

Program
jednolitych studiów magisterskich w języku angielskim
dla kierunku weterynaria

1.1 Dane ogólne

1.1.1. Profil studiów **ogólnoakademicki**
(ogólnoakademicki/praktyczny)

1.1.2. Forma/y studiów: **stacjonarna**
(stacjonarna/niestacjonarna)

1.1.3. Tytuł zawodowy **lekarz weterynarii**

1.1.4. Sylwetka absolwenta:

Absolwent nabywa wiedzę z zakresu weterynarii zgodnie z zasadami określonymi w Ustawie o zawodzie lekarza weterynarii i izbach lekarsko – weterynaryjnych, w Ustawie o inspekcji weterynaryjnej oraz w prawie Unii Europejskiej (dyrektywa 2005/36/WE Parlamentu Europejskiego i Rady z dnia 7 września 2005 r. w sprawie uznawania kwalifikacji zawodowych oraz na poziomie 7 Polskiej Ramy Kwalifikacji.

Absolwent posiada umiejętności wykonywania zawodu lekarza weterynarii z zachowaniem zasad etyki i deontologii weterynaryjnej. Absolwent posiada wiedzę umożliwiającą: badanie stanu zdrowia zwierząt oraz rozpoznawanie, zapobieganie, zwalczanie i leczenie chorób zwierząt, wykonywanie zabiegów chirurgicznych; wydawanie opinii i orzeczeń lekarsko-weterynaryjnych; wydawanie recept na leki i materiały medyczne; badanie zwierząt rzeźnych, mięsa i innych produktów pochodzenia zwierzęcego; nadzór sanitarno-weterynaryjny nad produktami pochodzenia zwierzęcego; sprawowanie nadzoru weterynaryjnego nad ochroną zdrowia publicznego i środowiska oraz zdrowia zwierząt w stadzie; sprawowanie nadzoru weterynaryjnego nad obrotem zwierzętami i miejscami ich gromadzenia; wykonywanie badań i weterynaryjnej oceny środków żywienia zwierząt i warunków ich wytwarzania; upowszechnianie wiedzy weterynaryjnej; zarządzanie w zakresie spraw weterynaryjnych oraz wykonywanie badań laboratoryjnych prowadzonych dla celów diagnostycznych, profilaktycznych, leczniczych lub sanitarno-weterynaryjnych.

Absolwent jest przygotowany do pracy w: zakładach leczniczych dla zwierząt, laboratoriach diagnostycznych oraz przy produkcji i dystrybucji weterynaryjnych produktów leczniczych, wyrobów medycznych i materiałów medycznych, w administracji weterynaryjnej różnego szczebla, a także: w jednostkach naukowo - badawczych i ośrodkach badawczo-rozwojowych; jednostkach zajmujących się poradnictwem i upowszechnianiem wiedzy z zakresu weterynarii, gdy wymagane jest posiadanie tytułu zawodowego lekarza weterynarii; w szkolnictwie – po ukończeniu specjalności nauczycielskiej (zgodnie ze standardami kształcenia przygotowującego do wykonywania zawodu nauczyciela).

Absolwent powinien znać język obcy na poziomie biegłości B2+ Europejskiego Systemu Opisu Kształcenia Językowego Rady Europy oraz umieć posługiwać się językiem specjalistycznym z zakresu kierunku studiów.

Absolwent jest przygotowany do podjęcia kształcenia na poziomie 8 Polskiej Ramy Kwalifikacji w szkołach doktorskich.

1.1.4. Liczba: semestrów 11; godzin **5200** (w tym realizowanych z wykorzystaniem metod i technik kształcenia na odległość) 0/0

1.1.5. Liczba punktów ECTS (łącznie) **360**

1.1.6. Dopuszczalny deficyt punktów ECTS po poszczególnych semestrach:

Semestr	1	2	3	4	5	6	7	8	9	10	11
Deficyt punktów ECTS	4	5	4	4	3	3	3	4	3	0 (konieczność rozliczenia deficytu z lat poprzednich)	0 (konieczność rozliczenia deficytu z lat poprzednich)

1.1.7. Sekwencje przedmiotów

I. p.	Nazwa nie zaliczonego przedmiotu sekwencyjnego – brak możliwości realizacji przedmiotów w kolejnych semestrach	Forma zaliczenia	Rok/semestr
1	Animal anatomy I	zaliczenie	I rok/1 sem.
2	Cell biology	egzamin	I rok/1 sem.
3	Chemistry	egzamin	I rok/1 sem.
4	Histology and embryology I	zaliczenie	I rok/1 sem.
1	Animal anatomy II	egzamin	I rok/2 sem.
2	Biochemistry I	zaliczenie	I rok/2 sem.
3	Histology and embryology II	egzamin	I rok/2 sem.
1	Biochemistry II	egzamin	II rok/3 sem.
2	Veterinary microbiology I	zaliczenie	II rok/3 sem.
3	Animal physiology I	zaliczenie	II rok/3 sem.
1	Animal physiology II	egzamin	II rok/4 sem.
2	Veterinary immunology	egzamin	II rok/4 sem.
3	Veterinary microbiology II	egzamin	II rok/4 sem.
4	Pathophysiology I	zaliczenie	II rok/4 sem.
1	Clinical and laboratory diagnostics I	zaliczenie	III rok/5 sem.
2	Pathophysiology II	egzamin	III rok/5 sem.
3	Pathomorphology I	zaliczenie	III rok/5 sem.
4	Veterinary pharmacology I	zaliczenie	III rok/5 sem.
1	Clinical and laboratory diagnostics II	zaliczenie	III rok/6 sem.
2	Veterinary pharmacology II	egzamin	III rok/6 sem.
3	Parasitology and invasiology I	zaliczenie	III rok/6 sem.
4	Pathomorphology II	egzamin	III rok/6 sem.
1	Diseases of farm animals	egzamin	IV rok/7 sem.
2	Slaughter animals and meat hygiene I	zaliczenie	IV rok/7 sem.
3	Parasitology and invasiology II	egzamin	IV rok/7 sem.
1	Diseases of horses	egzamin	IV rok/8 sem.
2	Andrology and artificial insemination	egzamin	IV rok/8 sem.
3	Slaughter animals and meat hygiene II	zaliczenie	IV rok/8 sem.
4	Veterinary toxicology	egzamin	IV rok/8 sem.
1	Diseases of dogs and cats	egzamin	V rok/9 sem.
2	Avian diseases	egzamin	V rok/9 sem.
3	Hygiene of food processing I	zaliczenie	V rok/9 sem.
4	Slaughter animals and meat hygiene III	egzamin	V rok/9 sem.
5	Preventive veterinary medicine I	zaliczenie	V rok/9 sem.
1	Hygiene of food processing II	egzamin	V rok/10 sem.
2	Preventive veterinary medicine II	egzamin	V rok/10 sem.

1.1.8. Liczba punktów ECTS, którą student uzyska na zajęciach wymagających bezpośredniego udziału nauczycieli akademickich i studentów lub innych osób prowadzących zajęcia: **211,4**

1.1.9. Liczba punktów ECTS, którą student uzyska w ramach zajęć z dziedziny nauk humanistycznych lub nauk społecznych: **5 ***)

1.1.10. Liczba punktów ECTS, którą student uzyska za zajęcia wybieralne: **22**

1.1.11. Liczba punktów ECTS, którą student uzyska za zajęcia związane z prowadzonymi badaniami naukowymi w dziedzinie nauki związanej z tym kierunkiem studiów **185**

1.1.12. Liczba godzin wychowania fizycznego: **60 **)**

1.1.13. Wymiar (liczba godz. i punktów ECTS), zasady i forma odbywania praktyk:

L.p.	Rodzaj praktyki	Okres realizacji	Czas trwania		ECTS
			tygodnie	godziny	
1	Praktyka hodowlana	po 4 semestrze	2	80	4
2	Praktyka kliniczna	po 8 semestrze	4	160	8
3	Praktyka w inspekcji weterynaryjnej	po 8 semestrze	2	80	4
4	Praktyka kliniczna	po 10 semestrze	4	160	8
5	Praktyka w inspekcji weterynaryjnej	po 10 semestrze	2	80	4
Razem			14	560	28

Praktyki zawodowe służą osiągnięciu wymaganych efektów uczenia się.

Praktyki zawodowe obejmują poznanie praktycznych aspektów postępowania lekarsko-weterynaryjnego w gospodarstwach, w zakładach leczniczych dla zwierząt, rzeźniach oraz w zakładach przetwórstwa produktów pochodzenia zwierzęcego i produkcji pasz, a także w zakresie unasienniania zwierząt.

Studenckie praktyki zawodowe mają na celu poszerzanie wiedzy zdobytej na studiach i rozwijanie umiejętności jej wykorzystania, poznanie praktycznych aspektów postępowania lekarsko - weterynaryjnego na fermach produkcji zwierzęcej, w zakładach leczniczych dla zwierząt, rzeźniach oraz zakładach przetwórstwa produktów pochodzenia zwierzęcego i produkcji środków żywienia zwierząt, a także w zakresie unasienniania zwierząt.

Formy organizacyjne praktyk:

Student podczas odbywania praktyki wykonuje czynności lekarsko – weterynaryjne (w zależności od rodzaju praktyki) pod nadzorem opiekuna, zgodnie z programem praktyki. Opiekun ma obowiązek potwierdzenia w „Dzienniku praktyk studenta” obecności na praktyce oraz zakres czynności, wykonanych podczas praktyki.

Pełnomocnicy dziekana ds. praktyk są odpowiedzialni:

- przygotowanie sylabusów przedmiotów

- przygotowanie programów i zasad odbywania praktyk
- zawarcie porozumień z podmiotami gospodarczymi, w których studenci odbywają praktyki
- wydanie skierowań na praktykę oraz na badania lekarskie (sanitarno-epidemiologiczne) dla studentów
- kontrolę praktyk i rozliczenie kosztów delegacji
- rozstrzyganie sporów pomiędzy podmiotem, w którym odbywa się praktyka a studentem
- zaliczenie odbytej praktyki

Dziekan może zaliczyć jako praktykę, wykonywaną przez niego pracę zarobkową, jeżeli jej charakter spełnia wymagania programu praktyki. Może to być również praca za granicą, jednakże musi ona być realizowana na zasadach porozumienia między uczelnią a instytucją przyjmującą.

1.1.14. Zasady/organizacja procesu dyplomowania:

- Podstawą obliczenia ostatecznego wyniku studiów magisterskich jednolitych jest średnia arytmetyczna wszystkich ocen uzyskanych z poszczególnych przedmiotów, w tym praktyk, z zaokrągleniem do dwóch miejsc po przecinku.
- Na dyplomie ukończenia studiów magisterskich wpisuje się ostateczny wynik studiów w skali pięciostopniowej: 3,0; 3,5; 4,0; 4,5; 5,0, ustalony wg zasady:

od 4,60 do 5,00 – bardzo dobry (5,0);

od 4,20 do 4,59 – dobry plus (4,5);

od 3,80 do 4,19 – dobry (4,0);

od 3,40 do 3,79 – dostateczny plus (3,5);

od 3,00 do 3,39 – dostateczny (3,0).

- Datą ukończenia studiów jest data złożenia ostatniego wymaganego programem studiów egzaminu.

*) – dotyczy kierunków innych niż przypisane do dyscyplin z dziedziny nauk humanistycznych lub nauk społecznych

***) – dotyczy studiów pierwszego stopnia i jednolitych studiów magisterskich realizowanych w formie stacjonarnej

1.2. Zajęcia i grupy zajęć *)

KOD	NAZWA
MWW-AJ>Agronomy	Agronomy
MWW-AJ>Anatomy1	Anatomy of Animals I
MWW-AJ>Anatomy2	Anatomy of Animals II
MWW-AJ>Andrology	Andrology and Artificial Insemination
MWW-AJ>Breeding	Animal Breeding
MWW-AJ>Hygiene	Animal Hygiene
MWW-AJ>Nutrition	Animal Nutrition and Feed Quality
MWW-AJ>Physio1	Animal Physiology I
MWW-AJ>Physio2	Animal Physiology II
MWW-AJ>AvianDiseas	Avian Diseases
MWW-AJ>InterAvian	Avian Diseases - Clinical Internship
MWW-AJ>BenefInsects	Beneficial Insects Disease
MWW-AJ>Biochem1	Biochemistry I
MWW-AJ>Biochem2	Biochemistry II
MWW-AJ>Biology	Biology
MWW-AJ>Biophysics	Biophysics
MWW-AJ>Biostatistics	Biostatistics and Methods of Data Collection
MWW-AJ>Cellbiol	Cell Biology
MWW-AJ>Chemistry	Chemistry
MWW-AJ>Clinica2	Clinical and Laboratory Diagnostics II
MWW-AJ>Clinica1	Clinical and Laboratory Diagnostics I
MWW-AJ>ClinicalImmu	Clinical Immunology
MWW-AJ>Diaging	Diagnostic Imaging
MWW-AJ>DogsCats	Diseases of Dogs and Cats
MWW-AJ>InterDogs	Diseases of Dogs and Cats - Clinical Internship I
MWW-AJ>InterDogs2	Diseases of Dogs and Cats - Clinical Internship II
MWW-AJ>FarmAnimals	Diseases of Farm Animals
MWW-AJ>InterFarm	Diseases of Farm Animals - Clinical Internship I
MWW-AJ>InterFarm2	Diseases of Farm Animals - Clinical Internship II
MWW-AJ>HorsesDis	Diseases of Horses
MWW-AJ>InterHorse	Diseases of Horses - Clinical Internship I
MWW-AJ>InterHorse2	Diseases of Horses - Clinical Internship II
MWW-AJ>Ecology	Ecology of Game Animals
MWW-AJ>Environment	Environmental Protection
MWW-AJ>ERGONOMICS	Ergonomics, Intellectual Protection nad Work Safety
MWW-AJ>Etology	Ethology and Animal Welfare
MWW-AJ>Fish	Fish Diseases
MWW-AJ>FodderHyg	Fodder Hygiene
MWW-AJ>FoodLaw	Food Sanitary Law
MWW-AJ>Forensic	Forensic Veterinary Medicine
MWW-AJ>Furcovered	Fur-Covered Animals Diseases
MWW-AJ>Genetics	General and Veterinary Genetics
MWW-AJ>Histology1	Histology and Embryology I
MWW-AJ>Histology2	Histology and Embryology II

MWW-AJ>HygFood1	Hygiene of Food Processing I
MWW-AJ>HygFood2	Hygiene of Food Processing II
MWW-AJ>Ittechn	IT Technology
MWW-AJ>LabAnalyt	Laboratory analytics
MWW-AJ>Latin	Latin
MWW-AJ>MilkHyg	Milk Hygiene
MWW-AJ>Parasit1	Parasitology and Invasiology I
MWW-AJ>Parasit2	Parasitology and Invasiology II
MWW-AJ>Pathomo1	Pathomorphology I
MWW-AJ>Pathomo2	Pathomorphology II
MWW-AJ>Pathop1	Pathophysiology I
MWW-AJ>Patho2	Pathophysiology II
MWW-AJ>Prev1	Preventive Veterinary Medicine I
MWW-AJ>Prev2	Preventive Veterinary Medicine II
MWW-AJ>Etics	Professional Ethics
MWW-AJ>PubHealth	Public Health Protection in State of Disaster
MWW-AJ>SFeedstuff	Safety of Feedstuff
MWW-AJ>Slaughter1	Slaughter Animals and Meat Hygiene I
MWW-AJ>Slaughter2	Slaughter Animals and Meat Hygiene II
MWW-AJ>Slaughter3	Slaughter Animals and Meat Hygiene III
MWW-AJ>PracCl10	Summer Practical Training: Animal Clinics
MWW-AJ>PracCl8	Summer Practical Training: Animal Clinics
MWW-AJ>Farmpractice	Summer Practical Training: Farm practice
MWW-AJ>PracticSI10	Summer Practical Training: Slaughterhouses
MWW-AJ>PracticSI8	Summer Practical Training: Slaughterhouses
MWW-AJ>Surgery	Surgery and Anaesthesiology
MWW-AJ>TechProd	Technologies in Animal Production
MWW-AJ>Tophic	Topographical Anatomy
MWW-AJ>AdmLAW	Veterinary Administration and Law
MWW-AJ>Dietetics	Veterinary Dietetics
MWW-AJ>Economics	Veterinary Economy
MWW-AJ>Epidemiology	Veterinary Epidemiology
MWW-AJ>History	Veterinary History and Deontology
MWW-AJ>Immunology	Veterinary Immunology
MWW-AJ>Microbiol1	Veterinary Microbiology I
MWW-AJ>Microbiol2	Veterinary Microbiology II
MWW-AJ>Pharma1	Veterinary Pharmacology I
MWW-AJ>Pharma2	Veterinary Pharmacology II
MWW-AJ>Phar	Veterinary Pharmacy
MWW-AJ>Toxogy	Veterinary Toxicology
MWW-AJ>Zoonoses	Zoonoses
MWW-AJ>ACENT	Academic entrepreneurship (Project)
	OHS and fire protection training
ETYKA2_WetSt_EN	Social science I – Ethics I
ETYKA2_WetSt_EN	Social science II – Ethics II

ETYKASRODOWISKOWA1_WetSt_EN	Social science I – Environmental ethics I
ETYKASRODOWISKOWA2_WetSt_EN	Social science II – Environmental ethics II
HISTORIAFILOZOFII1_WetSt_EN	Social science I – History of Philosophy I
HISTORIAFILOZOFII2_WetSt_EN	Social science II– History of Philosophy II
KOMUNIKACJAINTERPERSONALNA1_WetSt_EN	Social science I – Interpersonal communication I
KOMUNIKACJAINTERPERSONALNA2_WetSt_EN	Social science II – Interpersonal communication II
PLANOWANIEKARIERY1_WetSt_EN	Social science I – Career planning and knowledge base of the labor market I
PLANOWANIEKARIERY2_WetSt_EN	Social science II – Career planning and knowledge base of the labor market II
PUBLICRELATIONS1_WetSt_EN	Social science I – Public relations I
PUBLICRELATIONS2_WetSt_EN	Social science II – Public relations II
SOCJOLOGIA1_WetSt_PL	Social science I – Sociology I
SOCJOLOGIA2_WetSt_PL	Social science II – Sociology II
SJO>A-MWWB1-SJ-2S-1 SJO>A-MWWB2-SJ-2S-1 SJO>A-MWWC1-SJ-2S-1	Foreign language I – English language B1, B2+, C1
SJO>A-MWWB1-SJ-3S-2 SJO>A-MWWB2-SJ-3S-2 SJO>A-MWWC1-SJ-3S-2	Foreign language II – English language B1, B2+, C1
SJO>A-MWWB1-SJ-4S-3 SJO>A-MWWB2-SJ-4S-3 SJO>A-MWWC1-SJ-4S-3	Foreign language III – English language B1, B2+, C1
SJO>A-MWWB2-SJ-5S-4E SJO>A-MWWC1-SJ-5S-4E	Foreign language IV – English language B2+, C1
SJO>H-MWWB1-SJ-2S-1 SJO>H-MWWB2-SJ-2S-1	Foreign language I – Spanish language B1, B2+
SJO>H-MWWB1-SJ-3S-2 SJO>H-MWWB2-SJ-3S-2	Foreign language II – Spanish language B1, B2+
SJO>H-MWWB1-SJ-4S-3 SJO>H-MWWB2-SJ-4S-3	Foreign language III – Spanish language B1, B2+
SJO>H-MWWB2-SJ-5S-4E	Foreign language IV – Spanish language B2+
SJO>N-MWWB1-SJ-2S-1 SJO>N-MWWB2-SJ-2S-1	Foreign language I – German language B1, B2+
SJO>N-MWWB1-SJ-3S-2 SJO>N-MWWB2-SJ-3S-2	Foreign language II – German language B1, B2+
SJO>N-MWWB1-SJ-4S-3 SJO>N-MWWB2-SJ-4S-3	Foreign language III – German language B1, B2+
SJO>N-MWWB2-SJ-5S-4E	Foreign language IV – German language B2+
SJO>R-MWWB1-SJ-2S-1	Foreign language I – Russian language B1
SJO>R-MWWB1-SJ-3S-2	Foreign language II – Russian language B1
SJO>R-MWWB1-SJ-4S-3	Foreign language III – Russian language B1
SJO>R-MWWB2-SJ-5S-4E	Foreign language IV – Russian language B2+
SWF-S>004	Physical Education- Aqua Aerobic
SWF-S>028	Physical Education- Cross Training
SWF-S>007	Physical Education- Body Workout
SWF-S>024	Physical Education- Functional fitness
SWF-S>022	Physical Education - Fitness Body & Mind
SWF-S>023	Physical Education - Fitness - Shape Up

SWF-S>008	Physical Education- Futsal
SWF-S>009	Physical Education- Karate Shotokan
SWF-S>010	Physical Education- Basketball
SWF-S>011	Physical Education- Alpine Skiing
SWF-S>026	Physical Education - Nordic Walking
SWF-S>013	Physical Education- Volleyball
SWF-S>015	Physical Education- Swimming for beginners
SWF-S>014	Physical Education- Swimming
SWF-S>030	Physical Education - Chess
SWF-S>029	Physical Education - Tennis for beginners
SWF-S>018	Physical Education- Table Tennis
SWF-S>031	Physical Education - Workout
SWF-S>020	Physical Education- Correctional health benefits classes

1.2.1. Przedmioty obowiązkowe:

sylabusy

Course description - SYLLABUS

Code	MWW-AJ>Agronomy
Course Title	Agronomy
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	1
ECTS / including contact hours	1/0,9
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15
	CLASSES - LAB. GROUP: –
	CLASSES - CLIN. GROUP: –
	CLASSES - AUD. GROUP: –
Teacher responsible for the course	dr hab. Piotr Sobkowicz, associate professor
Language of instruction	ENGLISH*
Prerequisites	biology, physics, chemistry
Short description of the course (max. 500 characters)	The objective of the course is to provide knowledge on agricultural environment as a basis for field crop production, including fodder production, specify differences between ecosystem and agroecosystem, present technologies of production of main field crops, rules of crop fertilization and crop protection and to compare contemporary agricultural systems. After completing the course student will be familiar with principles of

	sustainable production of field crops including fodder production in integrated agricultural system.		
Content of the course unit (detailed description)	Methods of field crop production. Farm as agroecosystem – farm animals as a link in the food chain. Crops and environment, climatic factors in field crop production. Topographic and biotic factor. Water and soil as environmental factors. Soil tillage. Fertilization of field crops, the importance of fertilizers of animal origin. Weed and their harmfulness for crops and animals. Weed control. Characteristics of main groups of field crops, their economic and fodder importance: cereals, root crops, industrial crops, grain legumes, pasture legumes. Cover crops as a source of fodder and soil organic matter. Contemporary agricultural systems: industrial agriculture, traditional farming in developing countries, organic, integrated and sustainable agriculture.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Knows specific features of field crop production providing fodder for farm animals, shows field crop production in various economic systems. Presents weeds that are harmful to animal health and those that deteriorate quality of fodder and animal products.	test	Wet_WO_07
2	Identifies farm animals as a link in the soil – plant – animal cycle. Describes the importance of nutrient cycling in agroecosystem and the use of animal excrements as natural fertilizers.	test	Wet_WO_08
<i>Skills</i>			
1	Assesses the selection of crop species to the climatic and soil conditions of the farm and fertilizing and weed control methods used on that farm.	test	Wet_USP_16
2	Estimates the risk of negative impact of agro-technology on the environment	test	Wet_USP_21
<i>Social competences</i>			
1	Is aware of the risk to the environment arising from farming	test	Wet_KS_01
2	Is able to find the right solution to a given problem	test	Wet_KS_04
Literature (max. 8, including Youtube presentations, etc.) - compulsory – - complementary/optional 1. Martin J.H., Waldren R.P., Stamp D.L. 2006. Principles of field crop production. Pearson Education Inc., Prentice Hall, Upper Saddle River			
Total grade components		grade obtained at lectures (100%)	

Comments:	
-----------	--

List of subjects and exercises for the course/module

Titles of lectures:

1. Methods of crop production for food and fodder
2. Farm as agroecosystem. Farm animals as a link in the food chain
3. Crop and environment. Ecological amplitude of a species, the low of tolerance
4. Light and temperature as environmental factors
5. Topographic and biotic factors
6. Water as the environmental factor
7. Soil as the environmental factor
8. Aims of the soil tillage and soil tillage systems
9. Fertilization of crops, the importance of fertilizers of animal origin
10. Harmfulness of weeds to crops and farm animals, weed control
11. Characteristic of main groups of crops, their economic and fodder importance: cereals
12. Characteristic of main groups of crops, their economic and fodder importance: root crops, grain legumes and pasture legumes
13. Cover crops in field crop production – additional source of fodder and soil organic matter
14. Contemporary agricultural systems: industrial agriculture
15. Contemporary agricultural systems: traditional agriculture of developing countries, organic, integrated and sustainable agriculture

Titles of classes:

Allocation of ECTS for the course/module

Course title: Agronomy

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	16	0,9
Student's own work	2	0,1
Total hours/ECTS of student's workload	18	1

Hours:

1. Lectures: 15 hours
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher: 1

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Andrology
Course Title	Andrology and artificial insemination (S)
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ ELECTIVE
Semester of study	8
ECTS / including contact hours	3/2/1
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 15
	CLASSES - LAB. GROUP: 12
	CLASSES - CLIN. GROUP: 18
Teacher responsible for the course	NIŻAŃSKI WOJCIECH
Language of instruction	ENGLISH*
Prerequisites	completion of core subjects: anatomy of animals, Biochemistry, Histology and Embryology, Veterinary Microbiology, Animal Physiology, Clinical and Laboratory Diagnostics, Veterinary Pharmacology, Farm Animal Reproduction
Short description of the course (max. 500 characters)	The aim of teaching the course is to provide students with knowledge about the physiology and pathology of the genital organ of male domesticated (and some wild) animals, the principles of male exploitation and their examination for fertility, as well as management of reproductive disorders.
Content of the course unit (detailed description)	Reproductive exploitation of males, normal and abnormal regulation of reproductive processes in males and, methods of assessment of breeding soundness in males, disorders of genital organs in males, semen collection, assessment and preservation, artificial insemination in domestic animals, reproductive biotechnical procedures in domestic

animals, methods of treating male fertility disorders.

Learning outcomes (max. 3)

<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	Exam (written), pass (oral)	Wet_ WO_03
2	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	Exam (written), pass (oral)	Wet_ WO_04
3	knows and understands the assumptions of animal pairing, methods of fertilization, reproduction biotechnology, as well as breeding selection;	Exam (written), pass (oral)	Wet_ WSK_12
<i>Skills</i>			
1	conducts clinical examination of the animal in accordance with the principles of medical art;	Exam (written), pass (oral)	Wet_ UO_01
2	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Exam (written), pass (oral)	Wet_ UO_02
3	collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests;	Exam (written), pass (oral)	Wet_ USK_06
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural	Exam (written), pass (oral)	Wet_KS_0 1

	environment;		
2	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	Exam (written), pass (oral)	Wet_ KS_02
3	cooperates with representatives of other professions in the scope of public health protection	Exam (written), pass (oral)	Wet_ KS_10
Literature (max. 8, including Youtube presentations, etc.)			
- compulsory			
1. Divers T.J., Peek S.F. (ed.): Reburn's Diseases of Dairy Cattle Saunders Elsevier, St. Louis 2008.			
2. Large Animal Theriogenology. R.F. Youngquist, W.L. Threlfall. 2nd ed. Saunders, Elsevier. 2007.			
3. Chenowet P.J., Cook J.: Animal Andrology. Theories and Applications. Sydney 2014.			
4. Smith B.P. (ed.): Large Animal Internal Medicine. Saunders, Elsevier 2015.			
5. Veterinary Reproduction and Obstetrics. D.E. Noakes, T.J. Parkinson, G.C.W. England (editors). 9th ed. Saunders, Elsevier, 2009.			
-optional:			
1. Blowey R.W., Weaver A.D.: Color Atlas of Diseases and Disorders of Cattle. Mosby, London 2003.			
Total grade components		<i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i>	
Comments:		Final grade consists 25% of each of 4 departments	

List of subjects and exercises for the course/module

Titles of lectures:

1. Male genital organs, clinical aspects of endocrine regulation of male reproductive processes, species specificity, puberty, breeding and somatic maturity in various species of domestic animal:

Clinical aspects of sex differentiation process, disorder in sex differentiation and their diagnostics, description of axis hypothalamus-hypophysis-gonads functioning, feedback of endocrine axis, role of additional sexual glands, relationship between age, management, nutrition and male sexual use.

