.

Can use the obtained dissection techniques in pathologic anatomy.

General competence

The student:

Can collaborate and exchange opinions with fellow students for the preparation of scientific reports.

Can communicate results and theories both orally and in writing.

Can dissect the joints, muscles and the organs of the digestive, respiratory, and urogenital system with accordance to the interspecies differences without supervision.

Can dissect the arteries, veins, nerves, lymphatic organs which are also pointed on interspecies differences without supervision.

Pathological physiology

Department: Department of Pathological Anatomy and Pathological Physiology

Guarantor: Prof. Z. Faixová, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, presentation of seminar work, two credit tests and final examination.

Admission to course:

Compulsory optional part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

The student obtains knowledge of the principles and concepts of physiology of the species. Has knowledge of the principal physiological processes and physiological regulations in species, such as blood, cardiovascular system, excretory system, endocrine system, bone, joints and muscle system, skin and nervous system.

Can update the student's knowledge in the field of veterinary physiology.

Skills

The student:

Can solve cases present realistic situations that show theory in practice.

Can analyse, evaluate (interpret principal blood, biochemical and some physiological parameters using proper laboratory and other techniques.

Can collect, summarize and explain available information on given topic for the evaluation and interpretation of results obtained.

General competence

The student:

Can exchange opinions and experience with other students in class.

Can communicate results obtained both in writing and orally.

Can prepare and present seminar work on given topic.

Additional information:

Literature

1. Cunningham James G. textbook of veterinary physiology. 3rd ed. Saunders, Philadelphia, USA, 2002, 575 pp. ISBN 0-7216-8994-9.
2. Reece William O. Functional anatomy and physiology of domestic animals. 4th Ed. Wiley- Blackwell, Iowa, USA, 2012, 577 pp. ISBN 978-0-8138-1451-3

Preventive veterinary medicine, sanitation and public health

Department: Department of Epizootology and Parasitology

Guarantor: Prof. J. Mojžišová, DVM, PhD, Dr. h. c. / Assoc. prof. N. Sasáková, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 1 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, presentation of seminar work, preparation of protocols, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has adequate knowledge about prevention of the contagious diseases of animals specially in relation to public health protection.

Is familiar with preventative measures aimed at infectious and parasitic disease of animals.

Has adequate knowledge about protection of the environment in relation to animal health and production.

Is familiar with preventative measures aimed at optimisation of environmental conditions in animal husbandry.

Is familiar with important environmental problems affecting quality of drinking water that the society has to face today.

Has basic knowledge related to sanitation of the environment - disinfection, rodent control, insect control.

Has basic knowledge about treatment and manipulation with drinking water and waste water.

Skills

The student:

Can practically perform basic laboratory and clinical examination of animals.

Can practically evaluate risk factors in animal population (farms, herds, flocks) regarding to the contagious diseases.

Can practically perform basic preventative methods against contagious diseases in various animal species

Can practically prepare and use basic disinfectant preparations.

Can perform testing of disinfectants using routine laboratory methods.

Can assess the suitability of drinking water on the basis of monitored parameters influencing animal and human health.

General competence

The student:

Has sufficient knowledge about basic preventive measures protecting animal population against infectious diseases

Knows and understands the risks related to the use of disinfectant preparation under laboratory and

practical conditions.

Has sufficient knowledge allowing him/her to discuss the relevant issues of water quality and potential risks.

Can communicate results and theories both orally and in writing.

Additional information:

Literature

1. Elsevier: Preventive veterinary medicine, 2009

Fish breeding

Department: Department of Nutrition, Dietetics and Animal Breeding

Guarantor: Ľ. Šmiga, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has knowledge about taxonomical status, nomenclature, biology, ecology and geographical distribution of economically and ecologically important fish species.

Has an overview of the anatomy and physiology of the different fish groups.

Has a knowledge on the importance of water chemistry and the other factors affecting production and quality of the cultured fish.

Has a broad knowledge of the historical development, traditions, new trends, production volume and challenges in fish breeding.

Is familiar with the different breeding systems and management of breeding of the most important food fish, protected species and ornamental fish.