2. Spermatogenesis, physiology of fertilization process:

Clinical aspects of male gametes production and maturation, practical aspects of assessment of spermatozoal features and morphometry, endocrine regulation of spermatogenesis, cycle of seminiferous epithelium, transport and reservoir of spermatozoa in female reproductive system, practical aspects of in vivo and in vitro capacitation, cryocapacitation and acrosome reaction, physiology of fertilization process.

3. Diseases of genital organs in bull: Decreased libido sexualis, disorders of ejaculation, endo- and exogenous disorders of reproduction, influence of diseases of locomotory system on the reproductive potential, diseases precluding penis protrusion and insertion, diseases resulting from a decrease of blood inflow into corpus cavernosum, diseases resulting from abnormal blood retention in corpus cavernosum

4. Infertility, „impotentia generandi”, disorders in development of bull's reproductive system segments, segmental aplasia of Wolffian duct, cryptorchidism, testicular aplasia, monorchism, orchitis, epididymitis, degeneration of testicular tissue.

5. Diseases of genital organs in bull and other ruminants:

Disorders of accessory sexual glands, primary and secondary disorders of ejaculation, diseases of reproductive organs of ram and goat- congenital and acquired defects

6. Diseases of genital organs in stallion:

Endo- and exogenous causes of most common fertility disorders in stallion, disorders of development of elements of reproductive system, cryptorchidism, inflammation of individual parts of reproductive organ, injuries- diagnostics and treatment

7. Diseases of genital organs in boar:

Congenital and acquired boar's fertility disorders, environmental conditioning of boar reproductive use, the most common diseases of boar's reproductive organ

8. Diseases of genital organs in boar:

Endo- and exogenous causes of most common boar's fertility disorders, disorders in development of reproductive system individual parts- diagnostics and treatment

9. Diseases of genital organs in dog:

Endo- and exogenous disorders of reproduction, intersexuality in dogs, defects in development of reproductive organ individual parts, acquired diseases of reproductive organ

10. Diseases genital organs in dog:

Diseases of prostate, benign prostate hyperplasia- diagnostics and treatment, acute and chronic prostatitis, tumors and cysts of prostate, diseases of testes, diseases of segmental parts of reproductive system, diagnostics and treatment of diseases of reproductive system

11. Breeding centre documentation of the semen use and shipment:

Documentation held by veterinarian performing artificial insemination in cows, sows, bitches. The rules of disposal of documents concerning the insemination, international exchange of insemination doses and legal requirements concerning the import, export and use of semen

12. Reproductive biotechnology in birds:

Clinical aspects of bird semen collection and preservation, methods of male gametes collection,

specificity of assessment of various birds species semen, methods of birds reproductive potential evaluation

13. Reproductive biotechnology in birds:

Techniques of birds semen conservation, fresh, chilled semen, semen cryopreservation, techniques of artificial insemination in various birds species, methods of insemination, techniques of semen deposition in different localization in the genital tract

14. Reproductive biotechnology in felidae , wild and laboratory animals:

Techniques of assisted reproduction in felids, basics of semen collection, species specificity of fertility assessment and semen analysis of domestic cat and wild felids, methods of felids semen conservation, artificial insemination in wild felids,

15. Reproductive biotechnology in felidae, wild and laboratory animals:

In vitro techniques in felids reproduction, collection of female gametes, in vitro maturation of oocytes, in vitro fertilization, embryo transfer, adaptation of in vitro techniques in practice to increase in vanishing population of felids, biotechnology use in bison and cervidae

Titles of classes:

1. Clinical aspects of morphology of genital organs in males of domestic animals (isolated organs):

Details of diagnostics and therapeutic procedures used in andrology based on anatomical model of male reproductive organs, clinical aspects of reproductive system structure and functioning specificity of male of various animal species, practical demonstrations and exercises of techniques of males examination and diagnostics samples collection on isolated organs

2. Andrologic examination of bull and other ruminants (clinical and supplementary examination, washings, scrapings):

History for herd and individual animal, clinical aspects of male age, nutrition and sexual exploitation, bull's assessment based on evaluation of offspring utility features, estimation of male health, present state, livestock-veterinary evaluation, detailed andrological examination, external and internal examination, laboratory examination, criteria of qualification of males for reproduction

3. Collection and initial assessment of semen in bull and other ruminants:

Mating and ejaculation of bull, ram and goat, methods of semen collection from bull, ram and goat, rules of use artificial vagina, massage of accessory sexual glands and electroejaculation, assessment of male sexual reflexes, technique of semen collection, assessment of bull, ram and goat semen, demonstration of semen collection and assessment, practicals - semen collection and assessment

4. Laboratory assessment of males semen- macroscopic examination, microscopic examination, CASA, flow cytometry:

Laboratory tests in semen assessment, methods of sperm concentration assessment per volume, methods of sperm morphology assessment, standards of morphology of male gametes classification, sperm survival, biochemical examination of semen, examination of sperm ultrastructure, microbiological examination of semen

5. Preservation of semen of bull and other ruminants and techniques of artificial insemination:

Semen preservation in liquid state, artificial diluents, components of diluents, basics for semen conservation and used procedures, insemination dose, semen preservation in low temperatures, cryobiological aspects of semen preservation, methods of semen freezing and the use of insemination doses depending on type of semen package, technique of female artificial insemination and determination of optimal time of insemination, practicals - catheterization of uterine cervix for semen deposition

6. Andrological examination and semen collection from stallion, semen assessment:

Methods of semen collection from stallion, types of artificial vagina, the use of different types of artificial vagina, sexual reflexes in stallion, technique of semen collection, assessment of stallion semen

quality, demonstration of collection and assessment of stallion semen, practicals - collection and assessment of stallion semen

7. Preservation of stallion semen and artificial insemination in mares, monitoring of ovulation time: Semen preservation in liquid state, diluents used for semen extension, insemination dose, semen cryopreservation, methods of semen freezing and the use of insemination doses depending on type of semen package, technique of artificial insemination and determination of optimal time of mating, practicals - catheterization of uterine cervix

8. Andrological examination and semen collection from boar, semen assessment: Methods of semen collection from boar, mating in swine and ejaculation, sexual reflexes in boar, technique of semen collection, features of boar ejaculate, rules of semen assessment, demonstration of semen collection and assessment, practicals - collection and assessment of boar semen

9. Boar semen conservation and artificial insemination of sows: Semen conservation in liquid state, specificity of packaging systems and storage methods of diluted semen of boar, semen diluents, rules of semen conservation and used procedures, insemination dose, semen conservation in low temperatures, methods of semen freezing and the use of insemination doses depending on type of semen package, technique of artificial insemination in sows and determination of optimal time of insemination, practicals - catheterization of uterine cervix

10. Andrological examination and semen collection from dog, semen assessment: Indications to semen collection from dog, methods of semen collection from dog, massage of glans penis, artificial vagina, other methods, physiology of copulation and ejaculation, sexual reflexes in dog, technique of semen collection, rules of assessment of dog semen, demonstration of collection and assessment of dog semen, practicals - collection and assessment of dog semen

11. Dog semen preservation and artificial insemination in bitches:

Semen conservation in liquid state, semen diluents, rules of semen conservation and used procedures, insemination dose, semen conservation in low temperatures, methods of semen freezing and way of use of insemination doses depending on type of semen package, technique of female artificial insemination and determination of optimal time of insemination, methods of catheterization of uterine cervix

12. Collection, assessment and preservation of semen in tom cat, fox, laboratory animals and artificial insemination of females: Indications to semen collection, methods of semen collection, mating reflexes and ejaculation, assessment of cat semen, demonstration of collection and assessment of cat and rabbit semen, practicals - collection and assessment of semen. Semen chilling, insemination dose, semen cryopreservation and usually used procedures, methods of semen freezing and the use of insemination doses depending on type of semen packaging system, techniques of artificial insemination and determination of optimal time of insemination, practicals- artificial insemination

13. Semen collection and assessment in birds:

Practical exercises of collection and assessment of rooster semen, dorso-abdominal massage, semen assessment using macroscopic and microscopic methods, species specific ejaculate of birds

14. Artificial insemination in cattle – field training

15. Test and credits.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	46	2
Student's own work	20	1
Total hours/ECTS of student's workload	66	3

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Anatomy1 MWW-AJ>Anatomy2
Course Title	ANIMAL ANATOMY
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	1, 2
ECTS / including contact hours	17 contact hours 9
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 60
	CLASSES - LAB. GROUP: 135
	CLASSES - CLIN. GROUP: not applicable
	CLASSES - AUD. GROUP: not applicable
Teacher responsible for the course	JANECZEK MACIEJ
Language of instruction	ENGLISH*

Prerequisites		Not applicable	
Short description of the course (max. 500 characters)		The course covers issues related to the detailed anatomy of domesticated animal species. During the course student acquires dissecting skills essential in future medical practice.	
Content of the course unit (detailed description)		Internal organs, apparatus and systems anatomy in domestic animals, with regards to its topographical and functional relations in exact animal species, together with comparative differences between chosen animal species.	
Learning outcomes (max. 3)			
Nr No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree and understands the structure of the animal organism: cells, tissues, organs and systems	Exam (written, practical), partial exams (oral or written)	Wet_WSP_01
2	knows to an extensive degree, describes in detail and explains the structure, activity and regulation mechanisms of organs and systems of the animal organism (respiratory, digestive, circulatory, excretory, nervous, reproductive, hormonal, immune system and skin), as well as their integration at the organism level	Exam (written, practical), partial exams (oral or written)	Wet_WSP_02
3	presents the development of organs and the entire animal organism in relation to the mature organism	Exam (written, practical), partial exams (oral or written)	Wet_WSP_03
4	knows and understands the Polish and Latin medical nomenclature	Exam (written, practical), partial exams (oral or written)	Wet_WSP_20
<i>Skills</i>			
1	explains the anatomical basis of physical examination, taking into account the individual animal species	Exam (written, practical), partial exams (oral or written)	Wet_USP_06
2	recognises (in the images from optical microscope) histological structures corresponding to organs, tissues and cells, and is able to formulate their description, interpret their structure and relations between their structure and activity, taking into account the animal species from which they originate	Exam (written, practical), partial exams (oral or written)	Wet_USP_08
3	critically analyses veterinary literature and draws conclusions on the basis of available literature	Exam (written, practical), partial exams (oral or written)	Wet_UZU_02

		written)	
<i>Social competences</i>			
1	uses the objective sources of information		Wet_KS_04
2	deepens his/her knowledge and improves skills		Wet_KS_07
3	communicates with the co-workers and shares knowledge		Wet_KS_08
Literature (max. 8, including Youtube presentations, etc.) - compulsory			
1. H.E. Koenig, H.-G. Liebich - Veterinary Anatomy Domestic Mammals – Textbook and Color Atlas. Schattauer, 2007.			
2. K. M. Dyce, Wolfgang O. Sack, C. J. G. Wensing – Textbook of Veterinary Anatomy, 3rd edn. Elsevier, 2002.			
3. P. Popesko – Atlas anatomii topograficznej zwierząt domowych. PWRiL, 2008.			
4. S. H. Done, P. C. Goody, S. A. Evans, N. C Stickland – Color Atlas of Veterinary anatomy, vol. 3. Mosby, 2001.			
- complementary/optional			
Total grade components		<i>grade obtained at classes (50%) + grade obtained at final exam (50%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

Semester I

1. Anatomical analysis of animal body (cel, tissue, organ, aparat/system). General topographical partition (body axis and planes). The rules of anatomical nomenclature
2. Locomotor apparatus I – Bone anatomy and classification. Structure and classification of cartilaginous tissue. Skeleton – bones and axial skeleton partition (vertebral column and skull), skeleton of thoracic limb, limbs skeleton and its anatomical and zoological partition
3. Locomotor apparatus II – Bone junction and joints. Joint structure. Detailed structure of the vertebral column and skull junctions
4. Locomotor apparatus III – Bone junctions of thorax, thoracic and pelvic limb
5. Locomotor apparatus IV – Muscle structure and classification. Accessory organs of muscular system. Detailed partition and description of the neck and trunk muscles, muscles of thoracic and pelvic limb
6. Vascular and immunological system I – Circulatory system – arteries, veins, vascular rete
7. Vascular and immunological system II – External and internal heart structure. Pericardium. Heart conducting system

8. Vascular and immunological system III – Systemic blood circulation, pulmonary blood circulation
9. Vascular and immunological system IV – Lymphatic system – lymphatic vessels, lymphcenters, drainage areas, spleen and thymus
10. Nervous system I – Spinal chord, external and internal structure. Spinal nerve construction and its partition
11. Nervous system II – Brachial plexus nerves, lumbosacral plexus nerves. Partial exam III
12. Nervous system III – Cranial nerves
13. Nervous system IV – Autonomic nervous system
14. Endocrine system – Endocrine glands – hypophysis and epiphysis cerebri, thyroid gland, parathyroid glands, pancreas, testes ad ovaries
15. Digestive apparatus I – Digestive apparatus partition. Oral cavity – borders, tongue, palate, oral floor, buccae, salivary glands

Semester II

16. Digestive apparatus II – Teeth – classification, structure and morphology. Pharynx – wall structure and pharyngeal cavity partition
17. Digestive apparatus III – Stomach – classification, monocomplementar stomach structure, with comparative differences. Stomach in ruminants – rumen and reticulum – external and internal structure, reticular groove, omasus and abomasus external and internal structure
18. Digestive apparatus IV – Small intestine, partition and structure with comparative differences, liver – structure and lobation, hepatic blood circulation, excretory ducts, pancreas – structure and partition, excretory ducts
19. Digestive apparatus V – Large intestine, partition with comparative differences
20. Serous membranes I – Peritoneum and its structures – mesenteries, ligaments, folds, greater and lesser omentum
21. Respiratory apparatus I – Partition. Nasal cavity – wall construction of nasal vestibule and nasal proper cavity, anatomical partition into nasal neatuses
22. Respiratory apparatus II – Structure of larynx – laryngeal cartilages, laryngeal junctions, laryngeal muscles. Laryngeal cavity construction – partition, glottis – vocal fold structure, functional vocal rim partition
23. Respiratory apparatus III – Trachea – partition, wall structure. Lungs – external morphology, lobation, bronchuses partition, bronchial tree. Serous membranes II – Pleura and pericardium
24. Urogenital apparatus – Development of urogenital apparatus. Uropoetic organs – kidney – external and internal structure, classification, renal blood circulation. Urinary excretory ducts – renal pelvis, ureter, urinary bladder. Male urethra, female urethra
25. Male genital apparatus – Testes and epididymis – external and internal structure, deferent duct, testis investments, spermatic chord – anatomic and topographic partition, accessory genital glands
26. Female genital apparatus – Ovary – external and internal structure, tuba uterina, uterus – external and internal structure, classification. Placenta – classification. Vagina – vaginal fornix, vaginal vestibule, vulva
27. Common integument – General structure. Cutaneous secondaryities – hairs, glands, mammary gland – structure, classification and topography, horns, digital organ - pads, corneal hufs. Sensoric organs of skin
28. Central nervous system – Brain. Oencephalon as a whole – basal Surface, cerebral fornix. Rhombencephalon (medulla oblongata, myelencephalon) – external and internal structure. Mesencephalon – external and internal structure. Telencephalon and diencephalon – external and internal structure
29. Sense organs I – Sense of vision – eyebulb – external and internal structure, accessory eyebulb organs. Innervation, vascularization, optic tracts
30. Sense organs II – Vestibulocochlear organ. External ear, middle ear, internal ear. Innervation and vascularization. Hearing and sense of balance tracts

Titles of classes:

Semester I (week schedule)

1. Osteology I – Axial skeleton and thorax skeleton – detailed structure of vertebrae with comparative differences
2. Osteology II – Thoracic limb skeleton – detailed structure of bones with comparative differences
3. Osteology III – Pelvic limb skeleton – detailed structure of bones with comparative differences. Skeleton of hand and foot with comparative differences
4. Osteology IV – Individual students studies
5. Partial exam I (oral)
6. Osteology V – Head skeleton – bones of neurocranium
7. Osteology VI – Head skeleton – bones of splanchnocranium
8. Osteology VII – Individual student studies
9. Partial exam II (oral)
10. Miology I – Muscles of trunk and neck – muscles preparation in preserved cadavers, skin and cutaneous muscle presentation, together with muscles suspending trunk between limbs and limbs on the trunk
11. Miology II – Muscles of trunk and neck – deep neck muscles preparation, muscles of abdomen and tail
12. Partial exam III (oral)
13. Anatomy of thoracic limb I – muscles, nerves and vessels preparation
14. Anatomy of thoracic limb II – muscle, nerves and vessels preparation
15. Partial exam IV (written)

Semester II

16. Anatomy of pelvic limb I – muscles, nerves and vessels preparation
17. Anatomy of pelvic limb II – muscles, nerves and vessels preparation
18. Partial exam V (written)
19. Splanchnology I – Thorax, lungs, pleura
20. Splanchnology II – Heart, blood vessels and nerves of thoracic cavity
21. Splanchnology III – Abdominal cavity, digestive tract, kidneys, spleen
22. Splanchnology IV – Pelvic cavity, male and female genital apparatus, urinary bladder, anal canal
23. Splanchnology V – Individual students studies
24. Partial exam VI (written)
25. Splanchnology VI – Anatomy of head, mimmic muscles, nasal cavity, oral cavity
26. Splanchnology VII – Anatomy of head, pharynx, larynx, cranial basal region
27. Splanchnology VIII – Anatomy of head, intermandibular region
28. Splanchnology IX – Cranial nerves
29. Splanchnology X – Individual students studies
30. Partial exam VII (written)

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
---------------------	--------------------------------------	-------------

Student's workload, including: teaching hours + tutorials + tests + exam	199	9
Student's own work	180	8
Total hours/ECTS of student's workload	379	17

Hours:

1. Lectures:60
2. Laboratory / project / language classes / sports classes **: 135
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Breeding
Course Title	Animal Breeding
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	3
ECTS / including contact hours	4
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15
	CLASSES - LAB. GROUP: 4
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 26
Teacher responsible for the course	dr inż. Anna Zielak-Steciwko
Language of instruction	ENGLISH
Prerequisites	Animal anatomy, Animal physiology
Short description of the course (max. 500 characters)	The aim of the course is to familiarize Students with issues of livestock breeding and husbandry. During the course are discussed problems related to usefulness of particular utility types and selected breeds of livestock to specific livestock production. Students learn important methods of husbandry and breeding for cattle, sheep, horses, pigs and poultry as well as modern production technologies of milk, meat, wool and eggs.

Content of the course unit (detailed description)		Economic importance and condition of animals husbandry in Poland and the world, consequences of animal domestication, livestock utility types and breeds, principles of breeding in a herd, methods of selection, crossbreeding and reproduction of livestock, exterior, breeding value and performance value of livestock and utility types, methods of animal husbandry - feeding, housing and care at different age and stages of production, management and organization of animal production, animal welfare in buildings for livestock, livestock production modern technologies, characteristics of animal products and quality assessment, restraint and care of animals, methods of livestock identification, important rules of <i>cross-compliance</i> .	
Learning outcomes (max. 3)			
Nr No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Knows to an extensive degree and distinguishes the principles of animal raising and husbandry, taking into account the principles of animal nutrition, principles of maintaining their welfare and principles of production economics.	Final test, short written test.	Wet_WO_07 Wet_WSK_10 Wet_WSK_13 Wet_WSK_14
2	Characterises breeds within animal species, as well as principles of animal raising and husbandry.	Final test, short written test.	Wet_WSK_11
3	Knows and understands the assumptions of animal pairing, methods of fertilization, reproduction biotechnology, as well as breeding selection.	Final test, short written test.	Wet_WSK_12
<i>Skills</i>			
1	Uses the collected information associated with the health and welfare of animals, and in selected cases also with productivity of the herd.	Current effects assessed during classes.	Wet_USK_21
2			
3			
<i>Social competences</i>			
1	Exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment.	Observation of student attitude during classes.	Wet_KS_01
2	Deepens his/her knowledge and improves skills.	Observation of student attitude during classes.	Wet_KS_07
3			
Literature (max. 8, including Youtube presentations, etc.)			

<p>- compulsory:</p> <ol style="list-style-type: none"> 1. Sasimowski E. (1987). Animal breeding and production: an outline. Wyd. Warszawa: Polish Scientific Publication. 2. Dobrowolska D., Lach H., Pilawski J. (2006). Current research on pig breeding and production. Wyd. Kraków: National Research Institute of Animal Production. 3. Marek RE. (2011). Dairy Cows: Nutrition, Fertility and Milk Production. Wyd. Nova Science Publishers. 4. Drake DJ. (2004). Understanding and improving beef cattle carcass quality. Wyd. ANR Publications. 5. Appleby MC., Mench JA., Hughes BO. (2004). Poultry behaviour and welfare. Wyd. Wallingford: CABI Publishing. 6. Warren Evans J. (1989). Horses: a guide to selection, care, and enjoyment. Wyd. New York: W. H. Freeman. 7. Thear K. (2002). Free-range poultry. Wyd. Stowmarket: Whittet Books. 8. Mills O. (1989). Practical sheep dairying: the care and milking of the dairy ewe. Wyd. Wellingborough: Thorsons. 	
<p>Total grade components</p>	<p><i>Grade obtained at classes (50%) + rating from final exam (50%)</i></p>
<p>Comments:</p>	<p>The prerequisites to obtain an average of 3.0 in all established learning outcomes. Completion of the tutorials is based on the average assessment form 5. modules (husbandry and breeding of: cattle, horses, sheep, swine and poultry). Each module ends with a written check. Student is obliged to complete positive grades from 5 modules. Only student who has completed the tutorials and obtained required attendance at lectures can proceed an exam. Presence on the tutorials is mandatory. Any absence must be excused and the student is obliged to complete knowledge from missed tutorials. In case of 3. unexcused absences on tutorials and/or 5. unexcused absences during lectures the student does not receive complete the course.</p>

List of subjects and exercises for the course/module

Titles of lectures (15 lectures x 1h):

1. Economical importance and current situation of livestock farming in Poland. Breeding and husbandry terminology. Current situation and perspective for animal breeding of livestock in Poland and the world. Most important conditions of livestock farming in Poland and EU. Breeding and

husbandry terminology. Legal and organizational requirements for cattle. Cattle breeders associations and institutions pro milk and beef producers.

2. Dairy cattle breeds. Characteristics of utility types of cattle considering type and constitution evaluation. Characteristics of dairy cattle in Poland considering their utility and genetic value. Basic definitions in cattle breeding. Characteristics of important methods of cattle genetic amelioration. Important consequences of chosen selection and crossing methods used in cattle breeding.

3. Housing and feeding systems for cattle. Cross compliance in dairy cattle husbandry. Characteristics of housing and feeding systems for cattle. Different types of buildings and facilities in cattle farm. Stall types for cattle. Legal requirements and cross compliance connected with animal welfare and husbandry (dairy cows, heifers, calves).

4. Dairy utility of cattle. Technology, hygiene and conditions of milk production. Basic information of milk production: milk secretion, milking, drying off. Hygienic conditions of milking and stocking on the farm. Technological and hygienic basic standards in milking parlour. Modern technologies of milking in different types of buildings for cattle. Rules for using milking robots.

5. Reproduction performance of a cattle herd. Basic definitions in cattle reproduction. Reproduction methods. Production and reproduction of dairy cows. Reproduction methods in dairy herds. Organization of reproduction of dairy cattle at the farm. Inseminator's obligations. Basic breeding documentation at a dairy farm. Organization of reproduction of beef cattle herds.

6. Beef cattle breeds. Technology of beef cattle production. Characteristics of beef cattle breeds. Characteristics of factors affecting beef production. Factors affecting economical performance of beef cattle. Organization of beef cattle production at farm. Methods of starting and utility of beef cattle herds. Methods of fattening and feeding of beef cattle.

7. Sheep and goats breeding and husbandry in Poland. Basic breeds and utility types of small ruminants. Current situation of small ruminants production in Poland: population size, herd size and number of genotypes in breeding programs. Basic utility types (wool, meat, dairy, persian lambskin) and their representative as local or global breeds.

8. Technologies of sheep production. Housing systems for small ruminants. Biological, environmental and technological basics of small ruminants housing and examples of local and global technological solutions related with different utility types of sheep and goats.

9. Species, breeds and lines of birds known as poultry, different types of poultry production. Short characteristics of breeds and lines of different species of poultry, different types of poultry production and their final products.

10. Organization of poultry breeding and production. Advantage of poultry production and its product (eggs and meat). Organization of poultry breeding and production, role and tasks at different levels of organization, advantages of poultry production, nutritional value of poultry products (meat, eggs).

11. Role of an egg in embryonic development and influence of microclimate conditions during egg incubation. Constitution, formation place and role of different egg parts in embryonic development. Role of different parameters (temperature, humidity, changes of eggs placement, cooling) in embryonic development incubators.

12. Breeds and utility types of pigs in Poland. Important breeds of pigs in Poland considering their importance in breeding programs and characteristics of their performance. Levels of breeding and husbandry with differentiation to pedigree and fattening crossbreeds. Systems of farrowing and nursery considering future reproduction. Structure, missions and activities of Polish Association of Swine Breeders and Producers.

13. Performance evaluation and breeding value evaluation of pigs in Poland. Crossing breeds for fattening. Housing systems for pigs. Basic rules for swine performance evaluation on the basis of reproduction, fattening and slaughter performance. Methods of evaluation before and after slaughter to estimate fattening and slaughter value. Swine breeding value evaluation with use of BLUP method. Characteristics of genetic resources used in crossbreeding. Modern swine housing systems considering cross compliance.

14. Horse breeding and husbandry in Poland and the World. Breeding programs for horses in Poland. Current situation and perspectives for horses breeding in Poland. Polish horse breeds, Arabian horse and Thoroughbred breeding. Role of Polish Association of Horse Breeders in designing breeding

program for polish breeds and organization performance test. Genetic resources conservation programs in horse breeding.

15. Horse breeding value evaluation – performance tests. Selection methods in horse breeding. Meaning of performance tests in horse breeding. Racecourse, ridding and carriage performance test for breeds used in Poland. Specialized performance test. Assessment of utility value and estimation of breeding value. Legal conditions for organization of performance tests and licensing breeders of mares and stallions.

Titles of classes (15 classes x 2h, including one practical's in dairy farm and one practical's in shelter for birds):

1. Basics of breeding in a cattle herd. Performance evaluation and breeding value evaluation in cattle. Selection methods in cattle. Mating rules in cattle. Organization of cattle breeding in Poland. Evaluation and selection of bulls. Selection indices in dairy cattle. Functional traits selection indices in cattle. Selection indices in chosen countries. Breeding data in catalogues of bulls.