Has an overview of the current routine laboratory methods used for the isolation and identification of the various groups of fish pathogens, especially parasites affecting production and quality of the cultured fish.

Has knowledge about fish nutrition and dietetic.

Has knowledge of the general principles of fish health management and welfare in different types of fish farming.

Skills

The student:

Can explain the principles used in the different breeding systems.

Can collect and use relevant published information on various issue related to fish farming.

Can update his/her knowledge in the field of food-fish breeding and ornamental fish farms, too.

General competence

The student:

Can discuss and exchange opinions on the actual challenges and trends in the fish breeding.

Can communicate results and theories both orally and in writing forms (as seminary work and power point presentation about some fish breeding problematic).

Can exchange opinions with fellow students and teacher about management of breeding system in the concrete cases.

Is familiar with the techniques of manipulation with fish, principles of fish dissection and application of marks or drugs.

Can discuss about real problems and innovations in management at some concrete farms or in special

clubs for breeding of aquatic animals.

Is familiar with new thinking and innovation processes in the fish breeding.

Is familiar with the modern scientific research and management in fish breeding.

Can work on diploma thesis about challenges in inland aquaculture.

Additional information:

Literature

1. Bone Q., Moore R.H., 2008: Biology of fishes. Taylor & Francis Group, New York, ISBN 0-203- 88522-8, 478 pp. Halver J.E., Hardy R.W., 2002: Fish nutrition. Academic Press, San Diego, ISBN 0-12-319652-3, 824 pp.
2. Noga E. J., 2010: Fish diseases: diagnosis and treatment. Mosby – Year Book, Inc., St. Louis, ISBN 978-0-8138-0697-6, 515 pp.
3. Svobodova Z., Lloyd R., Machova J., Vykusova Z., 1993: Water quality and fish health. FAO, Rome, ISBN 92-5- 103437-0, 67 pp.
4. Wildgoose W.H., 2001: BSAVA manual of ornamental fish. Grafos, Barcelona, ISBN 0 905214 57 9, 304 pp.
5. *Etc.*

Food safety

Department: Department of Food Hygiene and Technology

Guarantor: Prof. J. Nagy, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has the basic knowledge about food legislation.

Has an overview of the safety and quality of meat from domestic ungulates.

Has an overview of safety and quality of meat from poultry and lagomorphs.

Has an overview of safety and quality of eggs and egg products.

Has an overview of safety and quality of fish and fish products.

Has an overview of safety and quality of milk and milk products.

Has an overview of safety and quality of game meat.

Has an overview of safety and quality of honey.

Has an overview of animal by-products obtaining, processing and disposal.

Skills

The student:

Can work with food legislation.

Can evaluate basic legislative hygiene requirements for slaughterhouses and food processing facilities.

Can assist official veterinarian in the performance of post-mortem health inspection.

Can cooperate in the preparation of good hygiene practices and HACCP.

Can assess sensory characteristics of food of animal origin.

General competence

The student:

Knows the requirements of food legislation for slaughterhouses and food processing facilities.

Can evaluate good hygiene practices and HACCP in food processing facilities.

Can cooperate with official authority in food inspection.

Biomedical statistics and informatics

Department: Department of the Environment, Veterinary Legislation and Economy

Guarantor: L. Takáč, Ing., PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, credit test and final examination.

Admission to course:

All students. Obligatory part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Has an overview about basic knowledge and methods in biomedical statistic and animal science.

Has an overview about basic knowledge in informatics.

Has an overview about knowledge to effectively use computer science in biomedical statistics.

Can update his/her knowledge in the field of statistics and informatics for biomedicine and for animal science.

Skills

The student:

Can analyse the statistical problem in biomedicine and animal science.

Can use typical statistical programmes for statistical analysis in biomedicine and for animal science.

Can collect and use relevant published information for the interpretation of statistical results.

Can scientifically report, results of various fundamental statistical analysis.

Can reflect upon their observations obtained after performing basic statistical techniques.

General competence

The student:

Can collaborate with fellow students, for the completion of statistical techniques and for the preparation of scientific reports about statistical analysis.

Can communicate results and theories both orally and in writing in particular statistical area.