2. Breeding, organization and management in large-scale cattle farming. Composition and structure of a cattle herd. Criteria of distribution of animals inside the herd in large scale cattle farming. Work organization and herd management in large-scale cattle farming. Formation of technological groups in a cattle herd (feeding). Methods of calculating average size of technological groups. Cattle identification and registration system. Cattle breeds codes.

3. Breeding and husbandry conditions evaluation at the dairy farm. Dairy cattle evaluation linear method for breeding purposes. Mating. Checking the herd – critical points in cowshed. Evaluation of feeding, housing and milking systems. Breeder's activities in different sectors of a cattle farm. Housing systems and animal welfare evaluation in cowshed at the farm (stall dimensions) according to cross-compliance. Basic breeding documentation. Basic zootechnical treatments in a cattle herd.

4. Methods of raw milk production at a dairy farm. Basics of cattle feeding. Evaluation of cows relevance for parlour. Methods of milking in different types of buildings. Milking parlours characteristics. Quality requirements for raw milk. Rules for cows drying off. Analysis of genetic and environmental factors affecting milk yield and milk chemical composition. Characteristics of basic indices of feeding efficiency and milk production.

5. Organization of reproduction in a dairy cattle herd and rearing. Feeding evaluation for dairy cattle. Methods to recognize heat, pregnancy and imminent calving. Calculating basic reproduction indices in cattle. Efficiency of different reproduction methods in cattle. Breed books in cattle. Methods of rearing heifers for replacement. Consequences of feeding mistakes in dairy cattle which influence their health, production and reproduction performances.

6. Beef cattle performance evaluation. EUROP system. Analysis of genetic and environmental factors affecting beef production. Basic definitions in beef cattle. Choice of breeds for beef cattle breeding and beef production. Evaluation of relevance of animals for fattening. Technological scheme in young cattle fattening. Organization of cattle grazing. After slaughter evaluation of beef carcass with use of EUROP method.

7. Sheep and goats reproduction and rearing offspring. Basics of technology of sheep and goats housing. Maturing and reproduction of small ruminants, seasonal reproduction activity. Mating methods and reproduction organization. Periparturient period and rearing offspring systems. Basic feeding systems (indoor, pasture, mix). Knowledge needed to design technology of small ruminants production.

8. Performance evaluation of small ruminants. Zootechnical treatments in small ruminants herds. Wool performance and shearing, before and after slaughter meat performance evaluation, factors affecting milk yield and milk composition. Zootechnical treatments performed in herds of small ruminants: sheep identification, tail cutting, hooves correction and prevention of parasitic diseases.

9. Exterior characteristics of different species of poultry. Morphological traits indicating productiveness and health of poultry. Recognition of exterior traits characteristic for particular species of birds in relation to their living environment. Morphological traits indicating utility type, productivity, age and health of birds.

10. Characteristics of production indicators of different species and utility types of birds. Analysis of production rates of different species of poultry and utility lines on the basis of current data from breeding companies.

11. Artificial hatching. Factors affecting the ability of hatching. Biological analysis of hatching. Rules for artificial hatching of different species of poultry, factors affecting the ability of hatching (parents' stock maintenance, constitution and quality of eggs for hatching, collection, transportation, stocking of eggs, incubation technique), principles and elements of biological analysis of hatching.

12. Organization of breeding at a pedigree swine farm. Practical introduction to breeding methods in a pedigree swine farm, presentation of selection mechanisms used at a swine farm for young animals selection, breeding value estimation of young animals, organization of reproduction, marking and identification of swine. Basic documentation of breeding.

13. Organization (planning) of swine production in an industrial piggery. Classification of swine carcasses using EUROP method. Organization of swine production in an industrial piggery. Production schedule and herd management tables. Calculation of space requirements and number of pens. Feed management. Slurry and manure management. Types of fattening. Methods of estimation of fattening and slaughter value of pigs at a pedigree farm. Classification of swine carcass using EUROP method and impact of this method on swine production profitability.

14. Exterior evaluation and identification of horses. Reproduction of horses and rearing of foals. Importance of proper exterior in horse utility and point-scale estimation, identification of colour, type, marks, badges, parting and other identification methods. Assumptions in horse breeding, methods of mating and crossbreeding. Meaning of terms like: foundation stock, family, male line, female line in horse breeding including breeding for lines after a prominent ancestor. Consideration of inbreeding, importance of kinship. Legal regulations of reproduction of horses, terms of admission for reproduction, breeding documentation. Stages of rearing horses up to two years.

15. Horse utility types. Buildings and facilities for housing horses. Using ridding and carriage horses in sport and recreation. Slaughter utility of horses. Other forms of utility of horses. Methods and forms of housing of horses. Law regulations concerning animal welfare in facilities for horses. Organization of pastures, paddocks and stable equipment.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	50	2
Student's own work	50	2
Total hours/ECTS of student's workload	50	4

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>FodderHyg
Course Title	Animal fodder hygiene
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	Semester V
ECTS / including contact hours	2/1,5
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15
	CLASSES - LAB. GROUP: 15
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP :0
Teacher responsible for the course	Piotr Sławuta
Language of instruction	ENGLISH*
Prerequisites	anatomy and physiology and biochemistry of the gastrointestinal tract of animals, physiology of digestion and absorption, elements of animal nutrition and feed science.
Short description of the course (max. 500 characters)	The course in Animal Feed Hygiene deals with the most common “feeding” reasons for diseases of farm and wild animals. In the course the natural noxious factors present in animal feeds are discussed – bacteria, viruses, fungi and their metabolites, as well as feeding mistakes constituting etiological factor of animal diseases – excess and deficiency of nutrients, feed incompatible with animal species, sex, age and physiological condition. The students also study Polish and European Union legally binding regulations about animal nutrition and methods of evaluation of fodder healthful properties.
Content of the course unit (detailed description)	<ol style="list-style-type: none"> 1) Feed hygiene in farm and domestic animals as a health factor in humans and animals. Fodder materials as entry pathways for pathogens to the digestive tract, the concept „ from field to table” 2) Application of genetically modified plants (GMO) in production of feeds and nutrition of

	<p>farm animals. Transgenic plants: transgenesis of 1st, 2nd and 3rd generation . Procedures and legal regulations allowing evaluation of risk of using feeds containing genetically modified material in Poland, other countries in the European Union and the world</p> <p>3) Mycotoxins in animal feeds. Mould fungi metabolites as undesirable substances. Safety of food and fodders</p> <p>4) Specificity of cattle nutrition. The physical and physiological development of the digestive tract in calves – effect of fodder on development of the mucosa in the rumen and distal digestive tract parts.</p> <p>5) Cattle diseases caused by feeding mistakes. Definition of the disease caused by feeding factors, prevalence, significance, clinical signs, diagnostics, treatment, prevention.</p> <p>6) . Nutrition diseases in horses. Specific character of digestion and nutrition of horses. Frequency of feeding and volume of the stomach and caecum.</p> <p>7) Specific nutrition of pigs. The physical and physiological development of the digestive tract in pigs after birth- effect of fodder on the development of the digestive tract</p> <p>8) Feeding mistakes as a cause of `exotic animals` diseases. The world trends in nutrition of wild animals in home conditions.</p> <p>9) Fodder as an etiological factor in animal diseases</p> <p>10) Feeding mistakes as an etiological factor in animal diseases</p>
--	---

Learning outcomes (max. 3)

<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
-------------------	-------------------------	------------------------------	---

Knowledge

1	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	CREDIT	Wet_ WO_03
2			
3			

Skills

1	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the	CREDIT	Wet_ UO_02
---	---	--------	-----------------------

	diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;		
2	plans the diagnostic procedure	CREDIT	Wet_UO_03
3			
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	CREDIT	Wet_KS_01
2	uses the objective sources of information	CREDIT	Wet_KS_04
3	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity;	CREDIT	Wet_KS_05
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional 1. Large Animal Internal Medicine. Bradford P. Smith red., Mosby - Year Book Inc., St Louis 2006			
Total grade components		<i>grade obtained at classes 80% + grade obtained at lectures 20 %</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Feed hygiene in farm and domestic animals as a health factor in humans and animals. Fodder materials as entry pathways for pathogens to the digestive tract, the concept „ from field to table”, 2. Legal basis for supervision of fodders and nutrition of animals in Poland and the Euorepean Union (legally binding regulations).
2. Basic legal terms (used in regulations of veterinary services) concerning fodders: feeds, fodder materials, fodder additives, premix, fodder mixes – mixtures, full portion fodder mixture, supplementary fodder mixture, dietary fodder mixture, feed quality, turnover, the grace period, undesirable substance, animals, farm animals, domestic animals.
3. Application of genetically modified plants (GMO) in production of feeds and nutrition of farm animals. Transgenic plants: transgenesis of 1st, 2nd and 3rd generation . Procedures and legal regulations allowing evaluation of risk of using feeds containing genetically modified material in Poland, other countries in the European Union and the world. Presentation of results obtained worldwide concerning the effect of consumed GMO on the body and muscular tissue of animals. Methods of GMO content examinations in fodders in Poland. Veterinary Inspectorate as the official control authority for GMO.
4. Mycotoxins in animal feeds. Mould fungi metabolites as undesirable substances. Safety of food and fodders. Mould fungi which constitute the main threat in Poland. Control of fodder toxicity; methods of detoxication, adsorbents – kinds of and methods of application. Mycotoxic poisoning with lupin.

5. Specificity of cattle nutrition. The physical and physiological development of the digestive tract in calves – effect of fodder on development of the mucosa in the rumen and distal digestive tract parts. Nutrition and mineral-vitamin requirements in milk cattle depending on the lactation phase: perinatal period, drying period, milking period, full lactation period
6. Cattle diseases caused by feeding mistakes. Definition of the disease caused by feeding factors, prevalence, significance, clinical signs, diagnostics, treatment, prevention. The skin diseases related to nutrition: acquired zinc deficiency – definition, causes, prevalence, clinical signs, prognosis, differential diagnosis, treatment, prevention. Diseases of the subcutaneous tissue related to nutrition deficiencies: mucous oedema related to iodine deficiency - definition, causes, prevalence, clinical signs, prognosis, therapy, prevention.
7. Cattle diseases caused by feeding mistakes: the heart diseases related to nutrition: the heart damage by calcium ions, cardiotoxic effect of products derived from cotton seeds (*Gossypol*): clinical signs, course of the disease, diagnosis, treatment, prevention. The vascular diseases related to nutrition: hypervitaminosis D: clinical signs, course of the disease, diagnosis, treatment, prevention.
8. Cattle diseases caused by feeding mistakes: Blood diseases caused by feeding mistakes: iron deficiency, cobalt deficiency, hypophosphoremia (beetroot leaves anaemia), anaemia related to consumption of cabbage, anaemia related to consumption of onion, poisoning with *Pteridium aquilinum* (L) Kuhn- clinical signs, course of the disease, diagnosis, treatment. Immunosuppression caused by mycotoxins – poisoning with trichocens: causes, prevalence, course of the disease, diagnosis, therapy, prevention.
9. Diseases of the respiratory system and eyes in cattle caused by feeding mistakes: iodine rhinitis; vitamin A deficiency: definition, causes, prevalence, diagnostics, pathogenesis, prognosis, treatment, prevention. The content of vitamin A and karoten in the blood and tissues in the case of suspected nutrition deficiencies. Hypersensitivity to soya protein. Multiorgan diseases related to nutrition.
10. Nutrition diseases in horses. Specific character of digestion and nutrition of horses. Frequency of feeding and volume of the stomach and caecum. The volume of the stomach and caecum as a factor in occurrence of colic diseases. Nutrition of pregnant and lactating mares. Necessity of monitoring Ca, P, Mg concentration in the serum of lactating mares. Specific nutrition and maintenance of older horses. Nutrition needs of an aging horse; caloric value and structure of the fodder, prevention of the gastric mucosa ulcerations and depositing of sand in the digestive tract.
11. Specific nutrition of pigs. The physical and physiological development of the digestive tract in pigs after birth- effect of fodder on the development of the digestive tract. The health status of the digestive tract – role of the intestines as a barrier against pathogens, colonization of the digestive tract with microorganisms, bacterial flora of the separate digestive tract segments in piglets.
12. Problems resulting from withdrawal of antibiotic growth stimulators in pigs nutrition. Phytogetic feeds supplements for piglets; mechanism of action: antioxidative and antibacterial activity, effect on consumption of fodder and functioning of the intestines, use of phytogetic additives as growth stimulators. Yeast preparations in pigs nutrition: effect on the digestion process and nonspecific immunity.
13. Feeding mistakes as a cause of exotic animals` diseases. The world trends in nutrition of wild animals in home conditions. Observation of feeding habits of tortoises as a prerequisite for their good health. The most common feeding mistakes in nutrition of tortoises and turtles and related diseases. Metabolic bone disease – MBD – the most common disease related to nutrition. Avitaminosis A, problem of overfeeding, fatty diarrhea.
14. Feeding mistakes as a cause of diseases affecting rabbits, guinea pigs, hamsters, chinchillas, dormice, ferrets. Observation of feeding habits as a prerequisite for maintaining good health. Milk substitute preparations – composition, administration.
15. Basic knowledge and notions (digestibility and energy of fodder) related to the need of domestic animals for nutrients (aminoacids, fats, saccharides). The effect of fodders on quality

of products of animal origin. Basic methods of fodder examination and health evaluation of volume and substantial fodders.

Titles of classes:

1. **Fodder as an etiological factor in animal diseases – Part I. Poisonous and noxious plants.** Students get to know poisonous and noxious plants growing on pastures in Poland – the plants are shown and discussed during classes. The clinical signs of different plants poisoning and basic treatment are discussed. Students are also given access to materials about poisonous (decorative) plants poisonings in companion animals. **Practical part: examination of hay according to legally binding regulations and norms**
2. Fodder as an etiological factor in animal diseases – Part II. Fodders spoiled by bacteria, the most common bacteria in fodders - fodders as a source of contagious diseases. Pathogenic epiphytes present in the soil and on plants are discussed, as well as conditions in which their number grows – humidity, temperature of storage, etc. Conditions on which sick plants can be used for feeding animals. **Practical part: examination of bulb and root plants.**
3. **Fodder as an etiological factor in animal diseases – Part III.** Fodders spoiled by fungi. The mould fungi, most common in fodders, and their metabolites - mycotoxins are discussed. Students become familiar with the most important mycotoxicoses in cattle, pigs and poultry. The conditions of development and pathogenicity of aflatoxin, fumonisins, zearalenone, ochratoxins, and prophylaxis of mycotoxicoses are discussed in a detailed way, as well as principles of fodder quality evaluation in relation to mould fungi and collection of samples for examination. . Students are also given access to materials about poisonings with mycotoxins in companion animals.
4. Feeding mistakes as an etiological factor in animal diseases – Part I. Diseases of calves and cows in the prenatal period caused by feeding mistakes. The basic rules of hygiene related to feeding calves and proper temperature of liquid fodders are discussed. The protocol of introducing solid fodder, amount of its contents (hay, silage, carrot, greens) and its effect on development of the digestive tract, as well as effect of excessive feeding of heifers on their later health condition are discussed. **Practical part: examination and evaluation of silages according to the legally binding regulations and norms.**
5. Feeding mistakes as an etiological factor in animal diseases – Part II. Cattle disease caused by feeding mistakes. Calcium and phosphorus balance, homeostasis and disturbances are discussed – rickets, osteomalacia, - diagnostics, prevention, therapy. The problem of calcium and phosphorus supply in the prenatal period in milk cows and prevention of birth palsy are discussed in a detailed way. Students also learn about magnesium balance disturbances – pasture tetany, causes, laboratory diagnostics and prevention
6. Feeding mistakes as an etiological factor in animal diseases – Part III. Pigs diseases caused by feeding mistakes. Problems of energy deficiency, hypoglycaemia and anaemia in piglets are discussed. Other topics include diseases of the digestive tract related to a change of fodder in the weaning time and acidification of fodder, mechanism of action and application of probiotics, prebiotics and synbiotics in pigs, occurrence, diagnostics and therapy of stomach ulcers in pigs.
7. Skin diseases related to nutrition in goats, sheep and pigs: zinc-dependant dermatitis, vitamin E, A, biotin, niacin, pantothenic acid, riboflavin, selenium, iodine, sulphur and cobalt deficiencies. Discussion of particular disease units caused by mineral-vitamin deficiencies in individual farm animal species ; characteristics, clinical signs, treatment. The demand of farm

animals for water , requirements concerning water for farm animals. Practical part: examination of water.

Allocation of ECTS for the course/module

Course title: Animal fodder hygiene

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	41	2
Student's own work	10	0,5
Total hours/ECTS of student's workload	41	2

Hours:

1. Lectures: 15
2. Laboratory : 15
3. Clinical classes **:0
4. Auditorium / seminar **:0
5. Internship classes **:0
6. Practice **:0
7. Others with the teacher: 1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Hygiene
Course Title	Animal hygiene
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	3
ECTS / including contact hours	2
Form of instruction (lectures, classes,	LECTURES: 15

seminar, other) -Number of teaching hours	CLASSES - LAB. GROUP: 15		
	CLASSES - CLIN. GROUP: 0		
	CLASSES - AUD. GROUP: 0		
Teacher responsible for the course	Przemysław Cwynar, DVM, PhD.		
Language of instruction	ENGLISH		
Prerequisites	Animal anatomy, biochemistry		
Short description of the course (max. 500 characters)	Knowledge about the environment and living conditions of farm animals. It focuses on shaping abiotic, biotic and phagic environmental factors to protect animal health and welfare.		
Content of the course unit (detailed description)	Impact of microclimatic conditions (UV radiation, lighting, air temperature and humidity, air movement, gas mixtures, dustiness, noise) on the health and productivity of animals. Methods for optimizing environmental conditions in animal buildings (ventilation, heat balance in livestock buildings, heat protection and functionality of animal beddings). Livestock keeping systems taking into account aspects of welfare, biosecurity, hygiene and environmental protection. Principles of Good Breeding Practice in animal production. Animal transport.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows and interprets the conditions of hygiene and technology of animal production;	credit	Wet_WSK_20
2	describes the principles of ensuring animal welfare;	credit	Wet_WSK_10
<i>Skills</i>			
1	uses the collected information associated with the health and welfare of animals, and in selected cases also with productivity of the herd;	Credit / report from fieldwork	Wet_USK_21
<i>Social competences</i>			
1	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity;	Credit / report from fieldwork	Wet_KS_05
2	cooperates with representatives of other professions in the scope of public health protection;	Credit / report from fieldwork	Wet_KS_10
Literature (max. 8, including Youtube presentations, etc.) - compulsory			

<ol style="list-style-type: none"> 1. Aland A., Banhazi T., Livestock housing. Modern management to ensure optimal health and welfare of farm animals. Wageningen Academic Publishers 2013, https://doi.org/10.3920/978-90-8686-771-4 2. Sossidou E., Szucs E. Farm animal welfare, environment & food quality interaction studies. Wyd. Welfood Partners, 2007. <p>- complementary/optional</p> <ol style="list-style-type: none"> 1. Tymczyna L., Chmielowiec – Korzeniowska A. Higiena Środowiska zwierząt hodowlanych. Wyd. AR Lublin, 2003. 2. Kołacz R., Dobrzański Z. Higiena i dobrostan zwierząt gospodarskich. Wyd. AR Wrocław, 2006. 3. Instrukcja Głównego Lekarza Weterynarii, Nr GIWpr. 02010-1/2015 z dnia 11 lutego 2015 r. w sprawie postępowania powiatowych lekarzy weterynarii przy przeprowadzaniu kontroli gospodarstw utrzymujących zwierzęta pod względem dobrostanu zwierząt oraz raportowania o przeprowadzonych kontrolach gospodarstw utrzymujących zwierzęta pod względem dobrostanu zwierząt z elementami zwalczania chorób zakaźnych. https://www.wetgiw.gov.pl/publikacje/ochrona-zwierzat-dobrostan 	
Total grade components	grade obtained at classes (50%) + grade obtained at lectures (50%)
Comments:	None

List of subjects and exercises for the course/module

Titles of lectures:

Lecture 1 (2h): Introduction to animal hygiene and its role in veterinary sciences. The importance of zoohygiene and animal welfare in the protection of animal and public health.

Lecture 2 (2h): The importance of welfare in animal husbandry and breeding. Criteria and valuation of animal welfare.

Lecture 3 (2h): Impact of microclimatic factors on farm animals, with particular emphasis on lighting and thermo-humidity parameters.

Lecture 4 (2h): Livestock systems and technological and functional conditions in livestock buildings. Ventilation in livestock buildings (ventilation, noise, sewerage, floors).

Lecture 5 (2h): Disinfection, disinsection and deratization and their role in ensuring animal hygiene and welfare.

Lecture 6 (2h): Biosecurity of farms. Methods for effective protection of livestock herds against infectious agents.

Lecture 7 (2h): Legal basics of animal transport in Poland and European Union member states.

Lecture 8 (1h): Summary of living conditions for selected farm animal species.

Titles of classes:

Classes 1 (2h): Infrared and ultraviolet radiation (actinometry, radiometry, UV, infrared radiation). UV fractions, their measurement and calculation of the UV-C disinfection potential.

Classes 2 (2h): Visible light and its role in the prevention and breeding of farm animals. Visible light measurements and calculations of illuminance for chosen species of farm animals.

Classes 3 (2h): Thermometry and heat indifference zone. Temperature measurement methods using the minimum and maximum thermomentres, pyrometers and thermographic cameras. Calculation of thermo-humidity index (THI).

Classes 4 (2h): Psychrometry and hygrometry. Basic hygrometric indicators and thermal-humidity systems, humidity measurement.

Classes 5 (2h): Air movement. Anemometry and cataterometry. Measurement and calculation of air velocity, catatermometric cooling and thermal comfort.

Classes 6 (2h): Heat balance and heat protection in livestock buildings. Objectives and principles of calculating the index of thermal properties of rooms.

Classes 7 (3h): Practical methods of zoohygienic assessment of livestock buildings - SPIWET (field classes at RZD Swojec). Air pollution (mechanical, chemical and biological). Conimetry, gasometry, gas measurements i.e. ammonia, hydrogen sulfide, carbon dioxide. Olfaktometria.

Allocation of ECTS for the course/module

Course title: Animal hygiene

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	Lectures - 15h, Classes - 12h, Field classes - 3h, Completion of 1h	31
Student's own work	Preparation for exercises and tests	10
Total hours/ECTS of student's workload	The sum of the above	41

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **: 12
3. Clinical classes **: 0
4. Auditorium / seminar **: 0
5. Internship classes **: 0
6. Practice **: 0
7. Others with the teacher: field trip - 3

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Nutrition
Course Title	ANIMAL NUTRITION AND FEED QUALITY
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY / ELECTIVE
Semester of study	IV
ECTS / including contact hours	5/3
Form of instruction (lectures, classes, seminar, other) -Number of teaching	LECTURES 30
	CLASSES - LAB. GROUP: 45

hours		CLASSES - CLIN. GROUP: 0	
		CLASSES - AUD. GROUP: 0	
Teacher responsible for the course		ŚLUPCZYŃSKA MAJA	
Language of instruction		ENGLISH*	
Prerequisites		-	
Short description of the course (max. 500 characters)		<p><i>Students will be familiarized with the principles of determining the chemical composition of feed, the criteria for the division of feed materials, digestion processes, absorption and use of nutrients depending on the of the digestive tract anatomy. They will learn to balance diets and formulas of complete mixtures depending on the species and direction of use of livestock. They learn systems and techniques of animal nutrition. Students will be familiarized with metabolic disorders caused by dietary errors and methods of their prevention.</i></p>	
Content of the course unit (detailed description)		<p><i>The course includes the following training contents: chemical analysis of feeds and their composition; division of feed; methods of processing and preparation of feed; nutrients - their role, digestion in monogastric animals and ruminants; energy metabolism; protein sources and their metabolism in mono- and poligastric animals; non-protein nitrogen compounds; functions of minerals and vitamins - sources and symptoms of deficiency and toxicity; functioning of the digestive system of ruminants and non-ruminants; the need for nutrients of various animal utility groups; rules for the use of feed additives; etiology, diagnosis, treatment and prevention of metabolic disorders associated with nutritional errors.</i></p>	
Learning outcomes (max. 3)			
Nr No.	Subject-specific	Assessment method	Symbol of the learning effect for the field of study
<i>Knowledge</i>			
1	<p><i>The student knows the rules for sampling feed materials for analysis, can name and define individual feed fractions, as well as knows the basic methods for their determination. The student knows the principles of classification of feed materials and is able to characterize basic feeds in terms of their nutritional value, nutritional usefulness or the presence of anti-nutritional substances. The student knows the technologies of production, storage and refining of feed materials.</i></p>	<p><i>Written exam, colloquium (test, descriptive).</i></p>	<p><i>Wet_ WO_07 Wet_WSK_13</i></p>
2	<p><i>Student is able to describe the processes of digestion, absorption and utilization of basic nutrients, vitamins and minerals in monogastric and ruminating animals. Student is able to list and characterize metabolic disorders</i></p>	<p><i>Written exam</i></p>	<p><i>Wet_ WO_07 Wet_ WO_02 Wet_WSK_13</i></p>

	<i>resulting from nutritional errors – he/she knows their etiology and symptoms.</i>		
3	<i>The student knows and is able to define the basics of various nutritional evaluation systems and define and express the needs for maintenance and production of different species / utility groups of farm animals in units characteristic of specific nutritional recommendations.</i>	<i>Written exam, colloquium (test).</i>	<i>Wet_WO_07 Wet_WSK_13</i>
<i>Skills</i>			
1	<i>Student is able to interpret the results of chemical analyzes of feed materials and estimate their nutritional value and usefulness in animal nutrition.</i>	<i>Report on calculations and analyzes carried out</i>	<i>Wet_USK_21</i>
2	<i>The student is able to choose the appropriate feed for different species of animals knowing their characteristics and considering their impact on the physiology and economics of nutrition. He/ she can choose the right proper additives.</i>	<i>Project work.</i>	<i>Wet_USK_21</i>
3	<i>The student is able to balance nutritional diets and recipes of concentrate mixtures for various species of farm animals (ruminants and monogastric), taking into account the directions of animal production assumed.</i>	<i>Project work.</i>	<i>Wet_USK_21</i>
<i>Social competences</i>			
1	<i>The student is aware of the responsibility for decisions in the area of proper animal nutrition and the effects of dietary mistakes. The student understands the relationship between the quality of feed, the state of animal health and the quality of products of animal origin.</i>	<i>Discussion on the group forum, student's attitude towards the classes, direct observation</i>	<i>Wet_KS_01</i>
2	<i>The student is aware of the need to constantly deepen and update their knowledge in the field of animal nutrition physiology and feed science.</i>	<i>Discussion on the group forum, student's attitude towards the classes, direct observation</i>	<i>Wet_KS_07</i>
3	<i>The student is aware of the effects of the environmental burden associated with animal feeding - the production of greenhouse gases, the emission of unused metabolites - and strives, through appropriate nutritional measures to minimize them.</i>	<i>Discussion on the group forum, student's attitude towards the classes, direct observation</i>	<i>Wet_KS_01</i>
<p>Literature (max. 8, including Youtube presentations, etc.) - compulsory</p> <ol style="list-style-type: none"> 1. Animal Nutrition. Mc Donald P., Edwards R.A., Greenhalgh J.F., Morgan C.A.: (Ed), Longman Scientific and Technical, New York, 1955, 2002, 2010. 2. Ruminant Nutrition. Recommended allowances and feed tables. Ed. R. Jarrige. 3. Rational livestock nutrition in rural areas. Ed. Król B., Słupczyńska M. Wydawnictwo Uniwersytetu Przyrodniczego we Wrocławiu, Wrocław, 2016 4. Dynamics in animal nutrition. Jannaes Doppenberg, Piet van der Aar Ed. Wageningen Academic Publishers, The Netherlands. 2010. 			

- complementary/optional	
<ol style="list-style-type: none"> 1. Mineral nutrition of Livestock 4th edition. Neville Suttle. CABI nutrition 2010. 2. Nutrient Requirements of dairy cattle, 7th revised edition. NRC, National Academy Press, 2001 3. Nutrient Requirements of swine, 10th revised edition, NRC, National Academy Press. 1998 4. Nutrient Requirements of poultry 9th revised edition NRC, National Academy Press. 1994 	
Total grade components	<i>grade obtained at classes (40%) + grade obtained at lectures (exam) (60%)</i>
Comments:	-

List of subjects and exercises for the course/module

Titles of lectures:

1. Feeds and their ingredients. Rules for sampling various feed materials for analysis (sampling methods, labels, packaging, maintenance and transport methods). Classification of feed ingredients. Basic analysis and extended of feeds - presentation of analytical methods for the determination of basic nutrients.
2. Classification and nutritional importance of carbohydrates. Digestion, absorption and utilization of carbohydrates in monogastric animals and ruminants.
3. Classification and nutritional importance of proteins. Digestion, absorption and utilization of proteins in monogastric animals and ruminants. Other nitrogen compounds present in feed materials. Evaluation of the biological value of proteins, the concept of ideal protein and protected protein / amino acids.
4. Classification and nutritional importance of lipids. Digestion, absorption and utilization of lipids in monogastric animals and ruminants.
5. Classification and importance of minerals. Role, symptoms of deficiency and /or toxicity of individual macro- and micronutrients. Synergism and antagonism between individual mineral components. Bioavailability of minerals from feed materials and commercial mineral additives. Methods for determining animals requirement for minerals.
6. Classification and importance of vitamins. Role, symptoms of deficiency and/or toxicity of individual vitamins. Factors affecting the stability/activity of vitamins in feed components and mineral-vitamin mixtures. Absorption of vitamins from the gastrointestinal tract.
7. Mechanisms regulating the feed intake in animals (mechanical, physiological). Classification and nomenclature of feed materials. Nutritive value and nutritional importance of roughage.
8. Nutritional value and nutritional importance of concentrates. Feed additives - distribution, purpose of application, applicable legal regulations. Anti-nutritive substances in feed materials - occurrence, impact on the health and productivity of animals, methods of inactivation of the activity of anti-nutritional substances.
9. Feed preparation methods and their effect on the digestibility of nutrients. The method of feed preparation depending on the species of animals for which they are intended. Feed preservation methods.
10. Physiological fundamentals of dairy cattle nutrition - nutritive value of feed in dairy cow, feeding systems - nutrition techniques. Metabolic disorders resulting from incorrect feeding of dairy cows.
11. Feeding of fattening and breeding cattle. Feedstuffs used in fattening, physiological conditions of the fattening process, feeding systems for fattening.
12. Feeding the calves. Basics of physiological feeding of calves, development of the gastrointestinal tract, milk replacers, digestive and metabolic disorders in calves.
13. Physiological fundamentals of pigs feeding: sows, piglets and weaners, pigs for fattening. Demand of individual groups for nutrients. Pig feeding systems, swine feeding diseases - causes, symptoms and prevention.

14. Physiological fundamentals of poultry nutrition: specification of the keeping and feeding of laying hens (composition of eggs, influence of feeding on laying and nutritional methods of modifying the composition of eggs); feeding of chickens for slaughter - the demand for energy and nutrients, methods for improving the use of feed, the use of feed additives. Diseases of laying hens and broiler chickens conditioned on nutrition.
15. Hygiene and safety of feed production. Ways of modifying the chemical composition and quality of animal products on the nutritional way - functional foods.

Titles of classes:

1. Calculation of the content of individual nutrients in fresh material and in dry matter based on the results of chemical analyzes. Interpretation of the results obtained.
2. Feed digestibility coefficients (apparent and real digestibility). Methodology for determination of digestibility: biological methods - in vivo (balance method, the difference technique, in sacco and in situ methods) and chemical methods. Calculation of apparent digestibility coefficients based on numerical data. Interpretation of the results obtained.
3. Metabolic balance - calculation of the production effect of feed on the basis of C and N balance. Assessment methods the biological value of feed protein. Calculation of the biological value of feed protein by chemical methods - Osera and Block-Mitchela method.
4. Principles of the use of non-protein (synthetic) nitrogen compounds in the feeding of ruminants. Calculation of the amount of the addition of various nitrogen sources from non-protein nitrogen compounds to feeds depending on the extent of the desired coverage of the needs in terms of the general protein. Interpretation of the results obtained.
5. Energy value meters for feed. Metabolism of energy in the body: from gross energy to net energy. Food/energy units used in various feeding systems of monogastric animals (European for poultry, pigs, horses) and energy value according to the NEL system - for ruminants. Calculation based on numerical data in accordance with the relevant mathematical formulas: net lactation energy values - for dairy cows; metabolic energy for pigs and energy digestible for horses.
6. Diet formulation for ruminants in the INRA system. Basic concepts: energy system - UFL and UFV, protein system (PDIA, PDIMN, PDIME, PDIN, PDIE), fill unit system, forage fill value, feed intake capacity).
7. Formulation of diet for fattening bull (selected breeds) in accordance with the recommendations of the INRA system - work with standards, determination of animal requirement, selection of feed materials, optimization of the feed ration (paper standards + computer program INRAtion).
8. Formulation of diet for breeding heifers (selected breeds) in accordance with the recommendations of the INRA system - work with standards, determination of animal requirement, selection of feed materials, optimization of the feed ration (paper standards + computer program INRAtion).
9. Normalization of diet for ruminating animals in the DLG system. Basic concepts related to the system: feeding standards for dairy cows, estimation of nutritional value of feeds, rules for determining the need for crude protein available in the small intestine and rules for calculating nCP values in feedingstuffs, energy demand (MJ-NEL). Calculation the diet for a dairy cow ("paper" standards + WinPasz computer program)
10. Dietary standards for pigs feeding. Principles of feeding pigs - fattening pigs.
11. Calculation of doses and recipes of complete mixtures for fattening pigs in individual phases of fattening ("paper" standards + WinPasz computer program).
12. The rules of feeding sows in different phases of the reproductive cycle.
13. Calculation of doses and recipes of complete mixtures for sows in individual phases of the cycle ("paper" standards + WinPasz computer program).
14. Feeding of gallinaceous poultry. Recommended shares of individual feed components due to the presence of "anti-nutritional" substances.
15. Calculation of the recipe for a complete mixture for poultry – broiler chickens and layers (WinPasz computer program).

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	76	3
Student's own work	50	2
Total hours/ECTS of student's workload	126	5

Hours:

1. Lectures: 30
2. Laboratory / **project** / language classes / sports classes **: 45
3. Clinical classes **: 0
4. Auditorium / seminar **: 0
5. Internship classes **: 0
6. Practice **: 0
7. Others with the teacher: 1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Physio1 MWW-AJ>Physio2
Course Title	Animal physiology I (S) Animal physiology II (S)
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	Year II/sem. 3 Year II/sem. 4
ECTS / including contact hours	9/6
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES
	CLASSES - LAB. GROUP:
	CLASSES - CLIN. GROUP:
	CLASSES - AUD. GROUP:
Teacher responsible for the course	Dr hab. Bożena Króliczewska, prof. nadzw.

Language of instruction		ENGLISH*	
Prerequisites		cell biology, chemistry, biophysics, normal anatomy, biochemistry, histology and embryology.	
Short description of the course (max. 500 characters)		The subject of animal physiology provides knowledge about the processes occurring in living organisms at the cellular and organ level and their regulation.	
Content of the course unit (detailed description)		Basic life processes of organisms as well as mechanisms of regulation and integration. Control systems and homeostasis. Processes of membrane transport. Neurophysiology: organization and role of nervous system structures in the transmission of information in the body. Excitability and excitable tissues. Electrophysiology. Reflex as a functional unit of the central nervous system. Recorders of the senses. Neurophysiological basis of animal behavior. Properties of striated and smooth muscles. Physiology of the circulatory system. Hemodynamics. Mechanical and electrical activity of the myocardium. Regulation of the heart and light vessels on the nervous and humoral pathways. Blood - the internal environment of the system. Functions and construction of the respiratory system. Mechanics and breathing control. Structure and functions of the digestive system of monogastric and polygastric animals. Functions of endocrine glands. Hormones. The physiology of the reproductive system of animals: estrous / reproductive cycle, pregnancy and childbirth. Renal physiology: anatomical structure and kidney function. The contribution of kidneys to the homeostasis of the body.	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Student knows to an extensive degree, describes in detail and explains the development, structure, functioning, behaviours and physiological mechanisms of animals in normal conditions.	Written Exam Written Credit	Wet_WO_02
2	Student knows describes in detail and explains the structure, activity and regulation mechanisms of organs and systems of the animal organism (respiratory, digestive, circulatory, excretory, nervous, reproductive, hormonal, immune system and skin), as well as their integration at the organism level)	Written Exam Written Credit	Wet_WSP_02
3	Student knows to an extensive degree and understands the principles of water and electrolyte metabolism, acid-base balance of animal organism, as well as the mechanism of system	Written Exam Written Credit	Wet_WSP_05

	homeostasis.		
<i>Skills</i>			
1	Student describes changes in functioning of the organism in the situation of homeostasis disorders;	Practical Laboratory Discussion	Wet_USP_04
2	Student defines physiological state as the animal's adaptation to the changing environmental factors	Practical Laboratory Discussion	Wet_USP_07
3	Student recognises (in the images from optical microscope) histological structures corresponding to organs, tissues and cells, and is able to formulate their description, interpret their structure and relations between their structure and activity, taking into account the animal species from which they originate.	Practical Laboratory Discussion	Wet_USP_08
<i>Social competences</i>			
1	Student formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity.	Working in group	Wet_KS_05
2	Student communicates with the co-workers and shares knowledge.	Working in group	Wet_KS_07
3	Student is ready to act in the conditions of uncertainty and stress.	Working in group	Wet_KS_09
Literature (max. 8, including Youtube presentations, etc.)			
Compulsory:			
<ol style="list-style-type: none"> 1. Cunningham's Textbook of Veterinary Physiology, Bradley G. Klein, Fifth Ed. Elsevier, 2013 2. Dukes' Physiology of Domestic Animals, 13th Edition. William O. Reece (Editor), Howard H. Erickson (Associate Editor), Jesse P. Goff (Associate Editor), Etsuro E. Uemura (Associate Editor), 2015 Wiley-Blackwell 3. Physiology of Domestic Animals - Oystein V. Sjaastad, Knut Hove, Olav Sand, Scandinavian Veterinary Press, 2010 4. Guyton and Hall Textbook of Medical Physiology, John E. Hall, 13th-Ed, Elsevier Books 2015. 			
<u>Complementary/optional:</u>			
<ol style="list-style-type: none"> 1. Eckert Animal Physiology by David Randall, Warren Burggren, Kathleen French 2. Anatomy and Physiology of Domestic Animals, 2nd Ed., R. Michael Akers, D. Michael Denbow, Wiley-Blackwel, 2013. 3. Schalm's Veterinary Hematology 6th Ed. by Douglas J. Weiss (Editor), K. Jane Wardrop, Wiley-Blackwell; 6 ed., 2010. 4. Sturkie's Avian Physiology, 6th Ed., 2014. 			
Total grade components		Two tests are obligatory for the student during the semester. Each test must be passed successfully. In addition, the student obtains grades from oral answers or short tests. The final exam in descriptive form (5 questions) lasts 90 minutes. If the exam is not passed on the first date, the student has the right to take it again on the retake date.	

	The total grade for the subject is 50% of the laboratory and 50% of the lecture grade.
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

Sem.3

Lecture 1-2: Biological definition of life, functional organization of living organisms, physiology of the cell

Lecture 3-4: Body compartments, homeostasis and principles of regulatory systems in the multicellular organisms

Lecture 5-6: Nervous system physiology 1 – General physiology of the nervous system

Lecture 7-8: Nervous system physiology 2 – Central nervous system physiology

Lecture 9-10: Nervous system physiology 3 – Sensory nervous system physiology

Lecture 11-12: Nervous system physiology 4 – Motor nervous system physiology

Lecture 13-14: Nervous system physiology 5 – Autonomic nervous system physiology

Lecture 15-16: Special senses physiology 1

Lecture 17-18: Special senses physiology 2

Lecture 19-20: Endocrine system physiology 1 – Endocrine system organisation, general aspects of endocrine system physiology, hypothalamus and pituitary gland

Lecture 21-22: Endocrine system physiology 2 – Thyroid gland and Adrenal cortex

Lecture 23-24: Endocrine system physiology 3 – Adrenal medulla, exocrine pancreas

Lecture 25-26: Cardiovascular system physiology 1 – General aspects of circulation

Lecture 27-28: Cardiovascular system physiology 2 – Neurohumoral regulation

Lecture 29-30: Cardiovascular system physiology 3 – Circulation in particular organ systems

Sem. 4

Lecture 31-32: Cardiovascular system physiology 4 – Heart physiology

Lecture 33-34: Respiratory system physiology 1 – Ventilation and gas exchange

Lecture 35-36: Respiratory system physiology 2 – Respiratory center and regulation of respiration, role of respiratory system in acid-base balance maintenance

Lecture 37-38: Reproductive system physiology 1 – Gonads as endocrine glands, reproductive physiology of non-pregnant female

Lecture 39-40: Reproductive tract physiology 2 - Pregnancy, parturition and lactation

Lecture 41-42: Reproductive system physiology 3 – reproductive physiology of male

Lecture 43-44: Thermoregulation

Lecture 45-46: Urinary system physiology 1 – General organisation of urinary system, kidney as an endocrine organ, nephron, glomerular filtration

Lecture 47-48: Urinary system physiology 2 – Reabsorption and secretion in the tubules of the nephron, production of final urine

Lecture 49-50: Urinary system physiology 3 - Role of the kidney in acid-base balance regulation and lower urinary tract physiology – storage and micturition

Lecture 51-52: Gastrointestinal tract physiology 1 – Motility of the gastrointestinal tract

Lecture 53-54: Gastrointestinal tract physiology 2 – Digestion and absorption in the GI tract

Lecture 55-56: Gastrointestinal tract physiology 3 – Ruminant digestive physiology

Lecture 57-58: Calcium-phosphorus homeostasis and absorption of microelements and vitamins

Lecture 59-60: Selected topics on birds physiology.

Titles of classes:

Sem. 3

- Laboratory 1. Physiological properties of striated and smooth muscles. Skeletal muscle twitch: recording the single muscle twitch, recording the incomplete tetanus and complete tetanus. Recording the smooth muscle twitch. Muscle contraction types: isotonic, isometric and auxotonic. Determination of absolute skeletal muscle strength.
- Laboratory 2. Resting and action potentials. Analysis of reflex arc. Examination of reflexes in human and animals. Stenson's experiment.
- Laboratory 3. Excitation and inhibition processes in Central Nervous System. Animal hypnosis. Experiment with strychnine. Skin receptors - examination.
- Laboratory 4. Physiological properties of cardiac muscle. Cardiogram. Effect of hormones, thermal factor and vagus nerve on heart rate. Blood flow in vessels. Localization of venous valves.
- Laboratory 5. Structure and function of cardiac conduction system. Cardiac cycle. Auscultation of heart sounds. Test pulse rate. Recording of pulse curve
- Laboratory 6. Test (lab. 1-5)
- Laboratory 7. Electrocardiography. Analysis of electrocardiograms. Activities of heart
- Laboratory 8. Measurement of blood pressure. Examination of the cardiovascular system: Nervous and humoral regulation of blood pressure. Analysis of blood pressure curve. Circulation blood.
- Laboratory 9. Spirometry. Recording of respiratory movements of chest. Mechanism of lung ventilation.
- Laboratory 10. Determination of respiratory rate before and after exercise. Mechanism of respiratory regulation. Examination of the respiratory system.
- Laboratory 11. Birds respiratory system – composition and function. Examination of metabolism in sheep – using calorimetry method
- Laboratory 12. Reproductive cycles. Pregnancy and parturition. Evaluation of canine vaginal cytology during the estrus cycle.
- Laboratory 13. Urine composition. Determining of physical properties of urine. Chemical properties of urine – evaluation using commercial test strips.
- Laboratory 14. Test (lab. 7-13)
- Laboratory 15. Protocols correction and final evaluation. Credit.

Sem. 4

- Laboratory 1. Functions and composition of blood. Methods of blood collection. Red blood cells of a mammal, bird and amphibian. Effect of osmotic pressure on red blood cells.
- Laboratory 2. Hemolysis of red blood cells. Determination of osmotic resistance of erythrocytes. Erythropoiesis.
- Laboratory 3. Construction of the hemocytometer. 3. Counting of erythrocytes using Thoma cell counting chamber.
- Laboratory 4. Leukopoiesis. Counting of leukocytes using Thoma cell counting chamber.
- Laboratory 5. Preparation and staining of peripheral blood smear. Identification of the leukocyte subpopulations in peripheral blood smear.
- Laboratory 6. Test (lab. 1-5)
- Laboratory 7. Determine the percentage of individual forms of leukocyte. Counting of absolute number of leukocyte subpopulations in whole blood using microscope.
- Laboratory 8. Determination of erythrocyte sedimentation rate. Blood clotting time by Vierordt's method. Blood of bleeding time. Effect of calcium ions on blood clotting.
- Laboratory 9. Blood types in humans and animals. Determination of hemoglobin by spectrophotometric method. Determination of hematocrit.
- Laboratory 10. Calculation of red blood cells indices: MCV, MHC, MCHC. Absorption spectra of hemoglobin and its derivatives. Teichmann crystals. Hemoglobin crystals.

- Laboratory 11. Basic processes in the rumen. Watching the protozoa in the rumen fluid. Counting of protozoa.
- Laboratory 12. Gastrointestinal motility: rumen, stomach, small and thick intestine.
- Laboratory 13. Composition and production of saliva and gastric juice. Examination of pepsin activity in different environmental condition.
- Laboratory 14. Test (lab. 7-13)
- Laboratory 15. Protocols correction and final evaluation. Credit.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	152	6
Student's own work	75	3
Total hours/ECTS of student's workload	227	9

Hours:

1. Lectures: 60
2. Laboratory / project / language classes / sports classes **: 90
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher: consultation hours:2

- choose the right one
- ** if applicable

Sylabus przedmiotu/modułu kształcenia

Kod przedmiotu	MWW-AJ>Physio1 MWW-AJ>Physio2
Nazwa przedmiotu	Fizjologia zwierząt I Fizjologia zwierząt II
Kierunek	WETERYNARIA
Poziom studiów	JEDNOLITE MAGISTERSKIE
Profil	OGÓLNOAKADEMICKI

Rodzaj przedmiotu	OBLIGATORYJNY/WYBIERALNY*		
Semestr studiów	Rok II/sem. 3 Rok II/sem. 4		
Punkty ECTS/ogólne/w tym z udziałem nauczyciela akademickiego	9/ 6		
Formy zajęć (wykłady/ćwiczenia/inne) - liczba godz.	WYKŁADY: 60		
	ĆW. LABORATORYJNE: 90		
	ĆW. KLINICZNE: 0		
	ĆW. AUDYTORYJNE: 0		
Odpowiedzialny/a za przedmiot	Dr hab. Króliczewska Bożena, prof. nadzw.		
Język	ANGIELSKI		
Wymagania wstępne	biologia komórki, chemia, biofizyka, anatomia prawidłowa, biochemia, histologia i embriologia.		
Skrócony opis przedmiotu (max. 500 znaków)	Przedmiot fizjologia zwierząt dostarcza wiedzy na temat procesów zachodzących w organizmach żywych na poziomie komórkowym i narządowym oraz ich regulacji.		
Treści kształcenia (szczegółowy opis przedmiotu)	Podstawowe procesy życiowe organizmów oraz mechanizmy regulacji i integracji. Układy kontroli i homeostaza. Procesy transportu błonowego. Neurofizjologia: organizacja i rola struktur układu nerwowego w przekazywaniu informacji w organizmie. Pobudliwość i tkanki pobudliwe. Elektrofizjologia. Odruch jako jednostka czynnościowa ośrodkowego układu nerwowego. Receptory zmysłów. Neurofizjologiczne podstawy zachowania się zwierząt Właściwości mięśni poprzecznie prążkowanych i gładkich. Fizjologia układu krążenia. Hemodynamika. Czynność mechaniczna i elektryczna mięśnia sercowego. Regulacja pracy serca i światła naczyń na drodze nerwowej i humoralnej. Krew – środowisko wewnętrzne ustroju. Czynności i budowa układu oddechowego. Mechanika i kontrola oddychania. Budowa i funkcje układu pokarmowego zwierząt monogastrycznych i poligastrycznych. Funkcje gruczołów wydzielania wewnętrznego. Hormony. Fizjologia układu rozrodczego zwierząt: ruja, cykl rujowy/płciowy, ciąża i poród. Fizjologia nerek: budowa anatomiczna i funkcje nerek. Udział nerek w homeostazie organizmu		
<i>Efekty kształcenia (max. po 3 efekty)</i>			
Nr	<i>Efekt przedmiotowy (opis)</i>	<i>Metoda oceny</i>	<i>Symbol efektu uczenia się dla kierunku studiów</i>
<i>Wiedza</i>			
1	Student zna w pogłębionym stopniu, szczegółowo opisuje i wyjaśnia rozwój, budowę,	Egzamin pisemny Zaliczenie pisemne.	Wet_ WO_02

	funkcjonowanie, zachowania i mechanizmy fizjologiczne zwierząt w warunkach prawidłowych.		
2	Student zna w pogłębionym stopniu, szczegółowo opisuje i wyjaśnia budowę, czynność i mechanizmy regulacji narządów i układów organizmu zwierzęcego (oddechowego, pokarmowego, krążenia, wydalniczego, nerwowego, rozrodczego, hormonalnego, immunologicznego i powłok skórnych) oraz ich integracji na poziomie organizmu.	Egzamin pisemny Zaliczenie pisemne.	Wet_WSP_02
3	Student zna w pogłębionym stopniu i rozumie zasady działania gospodarki wodno-elektrolitowej, równowagi kwasowo-zasadowej organizmu zwierzęcego oraz mechanizm działania homeostazy ustrojowej.	Egzamin pisemny Zaliczenie pisemne	Wet_WSP_05
Umiejętności			
1	Student opisuje zmiany funkcjonowania organizmu w sytuacji zaburzeń homeostazy.	Zajęcia praktyczne Dyskusja	Wet_USP_04
2	Student definiuje stan fizjologiczny jako adaptację zwierzęcia do zmieniających się czynników środowiska.	Zajęcia praktyczne Dyskusja	Wet_USP_07
3	Student rozpoznaje w obrazach z mikroskopu optycznego struktury histologiczne odpowiadające narzodom, tkankom i komórkom, dokonywać ich opisu, interpretować ich budowę oraz relacje między ich budową a czynnością, uwzględniając gatunek zwierzęcia, z którego pochodzą	Zajęcia praktyczne Dyskusja	Wet_USP_08
Kompetencje społeczne			
1	Student formułuje wnioski z własnych pomiarów lub obserwacji a także opinie dotyczące różnych aspektów działalności zawodowej.	Praca w grupie	Wet_KS_05
2	Student pogłębia wiedzę i doskonali umiejętności.	Praca w grupie	Wet_KS_07
3	Student jest gotów do działania w warunkach niepewności i stresu.	Praca w grupie	Wet_KS_09
Literatura (max. 8 pozycji, w tym strony www, prezentacje na youtube itp.): Obowiązkowa:			
<ol style="list-style-type: none"> 1. Cunningham's Textbook of Veterinary Physiology, Bradley G. Klein, Fifth Ed. Elsevier, 2013 2. Dukes' Physiology of Domestic Animals, 13th Edition. William O. Reece (Editor), Howard H. Erickson (Associate Editor), Jesse P. Goff (Associate Editor), Etsuro E. Uemura (Associate Editor), 2015 Wiley-Blackwell 3. Physiology of Domestic Animals - Oystein V. Sjaastad, Knut Hove, Olav Sand, Scandinavian Veterinary Press, 2010 4. Guyton and Hall Textbook of Medical Physiology, John E. Hall, 13th-Ed, Elsevier Books 2015. 			
<u>Uzupełniająca:</u>			
1. Eckert Animal Physiology by David Randall , Warren			

Burggren , Kathleen French	
2.	Anatomy and Physiology of Domestic Animals, 2nd Ed., R. Michael Akers , D. Michael Denbow , Wiley-Blackwell, 2013.
3.	Schalm's Veterinary Hematology 6th Ed. by Douglas J. Weiss (Editor), K. Jane Wardrop , Wiley-Blackwell; 6 ed., 2010.
4.	Sturkie's Avian Physiology, 6th Ed., 2014.
Sposób ustalania oceny łącznej z przedmiotu	Studenta obowiązują dwa kolokwia w trakcie semestru. Każde kolokwium musi być zaliczone pozytywnie. Dodatkowo student uzyskuje oceny z odpowiedzi ustnych lub krótkich sprawdzianów. Egzamin końcowy w formie opisowej (5 pytań) trwa 90 min. Jeśli egzamin nie zostanie zliczony w pierwszym terminie student ma prawo ponownie go zdawać w terminie poprawkowym. Ocena łączna z przedmiotu stanowi 50% oceny z ćwiczeń i 50% oceny z wykładu.
Uwagi	

Wykaz tematów wykładów i ćwiczeń dla przedmiotu/modułu kształcenia

Tematyka wykładów:

Sem.3

Wykład 1-2: Biologiczna definicja życia, funkcjonalna organizacja żywych organizmów, fizjologia komórki.

Wykład 3-4: Przedziały ciała, homeostaza i zasady układów regulatorowych w organizmach wielokomórkowych.

Wykład 5-6: Fizjologia układu nerwowego 1 - Ogólna fizjologia układu nerwowego.

Wykład 7-8: Fizjologia układu nerwowego 2 - Fizjologia ośrodkowego układu nerwowego.

Wykład 9-10: Fizjologia układu nerwowego 3 - Fizjologia czuciowego układu nerwowego.

Wykład 11-12: Fizjologia układu nerwowego 4 - Fizjologia motorycznego układu nerwowego.

Wykład 13-14: Fizjologia układu nerwowego 5 - Fizjologia autonomicznego układu nerwowego.

Wykład 15-16: Fizjologia zmysłów specjalnych cz. 1

Wykład 17-18: Fizjologia zmysłów specjalnych cz. 2

Wykład 19-20: Fizjologia układu hormonalnego 1 - Organizacja układu hormonalnego, ogólne aspekty fizjologii układu hormonalnego, podwzgórze i przysadka mózgowa.

Wykład 21-22: Fizjologia układu hormonalnego 2 - tarczyca i kora nadnerczy.

Wykład 23-24: Fizjologia układu hormonalnego 3 - rdzeń nadnerczy, trzustka.

Wykład 25-26: Fizjologia układu sercowo-naczyniowego 1 - Ogólne aspekty krążenia.

Wykład 27-28: Fizjologia układu sercowo-naczyniowego 2 - Regulacja neurohumoralna.

Wykład 29-30: Fizjologia układu sercowo-naczyniowego 3 - Krążenie w poszczególnych narządach.