Can use correct statistical method and techniques for statistical measurement and analysis.

Additional information:

Literature

1. Aviva Petrie and Paul Watson: Statistics for Veterinary and Animal Science, June 9, 1999, ISBN
2. Wayne W. Daniel and Chad L. Cross: Biostatistics: A Foundation for Analysis in the Health Sciences, January 9, 2013,
3. Bernard Rosner: Fundamentals of Biostatistics, August 19, 2010
4. Marcello Pagano and Kimberlee Gauvreau: Principles of Biostatistics, March 9, 2000
5. John Walkenbach et al., Office 2007 Bible, Wiley Publishing, Inc., 2007 ISBN 978-0-470-04691-3
6. John Walkenbach, Excel 2007 Bible, Wiley Publishing, Inc., 2007 , ISBN-10: 0-470-04403-9

Basics of laboratory diagnostics

Department: Clinic of Ruminants

Guarantor: Assoc. prof. O. Nagy, DVM, PhD

Year of study / duration of the course: 3rd year / one semester

Teaching hours:

Lectures 13 x 2 hr

Practical lessons 13 x 2 hr

Course evaluation:

Active participation on practical lessons, credit test and final examination.

Admission to course:

Compulsory optional part of study programme. Lectures will be given for all students together and practical lessons will be done for small groups.

Course content and outcomes:

Knowledge

The student:

Is informed about fundamentals of laboratory diagnostics as an important part of diagnosing disturbances in animals' health.

Is acquainted with collection of the most frequently used biological samples for laboratory analyses, as well with various factors, which might influence the results of the analyses.

Has a knowledge about the reference/normal values and their interpretation related to the clinical status and selection of laboratory methods and procedures.

Has an overview about the major haematological, biochemical and other abnormalities observed within laboratory diagnostics.

Should understand the principles of homeostatic disturbances diagnosing and their importance for clinical practice.

Skills

The student:

Is able to perform some common operations related to the collection of biological material for analysis and to perform the preparation of samples for selected laboratory analyzes.

Is able to independently perform some basic laboratory examinations of samples of biological specimens.

He may assess the choice of appropriate biological material for laboratory investigations and the methods of its examination.

Is able to assess various factors within the analytical process that can influence the quality and the results of the laboratory examinations.

Will know the principles of correct interpretation of the results of laboratory analyzes in relation to animal species, methods of laboratory analysis and clinical status.

General competence

The student:

Can choose the right kind of biological material and take it for a laboratory examination.

Can decide on the suitability of the analysis of biological material for selected laboratory analyzes.

May participate in the preparation of samples for laboratory analysis.

May carry out some basic simple laboratory examinations.

Additional information:

Literature

1. Kerr M.G.: Veterinary Laboratory Medicine, Blackwell Science, 2002
2. Stockham S.L. and Scott M.A.: Fundamentals of veterinary clinical medicine, Blackwell Publishing Comp., 2002 Meyer D.J. and Harvey J.W.: Veterinary Laboratory Medicine – Interpretation and Diagnosis. Saunders, 2004

Bachelor thesis

Year of study / duration of the course: 3rd year / two semesters

Teaching hours:

Approximately 10 hr per semester.

Course evaluation:

During elaboration of a thesis (at least two semesters), problem definition and plan for the thesis must be submitted within a given date and be approved by the supervisor (thesis tutor) and presentation of the work as it is in progress must be carried out regularly (evaluation passed/not passed). Before final submission, one opponent is appointed to review the bachelor thesis and to evaluate it by a grade. The final bachelor thesis is defended in front of a Committee and evaluated with a letter grade (A-E passed, FX not passed).

Admission to unit:

All students. Obligatory part of study programme, thesis represents together with its defence one subject. Thesis defence belongs to state exams.

Course content and outcomes:

Aim of the thesis is to train the students in the use of theoretical knowledge gained throughout the study programme as well as practical experience in carrying out a research project. The nature of a bachelor thesis can be experimental, specialised, based on applied knowledge, or theoretical. Students select their own individual thesis topics from topics announced at the beginning of each study year. The chosen topic and definition of the problem must be approved by the supervisor (thesis tutor) or course coordinator.