Sem. 4

Wykład 31-32: Fizjologia układu sercowo-naczyniowego 4 - Fizjologia serca.

Wykład 33-34: Fizjologia układu oddechowego 1 - Wentylacja i wymiana gazowa.

Wykład 35-36: Fizjologia układu oddechowego 2 - Ośrodek oddechowy i regulacja oddychania, rola układu oddechowego w utrzymaniu równowagi kwasowo-zasadowej

Wykład 37-38: Fizjologia układu rozrodczego 1 - Gonady jako gruczoły wydzielania wewnętrznego, fizjologia rozrodu samicy niebędącej w ciąży

Wykład 39-40: Fizjologia układu rozrodczego 2 - Ciąża, poród i laktacja

Wykład 41-42: Fizjologia układu rozrodczego 3 - fizjologia reprodukcyjna mężczyzn

Wykład 43-44: Termoregulacja

- Wykład 45-46: Fizjologia układu moczowego 1 - Ogólna organizacja układu moczowego, nerka jako narząd wydzielania wewnętrznego, nefron, filtracja kłębuszkowa
- Wykład 47-48: Fizjologia układu moczowego 2 - Reabsorpcja i wydzielanie w kanalikach nefronu, wytwarzanie końcowego moczu
- Wykład 49-50: Fizjologia układu moczowego 3 - Rola nerki w regulacji równowagi kwasowo-zasadowej i fizjologii dolnych dróg moczowych - magazynowanie i mikcji
- Wykład 51-52: Fizjologia przewodu żołądkowo-jelitowego 1 - Ruchliwość przewodu pokarmowego
- Wykład 53-54: Fizjologia przewodu pokarmowego 2 - Trawienie i wchłanianie w przewodzie pokarmowym
- Wykład 55-56: Fizjologia przewodu pokarmowego 3 - Fizjologia przewodu pokarmowego przeżuwczy
- Wykład 57-58: Homeostaza wapniowo-fosforowa i wchłanianie mikroelementów i witamin
- Wykład 59-60: Wybrane zagadnienia z fizjologii ptaków.

Tematyka ćwiczeń:

Sem. 3

- Ćwiczenie 1. Właściwości fizjologiczne mięśni poprzecznie prążkowanych i gładkich. Zapisywanie krzywej skurczu mięśnia poprzecznie prążkowanego szkieletowego: skurcz pojedynczy, skurcz tężcowy niepełny i pełny. Zapisywanie krzywej skurczu pojedynczego mięśnia gładkiego. Rodzaje skurczów mięśni: izotoniczny, izometryczny i auksotoniczny. Określenie siły bezwzględnej mięśni szkieletowych.
- Ćwiczenie 2. Potencjał spoczynowy i czynnościowy. Analiza łuku odruchowego. Badanie odruchów u ludzi i zwierząt. Doświadczenie Stensona.
- Ćwiczenie 3. Procesy pobudzenia i hamowania w ośrodkowym układzie nerwowym. Hipnoza zwierząt. Eksperyment ze strychniną. Receptory skóry - badanie.
- Ćwiczenie 4. Właściwości fizjologiczne mięśnia sercowego. Kardiogram. Wpływ hormonów, czynnika termicznego i nerwu błędnego na częstość akcji serca. Przepływ krwi w naczyniach. Lokalizacja zastawek żylnych.
- Ćwiczenie 5. Struktura i funkcja układu przewodzenia serca. Cykl pracy serca. Osłuchiwanie dźwięków serca. Testuj tętno. Rejestracja krzywej tętna
- Ćwiczenie 6. Test (ćwiczenia 1-5)
- Ćwiczenie 7. Elektrokardiografia. Analiza elektrokardiogramów. Czynności serca.
- Ćwiczenie 8. Pomiar ciśnienia krwi. Badanie układu sercowo-naczyniowego: Nerwowa i humoralna regulacja ciśnienia krwi. Analiza krzywej ciśnienia krwi. Krążenie krwi -film.
- Ćwiczenie 9. Spirometria. Rejestracja ruchów oddechowych klatki piersiowej. Mechanizm wentylacji płuc.
- Ćwiczenie 10. Oznaczanie częstości oddechów przed i po wysiłku. Mechanizm regulacji oddechowej. Badanie układu oddechowego - film.
- Ćwiczenie 11. Układ oddechowy ptaków - skład i funkcja. Badanie przemiany podstawowej metodą kalorymetryczną.
- Ćwiczenie 12. Cykle reprodukcyjne. Ciąża i poród. Ocena psiej cytologii pochwy podczas cyklu rui.
- Ćwiczenie 13. Skład moczu. Określanie właściwości fizycznych moczu. Właściwości chemiczne moczu - ocena przy użyciu komercyjnych pasków testowych.
- Ćwiczenie 14. Test (ćwiczenia 7-13)
- Ćwiczenie 15. Odrabianie i zaliczanie ćwiczeń.

Sem. 4

- Ćwiczenie 1. Funkcje i skład krwi. Metody pobierania krwi. Czerwone krwinki ssaka, ptaka i płaza. Wpływ ciśnienia osmotycznego na krwinki czerwone.
- Ćwiczenie 2. Hemoliza czerwonych krwinek. Oznaczanie odporności osmotycznej erytrocytów. Erytropoeza.
- Ćwiczenie 3. Budowa hemocytometru. 3. Liczenie erytrocytów za pomocą komory Thoma.
- Ćwiczenie 4. Leukopoeza. Liczenie leukocytów przy użyciu komory Thoma.

- Ćwiczenie 5. Przygotowanie i barwienie rozmazu krwi obwodowej. Identyfikacja subpopulacji leukocytów w rozmazie krwi obwodowej.
- Ćwiczenie 6. Test (ćwiczenia 1-5)
- Ćwiczenie 7. Określanie procentowej zawartości poszczególnych form leukocytów. Określanie bezwzględnej liczby subpopulacji leukocytów we krwi.
- Ćwiczenie 8. Oznaczanie szybkości sedymentacji erytrocytów. Czas krzepnięcia krwi metodą Vierordta. Czas krwawienia. Wpływ jonów wapnia na krzepnięcie krwi.
- Ćwiczenie 9. Grupy krwi u ludzi i zwierząt. Oznaczanie hemoglobiny metodą spektrofotometryczną. Oznaczanie hematokrytu.
- Ćwiczenie 10. Obliczanie wskaźników czerwonych krwinek: MCV, MHC, MCHC. Widmo absorpcyjne hemoglobiny i jej pochodnych. Kryształki Teichmanna. Kryształki hemoglobiny.
- Ćwiczenie 11. Podstawowe procesy w żwaczu. Obserwowanie pierwotniaków w płynie z żwacza. Liczenie pierwotniaków.
- Ćwiczenie 12. Motoryka przewodu pokarmowego: żwacz, żołądek, jelito cienkie i grube.
- Ćwiczenie 13. Skład i produkcja śliny i soku żołądkowego. Badanie aktywności pepsyny w różnych warunkach środowiskowych.
- Ćwiczenie 14. Test (ćwiczenia 7-13)
- Ćwiczenie 15. Odrabianie i zaliczanie ćwiczeń.

Kalkulacja punktów ECTS dla przedmiotu/modułu kształcenia

Przedmiot:

Forma aktywności	Średnia liczba godzin na realizację aktywności	Punkty ECTS
1. Godziny zajęć z nauczycielem (zajęcia, konsultacje, zaliczenie, egzamin)	152	6
2. Praca własna studenta	75	3
Suma (całkowity nakład pracy studenta)	227	9

Podział godzin:

- Wykłady: 60
- Ćwiczenia laboratoryjne/projektowe/lektoraty/sportowe**: 90
- Ćwiczenia kliniczne**: 0
- Ćwiczenia audytoryjne/seminaryjne**: 0
- Zajęcia stażowe**: 0
- Praktyki**: 0
- Inne z nauczycielem: konsultacje 2

*wybrać właściwe

** jeśli dotyczy

Course description - SYLLABUS

Code	MWW-AJ>InterAvian
Course Title	Avian diseases – Clinical internship
Subject area /Field of study	VETERINARY

Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY		
Semester of study	10		
ECTS / including contact hours	2/1,5		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 0		
	CLASSES - LAB. GROUP: 0		
	CLASSES - CLIN. GROUP: 40		
	CLASSES - AUD. GROUP:0		
Teacher responsible for the course			
Language of instruction	ENGLISH*		
Prerequisites	required passed exams: breeding and animal nutrition, biochemistry, microbiology, anatomy, pathology, pharmacology, parasitology, veterinary toxicology.		
Short description of the course (max. 500 characters)	The aim of the course is to provide students with basic knowledge on: modern technology breeding for different species of birds, clinical and post-mortem examination different species of birds, analyses and interpretations results of the tests		
Content of the course unit (detailed description)	Principles of breeding and poultry flock management. Hygiene and feeding of poultry. Pigeon and ornamental birds diseases. Health problems of wild birds. Selected aspects of the breeding pathology. diagnostics of poultry diseases. Necropsy of birds, sampling principles for laboratory tests and their interpretation.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Knows to an extensive degree and describes in detail the principles and mechanisms underlying poultry health, disease formation and their treatment - from the level of cells, through the organ, animal, to the entire birds population	Pass the subject, Oral answers	Wet_WO_01
2	specifies the principles of conducting clinical examination, in accordance with the plan of clinical examination, analysis of clinical symptoms and anatomopathological changes;	Pass the subject, Oral answers	Wet_WO_06
3	knows to an extensive degree and distinguishes the principles of poultry raising and husbandry, taking into	Pass the subject, Oral answers	Wet_WO_07

	account the principles of nutrition, principles of maintaining their welfare and principles of production economics;		
<i>Skills</i>			
1	Conducts clinical examination of the bird in accordance with the principles of medical art	Oral answers	Wet_UO_01
2	Analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Oral answers	Wet_UO_02
3	issues veterinary medical opinion and certificate;	Oral answers	Wet_UO_07
<i>Social competences</i>			
1	Exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Observation during the classes	Wet_KS_01
2	Has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions	Observation during the classes	Wet_KS_02
3	deepens his/her knowledge and improves skills	Observation during the classes	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional 1. <i>Carpenter i Marion Exotic Animals</i> Folmulary, Elsevier Books, 2017 2. <i>Patison: Poultry diseases, Elsevier Urban & Partner, 2011</i> 3. <i>Saif: Diseases of poultry, Iowa State Press, 2003 I 2013</i>			
Total grade components		<i>e.g. grade obtained at the exam – 70%, grade obtained at the classes – 30%</i>	
Comments:		A positive assessment of the exercises is a prerequisite for entering the exam	

List of subjects and exercises for the course/module

Titles of classes:

Diseases of pigeons

Diseases of ornamental birds

Diseases of poultry

Serological and microbiological diagnostics

Visits of the poultry farms \

Breeding of Poultry

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam		1,5
Student's own work		0,5
Total hours/ECTS of student's workload		2

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **: 41
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>AvianDiseas
Course Title	Avian diseases (S)
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME

Profile	ACADEMIC		
Type of course	OBLIGATORY		
Semester of study	9		
ECTS / including contact hours	5/3		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 40		
	CLASSES - LAB. GROUP: 16		
	CLASSES - CLIN. GROUP: 24		
	CLASSES - AUD. GROUP:		
Teacher responsible for the course	Alina Wieliczko		
Language of instruction	ENGLISH*		
Prerequisites	Obligatory course, required passed exams: breeding and animal nutrition, biochemistry, microbiology, anatomy, pathology, pharmacology, parasitology, veterinary toxicology.		
Short description of the course (max. 500 characters)	The aim of the course is to provide students with basic knowledge on: modern technology breeding for different species of birds, physiology and pathology, breeding, breeding period diseases, nutrient deficiency, environmental background, the background of metabolic disorders, as well as the etiology of parasitic, bacterial and viral diseases. In addition, the course program includes knowledge of the veterinary laboratory diagnostic, laws relating to the prevention and control of diseases, in particular diseases from the OIE list.		
Content of the course unit (detailed description)	Principles of breeding and poultry flock management. Hygiene and feeding of poultry. Bacterial diseases of poultry. Mycotoxicoses and fungal diseases of poultry. Viral diseases of poultry. Parasitic diseases of poultry. Pigeon and ornamental birds diseases. Health problems of wild birds. Selected aspects of the breeding pathology. Poisoning and malnutrition diseases, metabolic diseases of unknown etiology. Selected topics in immunology and immunoprophylaxis of birds. Clinical and post-mortem examination of birds. Laboratory diagnostics of poultry diseases. Necropsy of birds, sampling principles for laboratory tests and their interpretation.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Knows to an extensive degree and describes in detail the principles and mechanisms underlying poultry health, disease formation and their treatment - from the level of	Exam, tests	Wet_WO_01

	cells, through the organ, animal, to the entire birds population		
2	Explains and interprets the etiology, pathogenesis and clinical symptoms of poultry diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in birds;	Exam, tests	Wet_ WO_03
3	Specifies the principles of conducting clinical examination, in accordance with the plan of clinical examination, analysis of clinical symptoms and anatomopathological changes;	Exam, tests	Wet_ WO_06
<i>Skills</i>			
1	Conducts clinical examination of the bird in accordance with the principles of medical art	Observation the clinical examination made by student	Wet_ UO_01
2	Analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Student describes the lesions and the treatment on the necropsy protocols	Wet_ UO_02
3	plans the diagnostic procedure	Student prepares and refers the diagnostic schedule and treatment plan	Wet_ UO_03
<i>Social competences</i>			
1	Exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Observation during the classes	Wet_ KS_01
2	Has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions	Observation during the classes	Wet_ KS_02
3	deepens his/her knowledge and improves skills	Observation during the classes	Wet_ KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional 4. <i>Carpenter i Marion Exotic Animals Folmulary</i> , Elsevier Books, 2017 5. <i>Patison: Poultry diseases</i> , Elsevier Urban & Partner, 2011 6. <i>Saif: Diseases of poultry</i> , Iowa State Press, 2003 I 2013			

Total grade components	<i>e.g. grade obtained at the exam – 70%, grade obtained at the classes – 30%</i>
Comments:	A positive assessment of the exercises is a prerequisite for entering the exam

List of subjects and exercises for the course/module

Titles of lectures:

Management in poultry production
 Bacterial diseases of poultry
 Bacterial diseases of poultry
 Bacterial diseases of poultry
 Fungal diseases and mycotoxicosis
 Viral diseases of poultry
 Viral diseases of poultry
 Viral diseases of poultry
 Parasitic diseases of poultry
 Diseases of pigeons
 Diseases of pet birds
 Biosecurity of poultry farm
 Vaccine and vaccination in poultry
 Poisoning, metabolic diseases and diseases of unknown etiology

Titles of classes:

Anatomy and physiology of birds, necropsy of birds
 Bacterial diseases of poultry – fowl typhoid, pullorum disease, and paratyphoid infections
 Bacterial diseases of poultry – colibacillosis, ornithobacillosis and fowl cholera
 Bacterial diseases of poultry –mycoplasma, infection, mycoses and mycotoxicosis
 Viral diseases of hens and chickens
 Viral diseases of geese and ducks
 Necropsy of birds, rules of sampling for diagnostic tests
 Diagnostics of parasitic diseases
 Diagnostics and treatment of pet birds diseases
 Pathology in hatches
 Management of material for diagnostics tests

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
---------------------	--------------------------------------	-------------

Student's workload, including: teaching hours + tutorials + tests + exam		3
Student's own work		2
Total hours/ECTS of student's workload		5

Hours:

1. Lectures: 40
2. Laboratory / project / language classes / sports classes **: 16
3. Clinical classes **: 24
4. Auditorium / seminar **: 24
5. Internship classes **: 24
6. Practice **: 24
7. Others with the teacher: 24

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>BenefInsects
Course Title	Beneficial insects diseases
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	6
ECTS / including contact hours	2/1,5
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 10
	CLASSES - LAB. GROUP: 14
	CLASSES - CLIN. GROUP: 6
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	dr hab. Paweł Chorbiński, prof. nadzw. UP
Language of instruction	ENGLISH*
Prerequisites	zoology, veterinary bacteriology, virology, parasitology, epidemiology
Short description of the course (max. 500 characters)	The aim of teaching the subject is to provide students with basic knowledge about: ecology, anatomy, physiology and honey bee pathology. Issues related to prevention and disease prevention will be presented. They learn about the etiology, pathogenesis, treatment, and rules for

		the control of viral, bacterial, fungal and parasitic diseases, with a particular focus compulsorily notifiable diseases and reporting. Classes will also include practical work in an apiary, reviews of bee families and assessment of their health. They will also learn the basic principles of breeding, pathology and therapy of mulberry silkworm.	
Content of the course unit (detailed description)		In this course a overview of honeybee research with a focus on current topics of honeybee biology and diseases is presented. Lecture subjects include honeybee species and races, life cycle and behavior of worker bees, queen and drones; caste differentiation, diseases and parasites of bees, EU and Polish regulations for control of bee diseases, commercial methods for beekeeping and the basic information of the silk worm breeding and pathology	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, to the entire animal population;	colloquium (written) and questioning in class	Wet_WO_01
2	Explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring specifies the principles of conducting clinical examination, in accordance with the plan of clinical examination, analysis of clinical symptoms and anatomopathological changes;in animals;	colloquium (written) and questioning in class	Wet_WO_03
3	Specifies the principles of conducting clinical examination, in accordance with the plan of clinical examination, analysis of clinical symptoms and anatomopathological changes;	colloquium (written) and questioning in class	Wet_WO_06
<i>Skills</i>			
1	Conducts clinical examination of the animal in accordance with the principles of medical art;	Observation and evaluation of the clinical trial	Wet_uo_01

		conducted by the student	
2	Analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Descriptions and interpretation of anatomopathological changes along with diagnosis and proposed treatment	Wet_uo_02
3	Monitors health of the herd, as well as undertakes action in the case of a disease that is subject to the obligation of disease eradication or its registration;	Prepares and reports proceedings in the case of a disease subject to the obligation to eradicate	Wet_uo_04
<i>Social competences</i>			
1	Exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Observation while checking practical skill	Wet_UO_01
2	Has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	Observation while checking skills, answering in the discussion on veterinary medicine	Wet_UO_02
3	Uses the objective sources of information;	Polling in class	Wet_UO_04
<p>Literature (max. 8, including Youtube presentations, etc.)</p> <ul style="list-style-type: none"> - compulsory - complementary/optional <p>R.A. Morse, K. Flottum - Honey bee pests, predators, and diseases. Published by the A. I. Rootcompany, Medina, Ohio, USA, 1997.</p> <p>RH.A. Dade – Anatomy and dissection of the honeybee. IBRA, 1994.</p> <p>Miller F.P., Vandome A.F., McBrewster J. Diseases of the honey bee. Beau Bassin. Alphascript Publishing, 2011</p> <p>Cramp D. A practical manual of beekeeping : how to keep bees and develop your full potential as an apiarist. Oxford : Spring Hill, 2012</p> <p>https://coloss.org/core-projects/beebook/</p> <p>http://www.ask-force.org/web/Bees/Rosenkranz-Biology-Control-Varroa-2010.pdf</p> <p>http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/animal-diseases/bees/diagnosis-of-americal-foulbrood-disease-of-honey-bee-brood</p> <p>http://www.nationalbeeunit.com/public/beekeepingFaqs/europeanFoulbroodEfb.cfm</p>			
Total grade components		<i>exercise grade 90%, lecture grade 10%</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Systematic of bees. The honey bee species in Europe and in the world. The role of bees in environment.
Bee as a pollinator. Biology of honey bee and of colony of honey bees. Basic topic about the breeding of honey bee.
2. Biology of bees and bee family. Fundamentals of the economy apiary. Types of hives, beekeeping equipment. Types of apiary management
3. Honey bee immunology. Genetic and physiologic agents of honey bee resistance.
4. The role of epizootiology in honey bee diseases. Control of honey bee diseases. EU and Polish regulations for control of bee diseases. The general principle of treating an infected apiary.
5. The basic information of the silk worm breeding and pathology.
The conduct of the silk worm larvae rearing. Silk worm disease: white and green muscardine disease, Nosema disease, nuclear and cytoplasmatic polyhedrosis. Etiology, pathology, control of diseases.

Titles of classes:

1. Anatomy and physiology of bees, part. I. External anatomy. head, backs, abdomen, legs, wings, organs of the senses. Anatomy and physiology of bees part. II. Internal anatomy. the digestive system, nervous system, reproductive system. Basic physiology of bees. Preparation and observation of the anatomical detail. Dissection of honey bee.
2. Embryonic development of the bees. Nosema disease, amoeba disease, acariosis of bees. Etiology, pathogenesis, control, eradication and prevention.
3. Varroa disease. Viral diseases: APV, CPV, BQCV, CWV. Etiology, pathogenesis, control, eradication and prevention.
4. American foulbrood, European foulbrood, chalkbrood, sackbrood. Etiology, pathogenesis, control, eradication and prevention.
5. Training (practice) in apiary. Type of hives. Examination of hives. Receiving of honey bee and brood probes for laboratory tests. Part 1.
6. Training (practice) in apiary. Part 2

Allocation of ECTS for the course/module

Course title: Beneficial insects diseases

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	31	1,5
Student's own work	10	0,5
Total hours/ECTS of student's workload	41	2

Hours:

1. Lectures: 10
2. Laboratory / project / language classes / sports classes **: 14
3. Clinical classes **: 6
4. Auditorium / seminar **: 6
5. Internship classes **: 6
6. Practice **: 6
7. Others with the teacher: 6

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Biochem1 MWW-AJ>Biochem2
Course Title	BIOCHEMISTRY I BIOCHEMISTRY II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	Rok1/sem2 Rok2/sem1
ECTS / including contact hours	11/6
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 75
	CLASSES - LAB. GROUP: 75
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	UGORSKI MACIEJ
Language of instruction	ENGLISH*
Prerequisites	General and organic chemistry, biophysics
Short description of the course (max. 500 characters)	The course provides students with the knowledge on chemical structure and biological properties of proteins, nucleic acids, carbohydrates and lipids, basic metabolic pathways in animal cells, their energetics and regulatory mechanisms as well as basic information pathways and recombinant DNA technology. The course provides some practical training in basic laboratory procedures. After completing the course student acquires the knowledge and terminology necessary to understand biochemistry, molecular biology, physiology, genetics, microbiology, etc.
Content of the course unit (detailed description)	1. Amino acids, peptides and proteins (peptide bond and the primary structure of proteins, proteins' secondary, tertiary and quaternary structure, examples of fibrillar proteins, the relationship between structure and function, myoglobin - oxygen storage mechanism, structure of hemoglobin, mechanism of oxygen transfer of by hemoglobin, allostery and cooperation mechanisms, Bohr effect). 2. Nucleic acids (structure and nomenclature of nucleotides, structure of DNA and RNA, the genetic code and its

	<p>properties, DNA mutations – general knowledge, haemoglobinopathies).</p> <p>3. Biological membranes (structure and properties of the membrane lipids, structure and properties of the membrane proteins, glycoproteins, mosaic model of biological membranes, cell signaling; membrane signal transduction mechanism, membrane transport and its types, transporters, channels and membrane pumps).</p> <p>4. Enzymes (the definitions of the free energy and the activation energy, difference between the chemical catalysis and biocatalysis, general structure, classification and nomenclature of enzymes, small molecule cofactors of an enzyme activity, enzyme kinetics, regulatory mechanism of the enzyme action, the main types of enzyme inhibition).</p> <p>5. Bioenergetics (basic concepts and definitions, the “high energy” compounds, and other energy stores in the animal organism - chemical properties, distribution, functions and significance, the mitochondrial respiratory chain – its structural basis and its function, oxidative phosphorylation, Krebs cycle - the course, adjustable, meaning).</p> <p>6. The carbohydrate metabolism (structure, classification and properties of carbohydrates, glycolysis - meaning, mileage, regulation, the pyruvate metabolism, gluconeogenesis - meaning, mileage, regulation, the metabolism of glycogen - glycogenolysis course and glycogen synthesis, regulation of glycogenolysis and glycogen synthesis, protein kinases, lactose synthesis in mammary gland, and its catabolic pathway in animals and bacteria, the pentose-phosphate pathway - meaning, mileage, regulation, cellulose fermentation processes in animals).</p> <p>7. The lipid metabolism (catabolism of fatty acids/β-oxidation - meaning, mileage, regulation, ketone bodies - formation, importance, biosynthesis of fatty acids - meaning, mileage, regulation, fatty acid derivatives – eicosanoids, the synthesis and breakdown of triacylglycerols, the synthesis of complex lipids, phospholipases and biologically active derivatives of inositol, steroidogenesis - importance, mileage, regulation, transport of cholesterol and triglycerides, bile acids, steroid hormones, vitamin D – structure and biological role).</p> <p>8. The nitrogen compound metabolism (amino acid deamination reactions, oxidative deamination, urea cycle, catabolism of the amino acid carbon skeletons, the synthesis of nonessential amino acids, metabolism of one-carbon groups, amino acids as substrates for the synthesis of other physiologically important metabolites or hormones, porphyrin and heme metabolism, synthesis of purine nucleotides - adenylate, guanylate,</p>
--	--

	<p>synthesis of pyrimidine nucleotides - cytidylate, thymidylate and uridylylate, catabolism of purine and pyrimidine nucleotides).</p> <p>9. DNA replication (replicative fork - structure and function, DNA polymerases and other proteins comprising the replisome in Prokaryotes, DNA polymerases in Eukaryotes, types of mutations and their causes, mutagenesis and carcinogenesis, repairing systems of the DNA).</p> <p>10. RNA synthesis and post-translational processing (transcription in Prokaryotes, transcription in Eukaryotes, post-transcriptional RNA processing in Eukaryotes, alternative splicing and its significance, differences in transcription between Prokaryotes and Eukaryotes).</p> <p>11. Protein biosynthesis (structure and function of ribosomes and tRNA, synthesis of aminoacyl-tRNA, initiation of translation, elongation and termination of translation).</p> <p>12. Protein targeting and their catabolism (signal sequences present in various proteins, transport of membrane, secretory and lysosomal proteins, chaperones and their role).</p> <p>13. Regulation of gene expression in Prokaryotes and Eukaryotes (operon model of regulation of the gene expression, the <i>lac</i> operon as an example of the induced and negatively controlled operon, positive control by the catabolic repression - <i>ara</i> operon, negative control - <i>trp</i> operon, transcription attenuation, multi-level structure of chromatin, the gene regulatory sequences, transcription factors, combinatorial model of gene regulation, regulation of gene expression by steroid hormone).</p> <p>14. Gene rearrangements (homologous recombination, site specific recombination, rearrangements of genes for L and H chains of immunoglobulins, transposons).</p> <p>15. Recombinant DNA technology (tools in recombinant DNA technology, cloning using plasmid vectors, cDNA and genomic DNA libraries, expression vectors, recombinant proteins, DNA analysis by Southern and Northern blotting and restriction fragment length polymorphism (RFLP), DNA sequencing, polymerase chain reaction (PCR) and its use in the diagnostics, transgenic animals, somatic cloning, gene Therapy</p>		
Learning outcomes (max. 3)			
<i>Nr</i>	<i>Subject-specific</i>	<i>Assessment</i>	<i>Symbol of the</i>

<i>No.</i>		<i>method</i>	<i>learning effect for the field of study</i>
<i>Knowledge</i>			
1	characterises in detail the metabolic processes at the molecular, cellular, organ and system levels;		Wet_WSP_04
2	knows to an extensive degree and understands the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, herd of animals, to the entire animal population;		Wet_WSP_10
3	describes and characterises the principles and processes of inheritance, genetic disorders and the basics of genetic engineering;		Wet_WSP_14
<i>Skills</i>			
1	uses the basic laboratory techniques, such as: qualitative analysis, titration, colourimetry, pH-metry, chromatography and electrophoresis of proteins and nucleic acids		Wet_USP_02
2	calculates the molar and percentage concentrations of substances and compounds in isoosmotic solutions		Wet_USP_03
3	predicts the direction of biochemical processes, depending on the energy state of the cells		Wet_USP_05
<i>Social competences</i>			
1	uses the objective sources of information		Wet_KS_04
2	deepens his/her knowledge and improves skills;		Wet_KS_07
3	communicates with the co-workers and shares knowledge;		Wet_KS_08
Literature (max. 8, including Youtube presentations, etc.) - compulsory Biochemistry, 8th edition, 2015, Berg, Tymoczko, Gatto, Stryer, ISBN-13: 978-1-4641-2610-9 Harpers illustrated biochemistry, 2018, Rodwell, ISBN13 (EAN): 9781260288421 - complementary/optional Biochemistry (with clinical concepts and case studies), 4th edition, 2013 Dr. U. Satyanarayana, ISBN: 978-81-312-3601-7 Textbook of Biochemistry for Medical students, 7th edition, 2013, DM Vasudevan, Sreekumari S, Kannan Vaidyanathan ISBN 978-93-5090-530-2			
Total grade components		<i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i>	

Comments:	
-----------	--

List of subjects and exercises for the course/module

Titles of lectures:

1. Amino acids, peptides and proteins (peptide bond and the primary structure of proteins, proteins' secondary, tertiary and quaternary structure, examples of fibrillar proteins, the relationship between structure and function, myoglobin - oxygen storage mechanism, structure of hemoglobin, mechanism of oxygen transfer of by hemoglobin, allostery and cooperation mechanisms, Bohr effect).
2. Nucleic acids (structure and nomenclature of nucleotides, structure of DNA and RNA, the genetic code and its properties, DNA mutations – general knowledge, haemoglobinopathies).
3. Biological membranes (structure and properties of the membrane lipids, structure and properties of the membrane proteins, glycoproteins, mosaic model of biological membranes, cell signaling; membrane signal transduction mechanism, membrane transport and its types, transporters, channels and membrane pumps).
4. Enzymes (the definitions of the free energy and the activation energy, difference between the chemical catalysis and biocatalysis, general structure, classification and nomenclature of enzymes, small molecule cofactors of an enzyme activity, enzyme kinetics, regulatory mechanism of the enzyme action, the main types of enzyme inhibition).
5. Bioenergetics (basic concepts and definitions, the “high energy” compounds, and other energy stores in the animal organism - chemical properties, distribution, functions and significance, the mitochondrial respiratory chain – its structural basis and its function, oxidative phosphorylation, Krebs cycle - the course, adjustable, meaning).
6. The carbohydrate metabolism (structure, classification and properties of carbohydrates, glycolysis - meaning, mileage, regulation, the pyruvate metabolism, gluconeogenesis - meaning, mileage, regulation, the metabolism of glycogen - glycogenolysis course and glycogen synthesis, regulation of glycogenolysis and glycogen synthesis, protein kinases, lactose synthesis in mammary gland, and its catabolic pathway in animals and bacteria, the pentose-phosphate pathway - meaning, mileage, regulation, cellulose fermentation processes in animals).
7. The lipid metabolism (catabolism of fatty acids/ β -oxidation - meaning, mileage, regulation, ketone bodies - formation, importance, biosynthesis of fatty acids - meaning, mileage, regulation, fatty acid derivatives – eicosanoids, the synthesis and breakdown of triacylglycerols, the synthesis of complex lipids, phospholipases and biologically active derivatives of inositol, steroidogenesis - importance, mileage, regulation, transport of cholesterol and triglycerides, bile acids, steroid hormones, vitamin D – structure and biological role).
8. The nitrogen compound metabolism (amino acid deamination reactions, oxidative deamination, urea cycle, catabolism of the amino acid carbon skeletons, the synthesis of nonessential amino acids, metabolism of one-carbon groups, amino acids as substrates for the synthesis of other physiologically important metabolites or hormones, porphyrin and heme metabolism, synthesis of purine nucleotides - adenylate, guanylate, synthesis of pyrimidine nucleotides - cytydylate, thymidylate and urydylate, catabolism of purine and pyrimidine nucleotides).
9. DNA replication (replicative fork - structure and function, DNA polymerases and other proteins comprising the replisome in Prokaryotes, DNA polymerases in Eukaryotes, types of mutations and their causes, mutagenesis and carcinogenesis, repairing systems of the DNA).

10. RNA synthesis and post-translational processing (transcription in Prokaryotes, transcription in Eukaryotes, post-transcriptional RNA processing in Eukaryotes, alternative splicing and its significance, differences in transcription between Prokaryotes and Eukaryotes).
11. Protein biosynthesis (structure and function of ribosomes and tRNA, synthesis of aminoacyl-tRNA, initiation of translation, elongation and termination of translation).
12. Protein targeting and their catabolism (signal sequences present in various proteins, transport of membrane, secretory and lysosomal proteins, chaperones and their role).
13. Regulation of gene expression in Prokaryotes and Eukaryotes (operon model of regulation of the gene expression, the *lac* operon as an example of the induced and negatively controlled operon, positive control by the catabolic repression - *ara* operon, negative control - *trp* operon, transcription attenuation, multi-level structure of chromatin, the gene regulatory sequences, transcription factors, combinatorial model of gene regulation, regulation of gene expression by steroid hormone).
14. Gene rearrangements (homologous recombination, site specific recombination, rearrangements of genes for L and H chains of immunoglobulins, transposons).
15. Recombinant DNA technology (tools in recombinant DNA technology, cloning using plasmid vectors, cDNA and genomic DNA libraries, expression vectors, recombinant proteins, DNA analysis by Southern and Northern blotting and restriction fragment length polymorphism (RFLP), DNA sequencing, polymerase chain reaction (PCR) and its use in the diagnostics, transgenic animals, somatic cloning, gene Therapy)

Titles of classes:

1. Physical and chemical properties of proteins, useful in laboratory analyses. Colorimetric determination of protein content.
2. Separation techniques (gel filtration- determination of haemoglobin molecular weight, separation of proteins with use of ion exchange chromatography, protein electrophoresis).
3. Enzymology- practical use in veterinary medicine (Identification of the serum protein fraction, which contains trypsin inhibitor and α -glucosidase).
4. Carbohydrates- identification and determination of their concentration in solution (Identification of unknown carbohydrate in solution).
5. Classification of lipids, methods of detection and quantification (determination of cholesterol and triglycerides levels in blood serum).
6. Nucleic acids- isolation and methods of analysis (isolation of DNA and gel electrophoresis).
7. Restriction enzymes and their use in DNA recombination (digestion of DNA with restriction enzymes).
8. Immunological techniques in biochemistry (determination of bovine albumin levels with enzyme-linked immunosorbent assay (ELISA)).
9. Basic concepts in clinical biochemistry (analysis of selected urine and blood components).

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	153	6
Student's own work	110	5
Total hours/ECTS of student's workload	263	11

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Biophysics
Course Title	BIOPHYSICS
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	1
ECTS / including contact hours	3/2
Form of instruction (lectures, classes, seminar, other) -Number of teaching	LECTURES:15
	CLASSES - LAB. GROUP: 15

hours	CLASSES - CLIN. GROUP:		
	CLASSES - AUD. GROUP:		
Teacher responsible for the course	Dr hab Janusz Miśkiewicz		
Language of instruction	ENGLISH*		
Prerequisites	NONE		
Short description of the course (max. 500 characters)	Biophysics is a fundamental science that focuses on the properties of matter, laws and principles associated with the functioning of organisms. It explains the principles and methods used in medical diagnostics and therapy and determines the impact of physical factors, including those from the environment, on the body.		
Content of the course unit (detailed description)	Fundamentals of kinematics, dynamics and biomechanics. Forces acting on the skeleton. Oscillations and wave, diffraction, interference, Doppler effect. Effects of vibration, infra- and ultrasound on organisms. Sound and hearing. Detection of sound source by animals. Fundamentals of thermodynamics. Heat transport mechanisms - temperature control in solid heat animals. Elements of optics - right of reflection, refraction, polarization. Eye construction. Nuclear physics. Modern physical methods used in medical diagnostics and therapy, in particular with ionizing and non-ionizing radiation. Effects of physical agents on organisms.		
Learning outcomes (max. 3)			
No.	Subject-specific	Assessment method	Symbol of the learning effect for the field of study
Knowledge			
1	Learn the physical principles of organ and system function;	Written and oral exam, exam work	Wet_WSP_07 Wet_WSP_08
2	Acquire theoretical and practical knowledge of the effects of physical agents on organisms;	Written and oral exam, exam work	Wet_WSP_11
3	It learns the physical principles of the methods used in diagnostics and medical therapy.	Written and oral exam	Wet_WSP_12
Skills			
1	Is able to carry out physical measurements on its own, describing the characteristics of the biological system or relating to the course of a process;	Assesment of the laboratory	Wet_USP_02
2	Can determine the level of risk to the health of the organism, based on physical values describing the physical agents acting on the body;	Assesment of the laboratory, exam work	Wet_USP_02
3	Can determine the influence of external physical agents on the course of certain processes in the body.	Assesment of the laboratory, exam work	Wet_USP_01

Social competences			
1	Improves knowledge and skills of physics in relation to biological systems;	Written and oral exam	Wet_KS_04 Wet_KS_07
2	Is aware of the need for physical methods to be used in diagnostics and therapeutic of organisms	Written and oral exam, exam work	Wet_KS_04 Wet_KS_07
3	sees a need to protect the organism against harmful physical agents in the natural environment.	Written and oral exam	Wet_KS_04 Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory 1. M. Sternheim, J. Kane, General Physics, John Willey and Sons 1991 2. H. Young, R. Freedman, University physics with modern physics, 3. Description of the laboratory experiments available on the CKNO web pages. - complementary/optional 1. R. Hobbie, B. Roth, Intermediate Physics for Medicine and biology, Springer 2007 2. G. Benedek, F. Villars, Physics With Illustrative Examples From Medicine and Biology, Springer 2000			
Total grade components		grade obtained at classes (40%) + grade obtained at lectures (45%) + exam work (15%)	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

SUBJECT	HOURS
1. The biophysics subject. The course program and and requirements of passing the course. Form of the exam. Recommended literature. Mathematical foundation of biophysics. Definition and properties of vector quantities. Vector arithmetic – sum difference scalar and vector products.	1

<p>2. Introduction to the physical quantities and laws. Basic and derivative physical quantities. Vector and scalar intensive and extensive quantities, state function. Measurement of physical quantity. SI system.</p>	<p>1</p>
<p>3. Description of motion. Kinematics elements: velocity, acceleration, uniform motion, uniform acceleration. Application of kinematics to describe animal movement. The projection as a description of jumping animals.</p>	
<p>4. Force. Example of forces. Newton's principles of dynamics. Inertial and non-inertial system. Centrifugal force. The use of a centrifuge in laboratory tests. The functioning of organisms in conditions of weightlessness. The principle of momentum conservation.</p>	<p>1</p>
<p>5. Elements of animal statics. Center of gravity. Torque.. One-sided and two-sided lever. The skeleton as a leverage system. Mechanical advantage of the lever. Impact of living conditions on the anatomical structure of animals. Stability condition.</p>	<p>1</p>
<p>6. Determination of forces acting on selected skeleton elements on the example of the elbow and hip joints.</p>	<p>1</p>
<p>7. Oscillatory movement – characteristics, physical and biological examples – heartbeat and breathing. Simple (harmonic) oscillating motion: harmonic oscillators, motion equation, deflection as a function of time (formula, graph). Damped oscillations in the material medium and forced oscillations. The phenomenon of resonance in biological systems, its negative effect on organs.</p>	<p>1</p>
<p>8. Wave motion. Types of waves and their properties, equation of a harmonic wave. Longitudinal and transverse waves. Basic wave phenomenon: superposition, diffraction and interference.</p>	<p>1</p>
<p>9. Doppler effect. The application of the Doppler effect in the study of blood flow velocity. Acoustic waves (sounds) and their division; sounds heard by man and recorded by various animals. Speed of sound propagation in various media and tissues. Sound intensity. Ear. Sound source location methods. Sources of ultrasound and infrasound and their impact on animal organisms. The use of ultrasound in diagnostics (USG) and medical therapy (surgery using ultrasound) and technology (sonar).</p>	<p>1</p>

10. Polarization of the wave. Wave polarization methods. The use of polarization of waves by living organisms. Elements of geometrical optics – types of lenses and their parameters (refractive index, focus and focal length, radius of curvature and resolution). The construction of images in the focusing lenses and the characteristics of the resulting images. Lens equation. Construction, principle of operation and the use of a magnifying glass and microscope – magnification of images and the resolution of the microscope.	1
11. Eye biophysics. Mammal eye structure – sclera, choroid and retina functions. Retinal structure – photoreceptor and nerve cells (rods, cones and macula). Image construction in the eye - accommodative ability of the eye. Eyesight defects.	1
12. Heat transport in organisms. Heat, temperature, specific heat of bodies and heat capacity of thermodynamic systems. First principle of thermodynamics. Molecular mechanisms of heat transport: thermal conductivity – Fourier's law, convection, radiation – Stefan-Boltzmann and Wien law. Heat transport in organisms (convection and radiation) the importance of fur in animals and clothing in humans. Adaptation of animals to seasonal changes – examples.	1
13. The transport of real liquid through pipes of various cross-sections - flow resistance. Real liquid properties - viscosity, capillarity. Laminar flow of viscous liquid - Poiseuille's law - flow rate and resistance caused by conduits. The law of continuity of the stream. Biophysics of the mammalian circulatory system.	1
14. Elements of modern physics. Wave-particle duality. Photoelectric effect. Linear spectrum. De-Broglie waves – electron microscope. Natural and artificial radioactivity. Biological effects of radiation. Deterministic and stochastic effects.	1
15. Modern physics in diagnostics. X-rays, biological impact. Computer tomography. Properties of elementary particles – spin use for magnetic resonance imaging. Annihilation phenomenon as the basis of positron tomography.	1

Titles of classes:

TEMAT	LICZBA GODZIN
1. Introduction: division into teams and assigning exercises. Safety conditions. Laboratory regulations. Conditions for passing laboratory.	1
2. Hooke's law and measurement of Young's modulus. The aim of the exercise is to verify Hooke's law and measure the Young's modulus of steel wire. In addition to substantive issues during this exercise, important methodological goals are achieved: proper collection of measurements, paying attention to the correct set up of the measuring system, analysis of factors affecting the accuracy of measurements, construction of the results table, development of the chart.	2

<p>3. Liquid flow through horizontal pipes.</p> <p>The basic fluid dynamics laws are verified in the experiment: continuity law and Bernoulli's law. A narrowing horizontal pipe system is used for the measurements. During measurements, the fluid flow and static pressure drop in the constriction of the narrowing are tested.</p>	2
<p>4. Humidity measurement</p> <p>Using the psychrometric method and the dew point method, air humidity is determined.</p>	2
<p>5. Viscosity</p> <p>The exercise examines the properties of real liquid: water and highly viscous liquids. The viscosity coefficient of water is determined on the basis of Poiseuille's law measuring the flow rate of the water under the constant pressure. The measurement of the highly viscous liquid is done on the basis of Stoke's law measuring the velocity of the ball moving in the liquid.</p>	2
<p>6. Measurement of the bone elasticity coefficient</p> <p>The aim of the exercise is to study the elastic deformation of bones, subject to Hooke's law. The chicken bone placed on supports bends due to external forces. The deflection value is recorded with a micrometer sensor for various loads. Based on the results obtained, a graph is prepared, the deflection as a function of load, and then the bone elasticity factor is calculated.</p>	2
<p>7. Determination of blood flow through the hand.</p> <p>Using the principle of heat balance, the volume of blood that flows through the hand is determined in relation to the volume of blood flowing through the whole body in one minute – blood flow. The specified volume of the hand is immersed in a calorimeter with water for 30 minutes. Three bodies take part in the heat balance: heat is transmitted by blood flowing to the palm of the hand, while heat is absorbed by the hand, water in the calorimeter and the calorimeter by heating. During the exercise, the water temperature in the calorimeter is measured and the average temperature rise of the bodies receiving heat is determined.</p>	2
<p>8. Measurement of sugar concentration</p> <p>The use of polarization phenomenon to determine the sugar concentration in a solution. In the exercise with a saccharimeter, the phenomenon of the plane polarization of the solution by a biologically active substance is observed.</p>	2

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	30 lectures and laboratories 2 consultations 2 exam	2
Student's own work	25	1
Total hours/ECTS of student's workload	59	3

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Biostatistics
Course Title	Biostatistics and methods of data collection
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	1 (first)
ECTS / including contact hours	2
Form of instruction (lectures, classes, seminar, other) - Number of teaching hours	CLASSES - LAB. GROUP: 30
Teacher responsible for the course	dr hab. Heliodor Wierzbicki
Language of instruction	ENGLISH
Prerequisites	mathematics, computer science
Short description of the course (max. 500 characters)	The overall purpose of the course is to provide students with theoretical knowledge and practical skills (application of the SAS computer system to perform statistical analyses) concerning biostatistical methods used when collecting and describing a data set (descriptive statistics) and hypotheses testing (parametric and non-parametric tests). Moreover, correlation and linear regression as well as analysis of variance is taught.
Content of the course unit (detailed description)	methods of data collection; measures of central tendency; measures of variability; random variables and their distributions; types of hypotheses (null and alternative hypothesis); significance level; critical value; rejection region; type I and II errors, power of the statistical test; t-test (single sample; two independent samples; two paired samples); chi-square test (one-way classification, two-way classification); Pearson's correlation coefficient and simple linear

	regression; analysis of variance.		
Learning outcomes (max. 3)			
No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	A student presents the basic IT and biostatistic methods used in veterinary medicine.	Written test, final project	Wet_ WO_13
<i>Skills</i>			
1	A student performs basic statistical analysis and uses appropriate methods for presentation of the results.	Written test, final project	Wet_ UO_10
<i>Social competences</i>			
1	A student uses the objective sources of information.	Written test, final project	Wet_ KS_04
2	A student formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity.	Written test, final project	Wet_ KS_05
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional		<ol style="list-style-type: none"> 1. Beginning statistics v.1,0. Douglas S. Shafer, Zhiyi Zhang. https://2012books.lardbucket.org/pdfs/beginning-statistics.pdf 2. Basics of statistics. Jarkko Isotalo. http://www.mv.helsinki.fi/home/jmisotal/BoS.pdf 	
Total grade components		grade obtained at classes – written test (50%), final project presentation (50%)	
Comments:		-	

List of subjects and exercises for the course/module

Titles of classes:

1. Descriptive biostatistics (1) – basic definitions and concepts; measures of central tendency; measures of variability; random variables and their distributions; methods of data collection
2. Descriptive biostatistics (2) – basic definitions and concepts; measures of central tendency; measures of variability; random variables and their distributions; methods of data collection
3. The SAS computer system (Statistical Analysis System) – an introduction.
4. The SAS computer system – data management.
5. The SAS computer system – basic procedures (descriptive statistics).
6. Testing hypotheses (1) - basic definitions and concepts; types of hypotheses; significance level; critical value; rejection region; type I and II errors, power of the statistical test.
7. Testing hypotheses (2) – parametric tests; t-test (single sample; two independent samples; two paired samples).
8. Testing hypotheses (3) – non-parametric tests; chi-square test (one-way classification, two-way classification).
9. Correlation and linear regression.
10. Analysis of variance.

11. The SAS computer system - using the SAS system to test hypotheses – t-test; Duncan test; ch-square test.
12. The SAS computer system - using the SAS system to compute correlation coefficients and construct linear regression equation.
13. The SAS computer system - using the SAS system to perform analysis of variance.
14. Written test - using the SAS system for calculating descriptive statistics, hypotheses testing, computing correlation and regression and perform analysis of variance.
15. Final project presentation.

Allocation of ECTS for the course/module

Course title: Biostatistics and methods of data collection

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + test	32	1.5
Student's own work (final project)	10	0.5
Total hours/ECTS of student's workload	42	2

Course description - SYLLABUS

Code	MWW-AJ>Cellbiol
Course Title	Cell biology
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	1
ECTS / including contact hours	3
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15
	CLASSES - LAB. GROUP: 15
	CLASSES - CLIN. GROUP:
	CLASSES - AUD. GROUP:
Teacher responsible for the course	dr Piotr Kuropka
Language of instruction	ENGLISH*
Prerequisites	Knowledge of chemistry and biology at general secondary school level
Short description of the course (max. 500 characters)	The purpose of the course is to familiarize students with the latest ideas on the cell - its manifestations of life and the interaction of all intracellular structures. In addition, presenting the latest insights on how cells form tissues and how they can interact.

Content of the course unit (detailed description)	<p>Lectures</p> <p>Cell nucleus (structure, molecular basis for transcriptional activation of chromatin, gene structure, synthesis and maturation of mRNA and rRNA, DNA replication, genetic engineering) RNA (structure, membrane permeability, transport of ions and molecules, active transport, endocytosis and its types) The Golgi complex- formation, disappearance and role - protein biosynthesis - lysosomes and peroxisomes - signaling and signal transduction (membrane receptors - ionic channel receptors, G protein activator receptors, adenylate cyclic signaling, activation of membrane phospholipases and tyrosine kinesis, intracellular kinesis, regulation of receptor responses, cytoskeleton. Polarization and depolarization of cell membrane (nerve transmission, structure and function of synapses, role in the functioning of muscle cells. Cell differentiation (genomic immutability, determination, modulation, metaplasia, cell interactions in the differentiation process, regulation of the differentiation process) aging and death of cells changes in the nucleus, cytoplasm and cell membrane during aging; Necrosis and programmed cell death (apoptosis), duration, course and mechanism of programmed cell death (apoptosis).</p> <p>Laboratory</p> <p>Cell nucleus and nucleolus. Cell organelle. Structure and function of the endoplasmic reticulum, Golgi complex and lysosomes. The structure and function of Golgi's complex and lysosomes. Exocytosis, endocytosis, receptor endocytosis and transcytosis. Cytoskeletal and intercellular connections. Mitochondria - structure and functions. Cytophysiology of connective tissue cells. The phenomenon of synthesis of intercellular substance and the role of its components in tissue transformation processes. Cytophysiology of muscle tissue. Muscular contraction and hypertrophy. The role of MyoD in the process of differentiating muscle cells. Cytophysiology of nerve and glial cells. Mechanism of conduction of stimuli. Synapse and secretion by synapse. Cell cycle (mitotic, meiotic). Interphase - phase G1, S, G2. Entering the cell cycle. Cell cycle regulation.</p>
---	---

Learning outcomes (max. 3)

<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
-------------------	-------------------------	------------------------------	---

Knowledge

1	knows to an extensive degree and understands the structure of the animal organism: cells, tissues, organs and systems	Final exam -test Completion of classes (test at the end of the semester);	Wet_WSP_01
---	---	--	-------------------

2	characterises in detail the metabolic processes at the molecular, cellular, organ and system levels;	Final exam -test Completion of classes (test at the end of the semester);	Wet_WSP_04
3	describes in detail the mechanism of neurohormonal regulation, reproduction, aging and death;	Final exam -test Completion of classes (test at the end of the semester);	Wet_WSP_09
<i>Skills</i>			
1	recognises (in the images from optical microscope) histological structures corresponding to organs, tissues and cells, and is able to formulate their description, interpret their structure and relations between their structure and activity, taking into account the animal species from which they originate;	Final exam -test Completion of classes (test at the end of the semester);	Wet_USP_08
<i>Social competences</i>			
1			
Literature (max. 8, including Youtube presentations, etc.) - compulsory B. Alberts, D. Bray, K. Hopkin – Essential Cell Biology Garland Science 2014 ISBN 9780815344551 Materials from the EDUWET - complementary/optional B. Alberts, Molecular Biology of the Cell Garland Science 2014 ISBN13 9780815344322 Harvey Lodish, Arnold Berk, Chris A. Kaiser, Monty Krieger, Anthony Bretscher, Hidde Ploegh, Angelika Amon, Matthew P. Scott Molecular Cell Biology ISBN-13: 978-1429234139			
Total grade components		<i>grade obtained at classes (50%) + grade obtained at lectures (50%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

	Subjects	No of hours
1. Cell - definition, differences in cell structure and single cell organisms: eukarya, prokaryota, fungi, archeozoa.		1

2. Cell membranes (structure, membrane permeability, transport of ions and molecules, active transport, endocytosis and its types)	2
3. Cell nucleus (structure, molecular basis for transcriptional chromatin activation, gene structure, mRNA synthesis and maturation, and rRNA, DNA replication, genetic engineering).	2
4. RNA (RNA types, function, metabolism, DNA, translocation, splicing, microRNA, RNA interference)	1
5. Golgi's complex – formation, disaggregation and role. Biosynthesis of proteins. Lysosomes and peroxisomes.	1
6. Receptors and signal transduction (membrane receptors - ionic channel receptors, G protein activation receptors, adenylyl cyclase signaling, activation of membrane phospholipases and tyrosine kinases, intracellular receptors, regulation of receptor responses). Structure of the basement membrane.	2
7. Cytoskeleton. Structures dependent on motor proteins and .	1
8. Synthesis of extracellular matrix of connective tissue - its biological properties.	1
9. Polarization and depolarization of cell membrane (impulse transduction, structure and function of synapses, role in muscle cell function)	1
10. Cellular differentiation (invariance of the genome, determination, modulation, metaplasia, cell interactions in the differentiation process, regulation of the differentiation process)	1
11. Aging and cell death. Changes in the nucleus, cytoplasm and cell membrane during aging; Necrosis and programmed cell death (apoptosis), duration, course and mechanism of programmed cell death (apoptosis). The action of harmful factors on the cell.	2

Titles of classes:

Subjects	No of hours
	(L)
1. The nucleus and nucleolus. Analysis of cells nuclei from photos and histological specimens. Cell Organelle. Structure and function of the endoplasmic reticulum, Golgi complex and lysosomes.	2
2. Biological membranes. The structure and function of Golgi's apparatus and lysosomes. Exocytosis, endocytosis, receptor endocytosis and transcytosis. Experiment with membrane fluidity.	2
3. Cytoskeleton and intercellular connections. Mitochondria - structure and function. of a preparation exhibiting mitochondrial activity	2
4. Cytophysiology of connective tissue cells. The phenomenon of synthesis of intercellular substance and the role of its components in tissue transformation processes. Movement in the cell - microscopic observation.	2
5. Cytophysiology of muscle tissue. Muscular contraction and hypertrophy. The role of	2

MyoD in the process of differentiating muscle cells.

6. Cytophysiology of nerve and glial cells. Mechanism of conduction of stimuli. Synapse and secretion by synapse. 2

7. Cell cycle (mitotic, meiotic). Interphase - G1, S, G2 phase Enters the cell cycle. Cell cycle regulation. Getting an ovary from the ovary 3

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	2	2
Student's own work	25	1
Total hours/ECTS of student's workload	57	3

Hours:

1. Lectures: 15

2. Laboratory -15 **:

3. Others with the teacher: 2

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Chemistry
Course Title	CHEMISTRY
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	ROK1/SEM1
ECTS / including contact hours	3/2
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15
	CLASSES - LAB. GROUP: 30
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	KICZAK LILIANA
Language of instruction	ENGLISH*

Prerequisites	The fundamental knowledge in general and organic chemistry
Short description of the course (max. 500 characters)	The aim of the course is to familiarize students with general chemistry (with special emphasis on chemical processes in aqueous solutions), with quantitative and qualitative analysis, as well as with calculations (ionic equilibrium, buffers). Students will be familiarized with general principles of organic chemistry (atomic and molecular orbitals, nucleophilic substitution, elimination, and addition reaction, free radical reaction), structure and chemical properties of organic compounds with one functional group, carbohydrates, lipids, amines, aminoacids, peptide bond, nucleotides.
Content of the course unit (detailed description)	<p>Lectures</p> <p>General principles of solutions - true solutions and colloids, colligative properties, osmotic pressure and its biological significance. Ionic equilibrium in aqueous solution - the dissociation of ionic electrolytes, degree of dissociation, dissociation constant, pH, buffered solutions and their biological significance. Basal principles of chemical reactions kinetics.</p> <p>General principles of organic chemistry – atomic and molecular orbitals, hybridization and the nature of the chemical bonds, nomenclature and conformation of alkanes, van der Waals forces, chemical properties of alkanes – free radical chain reaction, cycloalkanes, aromatic alkanes, stereoisomers, nucleophilic substitution reaction, elimination reaction, addition reaction.</p> <p>Organic compounds with one functional group (structure and chemical properties) – alcohols, phenols, compounds with carbonyl group: aldehydes, ketones, esters; mechanism of nucleophilic addition to carbonyl group; carboxylic acids and their derivatives.</p> <p>Structure and chemical properties of carbohydrates. Biologically significant carbohydrate derivatives (glycosides).</p> <p>Structure and chemical properties of lipids (triglycerides, fatty acids, complex lipids, cholesterol and its derivatives). Structure and chemical properties of amines, and azo compounds. Biologically active amines (sulfa drugs, alkaloids, catecholamines). Principles of amino acids, peptide bond formation, proteins. Structure of nucleotides and nucleic acids. Structure of heterocyclic compounds with one or more heteroatoms (N, O, S).</p> <p>Laboratory</p> <p>Qualitative analysis. Chemical calculations (degree of</p>

	dissociation, dissociation constant, buffers). Quantitative analysis – titration (argentometry, redox titration, complexometric titration). Spectrophotometry – basic concepts (theoretical and practical)		
Learning outcomes (max. 3)			
Nr No.	Subject-specific	Assessment method	Symbol of the learning effect for the field of study
<i>Knowledge</i>			
1	<i>A graduate knows and understands the principles of water and electrolyte metabolism, acid-base balance of animal organism, as well as the mechanism of system homeostasis;</i>	Exam (written)	Wet_WSP_05
2	<i>A graduate characterizes the basic reactions of organic and inorganic compounds in aqueous solutions;</i>	Exam (written)	Wet_WSP_06
3			
<i>Skills</i>			
1	<i>A graduate uses the basic laboratory techniques, such as: qualitative analysis, titration, colourimetry, pH-metry.</i>	Assesment (written)	Wet_USP_02
2	<i>A graduate calculates the molar and percentage concentrations of substances and compounds in isoosmotic solutions;</i>	Assesment (written)	Wet_USP_03
3			
<i>Social competences</i>			
1	<i>A graduate calculates deepens his/her knowledge and improves skills.</i>	Exam (written)	Wet_KS_07
2	<i>A graduate formulates conclusions from own measurements or observations.</i>	Observation during the laboratory classes	Wet_KS_05
3			
Literature (max. 8, including Youtube presentations, etc.) - compulsory Timberlake K.C. 2007 (or later edition) General, Organic, and Biological Chemistry, Pearson International Edition - complementary/optional 2012 Book Archive Introduction to Chemistry: General, Organic, and Biological https://2012books.lardbucket.org/books/introduction-to-chemistry-general-organic-and-biological/			
Total grade components		Final assessment: 50% rating from classes + 50% an assessment of credit from the lectures (exam)	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

Basic principles of solutions.

Solubility, saturated, unsaturated and supersaturated solutions, solvent classification, water as a protonic and polar solvent, solvation and hydration, comparison of solutions, colloids and suspensions.

Colloids – definition and classification, colloids – properties, colligative properties of solutions, osmosis

Ionic equilibrium in aqueous solutions

Chemical equilibrium, acids and bases, dissociation, ion product constant for water, pH

Buffers and their biological significance, bicarbonate buffering system, strong and weak electrolytes, hydrolysis of salts

Basal principles of chemical reactions kinetics

The collision theory, exothermic and endothermic reactions, reaction rate, the molecularity and order of the reaction. Elementary and complex reactions.

Basal principles of thermodynamics

1st, 2nd and 3rd law of thermodynamics, entropy, the Gibbs free energy

General principles of organic chemistry.

Structure of the atom, chemical bonds, molecular orbitals, carbon - orbital hybridization, hybridization and the nature of the chemical bonds (the structure of ethane, ethene, and ethyne), nomenclature and conformation of alkanes, van der Waals forces, chemical properties of alkanes (free radical chain reaction), cycloalkanes, aromatic alkanes, electrophilic aromatic substitution, stereoisomers, nucleophilic substitution reaction (S_N1 and S_N2), elimination reaction ($E1$ and $E2$), competition between substitution and elimination reactions, addition reaction, alkadienes

Organic compounds with one functional group.

Alcohols - structure and chemical properties, mechanisms of the most important reactions, phenols - structure and chemical properties, compounds with carbonyl group: aldehydes, ketones, esters - chemical properties, oxidation-reduction reactions in organic chemistry, thiols, mechanism of nucleophilic addition to carbonyl group; carboxylic acids and their derivatives (esters, lactones, amides, lactams) - structure and chemical properties.

Carbohydrates

Structure and chemical properties of monosaccharides, disaccharides, and polysaccharides. Structure and occurrence of animal homo- and heteroglycans. Biologically significant carbohydrate derivatives. Sugar acids. Glycosides.

Lipids

Triglycerides and fatty acids. Structure and biological significance of complex lipids found in living cells: waxes, phospholipids, phosphoglycerides, sphingomyelin, glycolipids. Cholesterol, steroid hormones.

Amines

Structure and physical properties of amines, reactions specific for amines, azo compounds. Biologically active amines (sulfa drugs, alkaloids, catecholamines).

Principles of amino acids, peptide bond formation, proteins. Structure of nucleotides and nucleic acids.

Titles of classes:

Laboratory

Qualitative analysis (anion and cation identification).

Practical pH determination.

Chemical calculations (degree of dissociation, dissociation constant, buffers, colligative properties of solutions).

Quantitative analysis – titration (argentometry, redox titration, complexometric titration).

Spectrophotometry – basic concepts (theoretical and practical).

Allocation of ECTS for the course/module

Course title: Chemistry

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	47	2
Student's own work	25	1
Total hours/ECTS of student's workload	72	3

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Clinical1
Course Title	Clinical and laboratory diagnostics I
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME

Profile	ACADEMIC		
Type of course	OBLIGATORY/ELECTIVE		
Semester of study	5		
ECTS / including contact hours	4/2,5		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 30		
	CLASSES - LAB. GROUP:-		
	CLASSES - CLIN. GROUP: 30		
	CLASSES - AUD. GROUP:-		
Teacher responsible for the course	WRZOSEK MARCIN		
Language of instruction	ENGLISH*		
Prerequisites	<i>The student should have finished the following basic subjects: animal anatomy, biochemistry, histology and embryology, veterinary microbiology, veterinary immunology, animal feeding and feedstuffs, animal physiology.</i>		
Short description of the course (max. 500 characters)	<i>The clinical and laboratory methods and ways of the husbandry and companion animals examination and assessment. The procedures used for the clinical animals assessment. History, signalment, body built, condition, constitution and animals behaviour. The measurement of the basic homeostatic parameters. The examinations of the specific systems and organs.</i>		
Content of the course unit (detailed description)			
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	<i>knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure;</i>	CREDIT	Wet_WSK_04
2	<i>presents the principles of conducting clinical examination and monitoring animal health;</i>	CREDIT	Wet_WSK_05
3	<i>explains the method of handling clinical data, as well as results of laboratory tests and additional tests;</i>	CREDIT	Wet_WSK_06
<i>Skills</i>			
1	<i>safely and humanely handles animals and instructs others in this scope;</i>		Wet_USK_01

2	<i>conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment;</i>		Wet_USK_02
3	<i>performs a full clinical examination of the animal;</i>		Wet_USK_03
<i>Social competences</i>			
1	<i>has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;</i>		Wet_KS_02
2	<i>uses the objective sources of information;</i>		Wet_KS_04
3	<i>deepens his/her knowledge and improves skills;</i>		Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional			
1. Nelson, Couto: Small Animal Internal Medicine, 3rd edition Mosby, 2003 2. Ettinger: Textbook of Veterinary Internal Medicine. Diseases of Dog and Cat. 3. Davidson M. G., Else R. W., Lumsden J. H: BSAVA Manual of Small Animal Clinical Pathology. 4. Divers, Peek: Rehbus diseases of dairy cattle, Elsevier 2008 5. Reed, Bayly, Sellon: „Equine Internal Medicine”, Elsevier – Health Sciences Division, 2009			
Total grade components		<i>Graduation of the clinical classes: diagnostics I + diagnostics II</i> <i>Graduation of the lectures I+II – presence on the lectures</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Definition of the diagnostics. Clinical methods and ways of animal examination. Division of the clinical signs. Division of the clinical diagnosis.
2. A description of each species into account the specificities of the various species breed, coat color and animal identification
3. Condition. Constitutional types of species. Disorders of animal behavior and much diagnostic.
4. The temperature inside and outside the body (hypothermia, hyperthermia, fever)
5. Description and diagnostic significance mucosal lesions
6. Description and diagnostic significance of changes of lymph nodes and lymph vessels
7. Description and diagnostic significance of changes of the skin and its products
8. Description and diagnostic significance of changes of the skin and its products continued
Additional tests used in dermatological diagnosis.
9. Description and diagnostic significance of changes the shape of the chest.

10. Description and diagnostic significance of changes in the nose, sinuses, throat, and guttural pouch.
11. Description and diagnostic significance of changes within the larynx, trachea and bronchi
12. Description and diagnostic significance of changes of lung
13. Additional methods used in the diagnosis of respiratory diseases
14. Diagnosis of heart disease. Description and diagnostic significance of changes indicative of heart insufficiency.
15. Presentation of abnormal noise in various heart diseases

Titles of classes:

1. Animal handling
2. History and signalment
3. Status praesens: body building, condition, constitution, behavior, body temperature, pulse, respiration
4. Mucosal membrane examination
5. Lymphnodes examination
6. Skin examination
7. TEST
8. Upper respiratory tract examination
9. Lower respiratory tract examination
10. Chest percussion in horse and cattle
11. Chest percussion in other animals
12. Chest auscultation in horse and cattle
13. Chest auscultation in other animals
14. TEST ,Repetition on clinical cases
15. Blood examination (CBC), test improvement

Allocation of ECTS for the course/module

Course title: Clinical and laboratory diagnostics I

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	61	2,5
Student's own work	25	1,5

Total hours/ECTS of student's workload	86	4
--	----	---

Hours:

1. Lectures: 30
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:30
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher: 1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Clinica2
Course Title	Clinical and laboratory diagnostics II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	6
ECTS / including contact hours	4/2,5
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 30
	CLASSES - LAB. GROUP:-
	CLASSES - CLIN. GROUP: 30
	CLASSES - AUD. GROUP:-
Teacher responsible for the course	WRZOSEK MARCIN
Language of instruction	ENGLISH*
Prerequisites	<i>The student should have finished the following basic subjects: animal anatomy, biochemistry, histology and embryology, veterinary microbiology, veterinary immunology, animal feeding and feedstuffs, animal physiology.</i>
Short description of the course (max. 500 characters)	<i>The clinical and laboratory methods and ways of the husbandry and companion animals examination and assessment. The procedures used for the clinical animals assessment. History, signalment, body built, condition, constitution and animals behaviour. The measurement of the basic homeostatic parameters. The examinations of the specific systems and organs.</i>

Content of the course unit (detailed description)			
Learning outcomes (max. 3)			
Nr No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	<i>knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure;</i>	CREDIT	Wet_WSK_04
2	<i>presents the principles of conducting clinical examination and monitoring animal health;</i>	CREDIT	Wet_WSK_05
3	<i>explains the method of handling clinical data, as well as results of laboratory tests and additional tests;</i>	CREDIT	Wet_WSK_06
<i>Skills</i>			
1	<i>safely and humanely handles animals and instructs others in this scope;</i>		Wet_USK_01
2	<i>conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment;</i>		Wet_USK_02
3	<i>performs a full clinical examination of the animal;</i>		Wet_USK_03
<i>Social competences</i>			
1	<i>has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;</i>		Wet_KS_02
2	<i>uses the objective sources of information;</i>		Wet_KS_04
3	<i>deepens his/her knowledge and improves skills;</i>		Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional			
1. Nelson, Couto: Small Animal Internal Medicine, 3rd edition Mosby, 2003 2. Ettinger: Textbook of Veterinary Internal Medicine. Diseases of Dog and Cat. 3. Davidson M. G., Else R. W., Lumsden J. H: BSAVA Manual of Small Animal Clinical Pathology. 4. Divers, Peek: Rehbus diseases of dairy cattle, Elsevier 2008 5. Reed, Bayly, Sellon: „Equine Internal Medicine”, Elsevier – Health Sciences Division, 2009			

Total grade components	<i>Graduation of the clinical classes: diagnostics I + diagnostics II</i> <i>Graduation of the lectures I+II – presence on the lectures</i>
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

1. 1. Description and diagnostic significance of arterial disorders and venous pulse
2. Additional methods used in the diagnosis of cardiovascular disease
3. Eating disorders. Description and diagnostic significance of changes within the animal stomatitis
4. Description and diagnostic significance of changes in the pharynx and esophagus
5. Description and diagnostic significance of impaired rumen.
6. Description and diagnostic significance of impaired reticulum and abomasum.
7. Description and diagnostic significance of renal abomasum and stomach in monogastric animals.
8. Description and diagnostic significance bowel dysfunction.
9. Description and diagnostic significance of liver disease
10. Description and diagnostic significance of changes of the pancreas, spleen, abnormal fecal excretion
11. Description and diagnostic importance of desire and function disorders of the urinary tract
12. Description and diagnostic significance of impaired consciousness. Clinical studies and additional ways of the nervous system examination
13. Description and diagnostic value of cranial nerve dysfunction. Description and diagnostic value of epileptic symptoms.
14. Description and diagnostic significance dysfunction of the peripheral nervous system.
15. Description and importance of diagnostic problems within the musculoskeletal system.

Detailed description of classes with indicated hours
(description in 5-7 lines)

SUBJECTS

1. Description and diagnostic significance of arterial disorders and venous pulse
2. Additional methods used in the diagnosis of cardiovascular disease
3. Eating disorders. Description and diagnostic significance of changes within the animal stomatitis
4. Description and diagnostic significance of changes in the pharynx and esophagus
5. Description and diagnostic significance of impaired rumen.

6. Description and diagnostic significance of impaired reticulum and abomasum.
7. Description and diagnostic significance of renal abomasum and stomach in monogastric animals.
8. Description and diagnostic significance bowel dysfunction.
9. Description and diagnostic significance of liver disease
10. Description and diagnostic significance of changes of the pancreas, spleen, abnormal fecal excretion
11. Description and diagnostic importance of desire and function disorders of the urinary tract
12. Description and diagnostic significance of impaired consciousness. Clinical studies and additional ways of the nervous system examination
13. Description and diagnostic value of cranial nerve dysfunction. Description and diagnostic value of epileptic symptoms.
14. Description and diagnostic significance dysfunction of the peripheral nervous system.
15. Description and importance of diagnostic problems within the musculoskeletal system.

Titles of classes:

1. Heart examination – inspection, palpation, percussion, auscultation in horse and cattle
2. Heart examination – inspection, palpation, percussion, auscultation in other animals
3. Examination of blood vessels
4. TEST, Recurrent Laryngeal Neuropathy – RLN in horses
5. Examination of oral cavity
6. Examination of larynx and esophagus
7. Examination of abdomen (topography of abdominal organs)
8. Examination of rumen and reticulum
9. Examination of omasum and abomasum.
10. Examination of liver and pancreas
11. TEST, Clinical cases
12. Examination of urinary tract, urine test
13. Examination of neurological and movement system
14. TEST, clinical cases
15. Examination of cerebrospinal fluid. Test improvement.

Allocation of ECTS for the course/module

Course title: Clinical and laboratory diagnostics II

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	61	2,5
Student's own work	25	1,5
Total hours/ECTS of student's workload	86	4

Hours:

1. Lectures: 30
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:30
4. Auditorium / seminar **:
5. Internship classes **:

6. Practice **:
7. Others with the teacher:1

* choose the right one
** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>ClinicalImmu
Course Title	Clinical Immunology
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	9
ECTS / including contact hours	2/1
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 14
	CLASSES - LAB. GROUP: 16
	CLASSES - CLIN. GROUP:
	CLASSES - AUD. GROUP:
Teacher responsible for the course	Anna Chełmońska-Soyta
Language of instruction	ENGLISH*
Prerequisites	Knowledge in the area of basic immunology, pathophysiology, laboratory diagnostic and internal diseases to analyse clinical cases
Short description of the course (max. 500 characters)	The goal of the course is to teach the students current issues in the field of clinical immunology of dogs, cats and horses, including autoimmune diseases, neoplasia, allergies, immunodeficiencies, as well as basics of serotherapy and treatments used in immunomodulation. The students learn how to diagnose immune mediated diseases using available diagnostic methods.
Content of the course unit (detailed description)	Mechanisms of the development of immune-mediated diseases in dogs and cats. Diagnostic tests used in the evaluation of immune status of animals and in the diagnostics of immune-mediated diseases. Organ-specific immunity and pathomechanisms of immune mediated diseases (immunology of endocrine glands, joint, skin, nervous and muscular system, immune-mediated cytopenias). Systemic immune-mediated diseases. Immune system neoplasia in dogs and cats. Drugs used for immunomodulation and treatment of immune-mediated diseases. Current issues in immune-mediated diseases in

horses. Immune-mediated diseases in horses.			
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree and describes in details mechanisms of the development of immune-mediated diseases in dogs, cats and horses	written or oral examination	Wet_WSK_02
2	knows and describes in details causes, diagnostic steps and treatment of immune-mediated diseases, including autoimmune diseases and immunodeficiencies	written or oral examination	Wet_WSK_04
3	knows and explains mechanisms of action of immunodulating drugs and those used in serotherapy	written or oral examination	Wet_WSK_04
<i>Skills</i>			
1	analyses and interprets results of laboratory tests in the diagnostics of immune-mediated diseases	written or oral examination, evaluation of involvement during classes	Wet_USK_06
2	chooses and applies the appropriate treatment in cases of immune mediated diseases	written or oral examination	Wet_USK_13
3	conducts a medical-veterinary interview in order to obtain precise information in the course of diagnostic process	evaluation of involvement during classes	Wet_USK_02
<i>Social competences</i>			
1	uses objective sources of information	evaluation of involvement during classes	Wet_KS_04
2	communicates with the co-workers and shares knowledge;	evaluation of involvement during classes	Wet_KS_08
<p>Literature (max. 8, including Youtube presentations, etc.) - compulsory Clinical immunology of the dog and cat, Michael Day, Manson Publishing 2008 Teaching material provided by teachers (presentations and other sources) Small Animal Internal Medicine Nelson RW, Couto C.G, Elsevier, 2019</p> <p>-complementary/optional Veterinary hematology, J.Saunders, Elsevier, 2011 Veterinary Immunology I.Tizard, Saunders, 2008, 8th edition Equine clinical immunology M. Julia B. Felipe, John Wiley & Sons, 2016</p>			

Total grade components	classes: 50% lectures: 50%
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

1. Pathogenesis of autoimmune diseases in dogs and cats
2. Immunotherapy and immunomodulation. Principles of pharmacotherapy of immune-mediated diseases in animals. Treatment of secondary immunodeficiencies.
3. Characteristics of immune mechanisms in endocrine glands. Endocrine immune-mediated diseases. Characteristics of immune mechanisms in joints. Immune-mediated joint diseases.
4. Immunopathology in neoplastic diseases. Immune recognition of tumor antigens. Immune therapy.
5. Characteristics of immune mechanisms of muscles and nervous system. Theoretical and practical aspects. Clinical case analysis.
6. Current issues in immune-mediated diseases in horses.
7. Immune-mediated diseases in horses – clinical aspects.

Titles of classes:

1. Laboratory tests in the diagnostics of immune mediated diseases. Principles of using available laboratory methods in the diagnostics of immune-mediated diseases. Tests used for the evaluation of general immune status and tests used for specific diagnosis.
2. Immunology of the alimentary tract. Theoretical and practical aspects. Specific features of the immune system as a surface of contact with alimentary and environmental antigens. Clinical case analysis.
3. Skin immunology of dogs and cats. Theoretical and practical aspects. Skin reactions associated with type I, III and IV hypersensitivity. Clinical case analysis.
4. Immune-mediated cytopenias in dogs and cats. Clinical case analysis.
5. Clinical aspects of immune system neoplasia. Clinical case analysis.
6. Systemic immune-mediated diseases. Theoretical and practical aspects. Clinical case analysis.
7. Clinical aspects of active and passive immunization. Serotherapy.
8. Primary immunodeficiencies in dogs, cats and horses.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	31	2
Student's own work	20	1
Total hours/ECTS of student's	51	3

workload		
----------	--	--

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Diaging
Course Title	DIAGNOSTIC IMAGING
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	YEAR III SEMESTER 6
ECTS / including contact hours	4
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 15
	CLASSES - LAB. GROUP: 45
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	Kinda Wojciech
Language of instruction	ENGLISH
Prerequisites	Normal anatomy and histology, biophysics, pathology
Short description of the course (max. 500 characters)	Learning of physical basics of diagnostics imaging modalities used in veterinary medicine and indications to use the imaging methods in small and large animal diseases, especially in skeletal, thoracic and abdominal disorders.
Content of the course unit (detailed description)	The X-rays (definition, discovery, properties, theory of radiograph creation). Construction of the X-ray unit. Other diagnostic imaging methods in veterinary medicine

	(ultrasound, computed tomography, magnetic resonance, fluoroscopy). Principles of radiological safety. Diagnostic imaging room equipment. Preparing the patient for the examination. Basics of performing the radiographic examinations. Analysis of the quality of radiographs. Using of contrast media. Radiographic image of animal tissues. Basic pathological changes in appendicular skeletal system. Radiographic diagnosis in thoracic and abdominal diseases. Diagnostic imaging of the head and spine. The general basics of the small animal abdominal ultrasound.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure;	written credit	Wet_WSK_04
2	explains the method of handling clinical data, as well as results of laboratory tests and additional tests;	written credit	Wet_WSK_06
<i>Skills</i>			
1	uses diagnostic equipment, including radiographic, ultrasound and endoscopic equipment, in accordance with its intended purpose and safety rules for animals and people, as well as interprets the results of tests obtained after its application;	written credit	Wet_USK_07
<i>Social competences</i>			
1	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity;	written credit	Wet_KS_05
2	deepens his/her knowledge and improves skills;	written credit	Wet_KS_07
3	communicates with the co-workers and shares knowledge;	written credit	Wet_KS_08
Literature (max. 8, including Youtube presentations, etc.) - compulsory			
<ol style="list-style-type: none"> Han, CM, Hurd, CD, (2000), "Practical Diagnostic Imaging for the Veterinary Technician", 2nd Ed. Mosby, St Louis. Kealy, JK, McAllister, H, (2000), "Diagnostic radiology and ultrasonography of the dog and cat", 2nd Ed. WB Saunders, Philadelphia, 			
Total grade components		<i>grade obtained at classes (70%) + grade obtained at lectures (30%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

I. X-ray image of animal tissues

1. X-ray absorption properties of the matter
2. Radiological density of tissue
3. Basic phenomena occurring in radiography
4. The principal radiological changes of soft tissue
5. The principal radiological changes of bone

II. Malignant changes of the bone and soft tissue- X-ray images

1. Forms of bone osteolysis
2. Types of periosteal reactions
3. Common locations of primary malignant tumors of bone
4. Monoostotic and poliostotic changes
5. Features of X-ray image showing the suspected neo within soft tissue

III. Diseases of the skeleton on the background of deficiency of vitamins and minerals

1. Vitamin A deficiency
2. Rickets
3. Nutritional osteopathy
4. Hypertrophic osteodystrophy
5. Osteoporosis, osteomalacia, osteopenia

IV. The use of contrast study

1. Contrast media
2. The use of negative contrast
3. Methods of contrast examination
4. Nomenclature and methods of contrast examination
5. Examples of positive contrast tests

V. Alternative diagnostic imaging modalities

1. Computed tomography
2. Magnetic resonance imaging
3. Scintigraphy

VI. Ultrasound

1. Physical properties of US
2. Probes
3. Characteristics of US image
4. Artifacts
5. Ultrasonography of abdominal organs

VII. Diagnostic imaging in horses

1. Radiography of limbs,
 2. Radiography of the head and spine
- Ultrasound of tendons and joints

Titles of classes:

I. Introduction

1. Principles of radiological safety
2. X-ray properties

3. Construction of the X-ray unit
4. Distribution of X-ray unit
5. X-ray test method (radiography, fluoroscopy, CT)
- II. Common RX test methods**
 1. Principles of operation of the RX tube
 2. Parameters of exposure
 3. Construction of an x-ray cassettes
 4. Rules for RX image geometry
 5. X-ray laboratory equipment
- III. Analysis of RX image quality**
 1. Preparing the patient for examination
 2. Artifacts
 3. Principles of interpretation of radiographs
 4. Patient positioning
 5. Projection types
- IV. Basic pathological changes in the image of the skeletal system**
 1. Bone structure in X-ray
 2. Metabolic changes in bones
 3. Differential diagnosis of aggressive and benign bone lesions
 4. Differentiation of aggressive changes
 5. Changes in the bone image in maturing period
- V. Radiodiagnosis of traumatic lesions of the skeleton**
 1. Fractures, dislocations, sprains of the spine
 2. Fractures, dislocations, sprains of long bones
 3. Healing fractures
 4. Complications of fracture healing
 5. Injuries to the skeletal system of young animals
- VI. The radiological inflammatory and degenerative changes of the skeleton**
 1. Types and examples of arthritis
 2. Radiographic changes of degenerative arthritis
 3. Osteitis, osteomyelitis
 4. Difference between spondylosis and spondylitis
 5. Inflammatory diseases of the skeletal system during osteogenesis
- VII. Rentgenodiagnosics of the aseptic necrosis of articular cartilage and bone**
 1. Etiopathogenesis of osteochondrosis
 2. Osteochondritis dissecans X-ray image
 3. The occurrence of OCD in dogs
 4. Legg-Perthes Disease
 5. Other necrotic diseases of the bone
- VIII. Radiography of the head**
 1. Nasal cavity and paranasal sinuses
 2. Calvarium
 3. Dental radiography
- IX. Radiography of the spine**
 1. Malformations of the spine
 2. Vertebral instability
 3. Discopathies
 4. Myelography, epidurography, discography
 5. Tumors of the spine
- X. Large animal radiography**
 1. Radiography of limbs
 1. Radiography of the head and spine
- XI. Radiography of the thorax p.1**

1. Normal radiography of the thorax
2. Differential diagnosis of lung diseases
3. Lung patterns
4. Evaluation of cardiac size and shape
5. Pericardial sac

XII. Radiography of the thorax p. 2

1. Mediastinum
2. Typical diseases of the oesophagus and trachea
3. Thoracic lymphadenopathy
4. Pleural space: pneumothorax, hydrothorax
5. Radiographic changes of chest wall

XIII. Radiography of the abdomen p. 1

1. Normal radiography of the abdomen
2. Liver, spleen and pancreas
3. Peritoneal cavity and abdominal wall
4. Genitourinary system
5. Pregnancy

XIV. Radiography of the abdomen p. 2

1. Diseases of the stomach
2. Small intestinal intussusception
3. Inflammatory diseases
4. Neoplasia
5. Large intestine lesions

XV. Abdominal ultrasound of the dog and cat

1. Patient preparation
2. Scheme of the examination
3. Normal appearance of the abdominal organs
4. Examples of the most common lesions of the abdomen in US exam

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	61	2,5
Student's own work	25	1,5
Total hours/ECTS of student's workload	86	4

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>DogsCats
Course Title	DISEASES OF DOGS AND CATS
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	9
ECTS / including contact hours	17/11
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 125
	CLASSES - LAB. GROUP: 5
	CLASSES - CLIN. GROUP: 110
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	MARCIN WRZOSEK (MARCIN WRZOSEK, ZDZISŁAW KIELBOWICZ, WOJCIECH NIŻAŃSKI, KRZYSZTOF RYPUŁA)
Language of instruction	ENGLISH*
Prerequisites	animal anatomy, histology and embryology, topographic anatomy, pathomorphology, animal physiology, pathophysiology, parasitology and invasiology, veterinary pharmacology, veterinary pharmacy, veterinary microbiology, veterinary immunology, clinical and laboratory diagnostics, general surgery anaesthesiology, imaging diagnostics, veterinary dietetics
Short description of the course (max. 500 characters)	The aim of the course is to provide students with basic knowledge on the dogs and cats diseases, its diagnosis, differential diagnosis, treatment and additional diagnostics procedures. It can proved the additional information of illness prevention and prognosis
Content of the course unit (detailed description)	The aim of the course is to provide students with basic knowledge on: rules with animals suspected of rabies, differential diagnosis, intravital diagnosis, vaccination against rabies, serological and microbiological tests and rules for the interpretation of their results in infectious diseases of dogs and cats, veterinary proceedings in case of infectious diseases in dogs and cats, vaccinations for dogs and cats; diagnosis and treatment of diseases: cardiovascular

	system, skin diseases, gastrointestinal diseases, liver and pancreas diseases, respiratory system diseases, nervous system diseases, urinary system diseases, endocrine diseases, as well as principles of cancer recognition and the use of antineoplastic treatment in dogs and cats; surgical procedures: in the abdominal cavity, in the chest, neck and head, orthopedic procedures, traumatology, anesthesiology and imaging diagnostic in dogs and cats; gynecological examination of bitches and queens, endoscopic examination of the reproductive tract, endocrinological examination of reproductive functions in small animals, ultrasound examination of the reproductive system in small animals and obstetric-gynecological procedures in small animals.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure	exam (written)	Wet_WSK_04
2	presents the principles of conducting clinical examination and monitoring animal health	exam (written)	Wet_WSK_05
3	explains the method of handling clinical data, as well as results of laboratory tests and additional tests	exam (written)	Wet_WSK_06
<i>Skills</i>			
1	conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment	exam (written)	Wet_USK_02
2	performs a full clinical examination of the animal	exam (written)	Wet_USK_03
3	chooses and applies the appropriate treatment	exam (written)	Wet_USK_13
<i>Social competences</i>			
1	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions	exam (written)	Wet_KS_02
2	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity	exam (written)	Wet_KS_05
3	deepens his/her knowledge and improves skills	exam (written)	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - R. W. Nelson, C. G. Couto: „Small Animal Internal Medicine”, 2013, Mosby - M. Schaer, F. P. Gaschen: „Clinical Medicine of the Dog and Cat”, 2016, CRC Press			

<ul style="list-style-type: none"> - J. Wiley: „Canine Internal Medicine: What’s Your Diagnosis?”, 2017, Wiley-Blackwell - S. J. Ettinger, E. C. Feldman, E. Cote: Textbook of Veterinary Internal Medicine Expert Consult, 2016, Elsevier - T. W. Fossum: „Small Animal Surgery”, 2018, Mosby - M. V. R. Kustritz: „Clinical Canine and Feline Reproduction”, 2009, Wiley-Blackwell - C. E. Green: „Infectious diseases of dog and cat”, 2011, Saunders 	
Total grade components	<i>grade obtained at classes 50% + grade obtained at lectures 50%</i>
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

INTERNAL DISEASES

- Cardiovascular diseases. Part 1: dilated cardiomyopathy, endocardiosis of atrio-ventricular valves.
- Cardiovascular diseases. Part 2: hypertrophic cardiomyopathy, myocarditis, Infectious endocarditis, embolism and thrombosis.
- Cardiovascular diseases. Part 3: patent ductus arteriosus, aortic stenosis, pulmonary artery stenosis, tetralogy of Fallot, dysplasia atrioventricular valves, survived right aortic arch.
- Skin disorders. Part 1: allergy: atopy, food allergy.
- Skin disorders. Part 2: autoimmune skin diseases, behavioral dermatosis.
- Respiratory tract disorders. Part 1: inflammation of nasal cavity, laryngitis, Respiratory syndrome of brachycephalic dogs.
- Respiratory tract disorders. Part 2: inflammation of the trachea, bronchus, bacterial pneumonia, trachea collapse, aspiration pneumonia.
- Digestive tract disorders. Part 1: stomatitis, gingivitis, salivary cysts, pharyngitis, tonsillitis.
- Digestive tract disorders. Part 2: esophageal motility disorders.
- Digestive tract disorders. Part 3: classification of vomiting, gastritis, stomach ulcers, foreign bodies in stomach, gastric dilatation - volvulus syndrome.
- Digestive tract disorders. Part 4: acute and chronic enteritis.
- Liver, pancreas disorders: acute and chronic form of liver and pancreas diseases. Exocrine pancreas insufficiency.
- Urinary tract disorders: FLUTD, idiopathic cystitis, acute and chronic renal diseases, protein losing nephropathy.
- Nervous system disorders. Part 1: diseases of brain, meninges, spinal cord.
- Nervous system disorders. Part 2: epilepsy – classification and treatment.

SURGERY

- Diseases of the eye and ear infections in dogs and cats. Bacterial inflammation of the eyelids, conjunctiva and cornea, foreign body in the conjunctival sac and cornea. Autoimmune superficial keratitis. Corneal sequestration in cats. Ocular diseases transmitted genetically. Disadvantages of the plastic lids. Tumors of the eyelids and the eyeball. -Surgical ear disease. Surgical diseases of the mouth, throat and esophagus. Oro-nasal fistula, mandibulektomy and hemimandibulektomy. Tonsilektomy. Cleft of the soft and hard palate, . Cysts of the salivary glands (neck, throat, yoke, sublingual), Diverticula and achalasia of the esophagus. Foreign body in the esophagus. Cancers of the esophagus. Hiatal hernia. Vascular ring and right aortic arch.
- Gastrointestinal disease requiring surgical intervention. Foreign bodies in the stomach. Gastrotomia, gastropexy. extension and torsion of the stomach in dogs. Neoplasms of the stomach and the method of resection of the wall.

-Surgery within the small intestine. Foreign bodies in the small intestine. Enterotomia. Enterektomia, bowel anastomosis "end to end" and "end-to-side" anastomosis. Intussusception of the small intestine.

-Surgical procedures in the colon and rectum. Kolopexy. Tyflektoomia. Cancers of the colon. A giant colon. Prolapsed rectum anal sinus excision. Surgical treatment of anal hernia.

- Hernias, surgery of hepatobiliary, adrenal, thyroid and spleen. General definition and types of hernias. Division of hernias due to their causes. Symptoms and diagnosis of hernia consequences. Complications at different hernias caused by lack of surgical intervention. Methods of surgical treatment of haernias. Choledocholithiasis and gallbladder. tumors of adrenal gland and spleen, and surgical methods to remove them.

-Surgical diseases of the urinary tract. Bladder stones in small animals. Surgical methods used for removing stones from the urinary bladder and urethra. Feline urological syndrome. Urinary incontinence in females. Ectopic ureters and surgical methods of treatment. Tumors of the kidneys and ureters. Uretrostomia.

- Reproductive Surgery. Methods of castration (owariohisterektomia, orchiektomia) used in dogs and cats. Rules of conduct of mastectomy, prostate diseases - methods of surgical intervention. Plastic surgery of perineum and vulva in females.

Thoracic Surgery in dogs and cats. Indications and rules of conduct for operating opening the chest. Foreign bodies in the thoracic esophagus. Survived the ductus arteriosus (Botall). Right-hand arch of the aorta and other vascular anomalies in the construction of a large heart.

Fractures in small animals. Classification of fractures and divisions in small animals, methods of conservative procedure for long bone fractures. The most commonly used method of osteosynthesis in dogs and cats (intramedullary nail, AO plate , wire, , bone ZESPOL stabilizers, POLFIX).

-Osteosynthesis of fractures of the thoracic limbs. Orthopedic and radiological examination of the thoracic limb bone fractures in dogs and cats. Operating Procedure in fractures of the shoulder blade. Simple and complex fractures of the humerus. Monteggia fracture type. Fracture of the elbow. Procedure of fracture of metacarpal bone.

-Osteosynthesis of fractures of the pelvic limb. Methods of fixation in fractures of the femoral shaft. Tibial tuberosity avulsion in young dogs. Fractures of the tibia. Intramedullary Osteosynthesis of the calcaneal fracture tumor.

- Neurosurgery of spine. Surgery: cervical spine, thoracic, lumbo- sacral spine. Surgical approaches. Methods of spinal surgery. Laminektomy and hemilaminektomy, foraminotomia, facetektomia, fenestration and ventral slot method.

-Some joint diseases in small animals. Dislocation and subluxation in dogs and cats. Dislocation of the patella and the surgical procedure. Dysplasia of the hip and methods of surgical treatment. Diagnosis and surgical treatment for ulnar additional separate appendix.

-Some joint diseases in small animals cont. Arthropathy of the elbow caused by fragmentation of the alveolar coronary medial and lateral. Aseptic necrosis of the femoral head (Legg Calvet Perthes disease). Aseptic necrosis of the hyaline cartilage of the shoulder, elbow, ankle.

REPRODUCTION

-Neurohormonal regulation and the course cycle in bitches; puberty and somatic maturity; hypothalamus, hypophysis-gonadal axis; hormonal feedback; relationship between age, maintenance, feeding and estrous cycle.

-Neurohormonal regulation and the course cycle in queen; puberty and somatic maturity; hypothalamus, hypophysis-gonadal axis; hormonal feedback; relationship between age, maintenance, feeding and estrous cycle.

-Disorders of estrous cycle; abnormalities of ovarian fuction: anoestrus primary and secondary, silent heat, week ovarian activity, ovulation disorders, split estrous, ovarian cysts.

-Disorders of the ovaries, uterus and vagina, part I: Vaginal prolapse, inflammation of the caudal genital tract.

-Disorders of the ovaries, uterus and vagina, part II: Genital tumors.

-Disorders of the ovaries, uterus and vagina, part III: Cystic endometrial hyperplasia-pyometra complex; incidence, diagnosis, surgical and pharmacological treatment.

-Disorders of sexual differentiation. Clinical aspects of sexual differentiation process. Disorders of sexual differentiation and their diagnostics, chromosomal abnormalities, gonadal abnormalities and phenotypic abnormalities.

-Infertility infectious origin: Nonspecific infectious, specific infections: Br. Canis, CHV-1; parasitic infestation.

-Physiopathology and monitoring of pregnancy in bitches and queens, part I: Endocrinology of pregnancy. Gestational changes in maternal organism. Pregnancy diagnosis and monitoring of foetal development. Assessment of foetuses development during pregnancy and determination of parturition day.

-Physiopathology and monitoring of pregnancy in bitches and queens, part II: Pregnancy abnormalities in a practice – clinical cases.

-Eutocia – normal parturition Endocrinology of parturition. Initiation of parturition. Course of normal delivery. Stages of parturition.

-Dystocia – abnormal parturition and obstetrical aid in the bitches and queens. Causes of dystocia of maternal and foetal origin. Symptoms of dystocia. Methods of obstetrical aid. Manual assistance, the use of forceps, medication – ecbolic therapy, cesarean section.

-Mammary gland disorders in bitches and queens. Agalactia, hypogalactia, mastitis, pseudopregnancy.

-Veterinary care on puppies and kittens from birth to weaning. Feeding of the lactating dam. Neonatal care, resuscitation, optimal environmental conditions, artificial feeding, veterinary assistance, methods of evaluation of live ability of neonates.

Diseases of puppies and kittens from birth to weaning. Still births in puppies/kittens. Isoerythrolises serological conflict, herpesvirosis and other specific infectious factors, abnormal development, staphylococcal infectious: toxic milk syndrome, diarrhoea, fading puppy/kitten syndrome. Assessment of congenital reflexes.

INFECTIOUS DISEASES

-Infection diseases in dogs and cats - Rabies and *Lyssavirus* infection.

-Infection diseases in dogs – canine parvovirus infection, coronavirus infection and rotavirus infection.

-Infection diseases in dogs – babesiosis in dogs, boreliosis and Lyme diseases, RMSF.

-Infection diseases in dogs – herpesvirus infection in dogs, *Brucella* sp., *Mycoplasma* sp. and *Ureaplasma* sp. infection.

-Infection diseases in dogs – infection of *Clostridium* sp. (enterotoxemia, tetanus, *Clostridium botulinum* infection).

-Infection diseases in dogs – erlichiosis and anaplasmosis.

-Infection diseases in cats – retrovirus infection (FeLV, FIV).

-Infection diseases in cats – infection of parvo-, astro- i coronavirus (FIP).

-Infection diseases in cats – URTD syndrome.

-Diagnostics of infection diseases in dogs and cats.

-Infection diseases in cats – TSE, orthopoxvirus infection, papillomatosis.

-Mycosis in dogs and cats.

-Infection diseases in dogs and cats – haemoplasmosis and bartonellosis.

-Infection diseases in dogs and cats – infection diseases after surgery intervention.

-Biosecurity in kennel of dogs and cats.

Titles of classes:

INTERNAL DISEASES

-Endoscopic examination of nasal cavity. Laryngotracheobronchoscopy. Broncho-alveolar lavage.

-Additional diagnostic tests used in diagnosis of skin disorders – part 1 and 2.

-Additional laboratory examinations used in endocrinal disorders.

-EKG and heart USG.

-Interpretation the result of EEG, MNCV ect.

-Prevention and treatment of dentistry.

-RTG in dentistry.

-Procedures used in alimentary tract disorders.

- Liver biopsy.
- Cystocentesis and laboratory urine analysis.
- Cystoscopy, kidneys biopsy.
- Neurological examination. (RTG, CT, MRI).
- Organs punctures. Examinations of body fluids.

SURGERY

-Desmurgia. Approaches to the establishment wound dressings under the band. Applying a soft gauze dressings and gel. Compression bandages used for haemostasis and compression used in orthopedic surgery of large animals. Approaches to the establishment of restraining bandages, plaster and synthetic plastics bonding after contact with air or water. Making cooling and warming compresses after injuries in orthopedic diseases.

-Surgical procedures on the head: the sublingual and submandibular salivary glands, trepanation of sinuses and nasal cavity, the opening of the frontal sinuses and nasal passages, jaw surgery. Methods of extraction of milk teeth and permanent. Cleft palate surgery.

-Ophthalmology - selected eye diseases of dogs and cats; irrigation naso-lacrimal duct, subconjunctival injections and eyeball prolapse third eyelid gland and operational methods of repositioning or resection, follicular inflammation of the third eyelid, eyelid plastic surgery (entropion, ectropium, kantonotomia), extirpation of the eyeball. Corrective Actions in the eyelids folded up in the medial corner of the eye.

-Ophthalmology - clinical examination of eye of dog and cat using: slit lamp, direct and indirect ophthalmoscopy, diafanoskopii, applanation tonometer Schiötza tonometer. Clinical study of vision.

-Orthopedic examination of small animals - Plan and test methods, the test animals lying, standing the test animal (stationary and moving), additional tests.

-Conservative and surgical treatment of bone fractures in dogs and cats. Intramedullary osteosynthesis, fixation plate, Weber loop (types of nails, types of plates, screws, wires bone).

-ZESPOL stabilizer bone fusion and osteosynthesis AO: classification, types and methods of setting the stabilizer ZESPOL, display and use of AO bone plates.

-Therapeutic surgical diseases of joints: surgical approaches, sprain, ligament rupture, arthrodesis, ankiloza.

-Chest Surgery: thoracotomy, PDA, foreign body in the esophagus, pneumothorax, subcutaneous emphysema, diaphragmatic hernia, resection of the lobe and completed the protocol of anaesthesia, use of recording equipment.

-Surgical procedures in the abdomen - the digestive tract: laparotomy, gastrotomia, gastropexia, extension and torsion of the stomach, gastropexia, splenectomy, enterektomia.

-Surgical procedures in the abdomen: the urinary system and sex: stones in the bladder and urethra, cystotomy, ectopic ureters, ovariectomy, ovariohisterektomia, umbilical hernia, inguinal, femoral, Perineal, traumatic, rules remove cancerous tumors in the abdomen.

-Anesthesiology - select models of small animal anesthesia, analgesia, local head of a cat and dog. Local anesthetic. Epidural anesthesia and brachial plexus. Inhalation anesthesia and types of anesthetic apparatus and methods of inhalation anesthesia.

Anesthesiology - cardiopulmonary resuscitation, practical exercises in the field of resuscitation and CPR for cardiac pulmonary failure in dogs and cats in life-threatening conditions.

REPRODUCTION

- Gyneacological examination in bitches and queens practice – clinical examination, vaginal cytology, collection, staining and interpretation of results (prac.). Introduction – basics of clinical examination and vaginal cytology, collection of vaginal swabs. Smear preparation and staining. Assessment of samples.

- Endoscopic examination and endocrinological diagnosis of reproductive function in practice – technique, basics and result interpretation (prac.). Introduction, endoscopy of the vagina, interpretation and discussion of the results vaginoscopy catheterisation of uterine cervix. Analysing of progesterone level and discussing results, analyses of dynamic changes in sexual hormone concentration in peripheral blood.

- Reproductive ultrasound diagnosis in small animal in practice – ultrasonographic examination of uterus and ovaries in different physiological stages and pathological conditions (prac.). Introduction, practical aspects of examination of ovaries, uterus, uterine cervix and other reproductive structures. Interpretation of ultrasound images.

- Determination of optimal mating time (prac.). Plan of examination of the bitch to determine optimal mating time. Analyses of clinical symptoms, cytological findings, discussion of results of endoscopy, endocrinological examination and ultrasound diagnosis. Management, algorithms.
- Routine reproductive surgeries: introduction, caesarian section in bitches and queens, gonadectomy in dogs and cats, removal of mammary gland, ovariohysterectomy in pyometra ceases.
- Reproductive surgeries in practice: students assistance, cesarean section, gonadectomy in dogs and cats, mastectomy, surgical treatment of pyometra. Discussion.
- Contraception and pregnancy termination. Long-term estrus prevention, oestrus postponement, oestrus suppression. Postpartum disorders. Puerperal tetany, subinvolution of placental side, SIPS, uterine subinvolution, postpartum uterine inertia.

INFECTIOUS DISEASES

- Rabies in dogs and cats. The exercises concern epidemiology and distribution of Rabies infection, etiology, pathogenesis, clinical and pathological disorders, differential diagnosis, laboratory diagnosis, with important information about taken of diagnostics material and eradication.
- Distemper (CDV), Adenovirus infection in dogs (CAV-1, CAV-2). The exercises concern: etiology, pathogenesis, clinical disorders, differential diagnosis, laboratory diagnosis with diagnostics samples, eradication with prophylaxis.
- Viral and bacterial infection of digestive tract in dogs and cats (CPV and FPV). The exercises concern: etiology, pathogenesis, clinical disorders, differential diagnosis, laboratory diagnosis with diagnostics samples, eradication with prophylaxis.
- Leptospirosis in dogs and pasterellosis. The exercises concern: etiology, pathogenesis, clinical disorders, differential diagnosis, laboratory diagnosis with diagnostics samples, eradication with prophylaxis.
- Viral and bacterial infection of digestive tract in dogs and cats: coronavirus infection (CCV i FCoV), rotavirus infection (CRV i FRV), E. coli, staphylococcal and streptococcal infection. The exercises concern: etiology, pathogenesis, clinical disorders, differential diagnosis, laboratory diagnosis with diagnostics samples, eradication with prophylaxis.
- Viral and bacterial infection of respiratory tract in dogs and cats – kennel cough. The exercises concern: etiology, pathogenesis, clinical disorders, differential diagnosis, laboratory diagnosis with diagnostics samples, eradication with prophylaxis.
- Viral and bacterial infection of respiratory tract in dogs and cats – URTD syndrom. The exercises concern: etiology, pathogenesis, clinical disorders, differential diagnosis, laboratory diagnosis with diagnostics samples, eradication with prophylaxis.
- Viral and bacterial infection of nervous system in dogs and cats. The exercises concern: etiology, pathogenesis, clinical disorders, differential diagnosis, laboratory diagnosis with diagnostics samples, eradication with prophylaxis.
- Prophylaxis in dogs and cats. The exercises concern eradication with prophylaxis and control methods of effective proceedings.

Allocation of ECTS for the course/module

Course title: Diseases of dogs and cats

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	244	11
Student's own work	115	6
Total hours/ECTS of student's workload	359	17

Hours:

1. Lectures: 125
2. Laboratory / project / language classes / sports classes **: 5
3. Clinical classes **: 110
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>InterDogs
Course Title	DISEASES OF DOGS AND CATS - CLINICAL INTERNSHIP I
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	10
ECTS / including contact hours	3/2
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 0
	CLASSES - LAB. GROUP: 0
	CLASSES - CLIN. GROUP: 60
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	Marcin WRZOSEK (Marcin WRZOSEK, Zdzisław Kielbowicz, Wojciech Nizański, Krzysztof Rypuła)
Language of instruction	ENGLISH*
Prerequisites	Animal anatomy, Biochemistry, Histology and embryology, Veterinary microbiology, Animal physiology, Clinical and laboratory diagnostic, Veterinary pharmacology, Veterinary immunology, Pathophysiology, Veterinary dietetics, Parasitology and invasiology, Pathomorphology, Surgery and anesthesiology, Imaging diagnostic, Diseases of dogs and cats
Short description of the course (max. 500 characters)	The aim of the course is to provide students with practical knowledge of: clinical examination of animals, diagnosing diseases of dogs and cats and differential diagnosis of specific disease, collection and protection material for laboratory tests, interpret laboratory tests results and relate them to the clinical condition of the patient and the use of

	appropriate treatment (including operations) and disease prevention in dogs and cats.		
Content of the course unit (detailed description)	The aim of the course is to provide students with practical knowledge of: rules with animals suspected of rabies, differential diagnosis, intravital diagnosis, vaccination against rabies, serological and microbiological tests and rules for the interpretation of their results in infectious diseases of dogs and cats, veterinary proceedings in case of infectious diseases in dogs and cats, vaccinations for dogs and cats; diagnosis and treatment of diseases: cardiovascular system, skin diseases, gastrointestinal diseases, liver and pancreas diseases, respiratory system diseases, nervous system diseases, urinary system diseases, endocrine diseases, as well as principles of cancer recognition and the use of antineoplastic treatment in dogs and cats; surgical procedures: in the abdominal cavity, in the chest, neck and head, orthopedic procedures, traumatology, anesthesiology and imaging diagnostic in dogs and cats; gynecological examination of bitches and queens, endoscopic examination of the reproductive tract, endocrinological examination of reproductive functions in small animals, ultrasound examination of the reproductive system in small animals and obstetric-gynecological procedures in small animals.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	describes the causes and symptoms of anatomopathological changes, principles of treatment and prophylaxis in individual disease entities	credit (oral)	Wet_WSK_03
2	knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure	credit (oral)	Wet_WSK_04
3	presents the principles of conducting clinical examination and monitoring animal health	credit (oral)	Wet_WSK_05
<i>Skills</i>			
1	conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment	credit (oral)	Wet_USK_02
2	performs a full clinical examination of the animal	credit (oral)	Wet_USK_03
3	collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests	credit (oral)	Wet_USK_06
<i>Social competences</i>			
1	has an attitude consistent with ethical principles and	credit (oral)	Wet_KS_02

	undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions		
2	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity	credit (oral)	Wet_KS_05
3	deepens his/her knowledge and improves skills	credit (oral)	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - R. W. Nelson, C. G. Couto: „Small Animal Internal Medicine”, 2013, Mosby - M. Schaer, F. P. Gaschen: „Clinical Medicine of the Dog and Cat”, 2016, CRC Press - J. Wiley: „Canine Internal Medicine: What’s Your Diagnosis?”, 2017, Wiley-Blackwell - S. J. Ettinger, E. C. Feldman, E. Cote: Textbook of Veterinary Internal Medicine Expert Consult, 2016, Elsevier - T. W. Fossum: „Small Animal Surgery”, 2018, Mosby - M. V. R. Kustritz: „Clinical Canine and Feline Reproduction”, 2009, Wiley-Blackwell - C. E. Green: „Infectious diseases of dog and cat”, 2011, Saunders			
Total grade components		<i>grade obtained at classes 100%</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures: -

Titles of classes:

INFECTIOUS DISEASES

1. Epizootic management and currently binding documentation concerning management in suspected rabies in dogs and cats: rules of observing the animals suspected of rabies, differential diagnosis, intravital diagnosis. The procedure and documentation in official observation for rabies in animals observed after biting a human: taking epizootic history from the owners of animals observed for rabies, rules of official observation by a decision of the County veterinary doctor and observation at the expense of the owner conditions of the premises meeting the requirements for temporary detention of observed animals principles of cooperation with the County veterinary doctor and SANEPID. Vaccination against rabies: performance of vaccination, rule of documentation for vaccination against rabies. Collection of blood samples for testing blood samples and rules of antibody titration and interpretation of examination results in the case of dogs going abroad of Poland in respect to international requirements for rabies.

2. Serological (ELISA, DIF, IFAT, OA, Rivlta test) and microbiological (cultures) examinations of material from clinical cases (EPI-VET laboratory). Evaluation of preparations, principles for interpretation of serological tests and possible procedures in infectious diseases of dogs (distemper, leptospirosis, Rubarth disease, canine coronavirus infection, canine parvovirus infection, ehrlichiosis, borreliosis, kennel cough and FIV, FIP, FeLV, feline distemper, feline rhinitis, mycoplasmosis, chlamydophilosis, herpes viruses infection). Principles of preparation of material for diagnostic tests using techniques of molecular biology and flow cytometry (collection samples, lymphocyte raft

preparation, DNA isolation, isolation of subpopulations of haemocytes in evaluation of the background immune thrombocytopenia). Interpretation of the results of PCR examination in animals at different stages of infection and in vaccinated animals.

3. Veterinary proceedings in case of infectious diseases in dogs and cats: proceeding in animals kennels, principles of vaccination and using appropriate preparations, principles for conducting therapy, principles of combining sick animals, animals after recovery, healthy animals, bioassurance. Vaccinations for dogs and cats.

INTERNAL DISEASES

1. Practical diagnosis and treatment of cardiovascular diseases in dogs and cats (congenital and acquired heart diseases, vascular diseases, heart ultrasound, heart electrocardiography).

2. Practical diagnosis and treatment of skin diseases in dogs and cats (bacterial dermatitis, fungal skin diseases, allergic dermatitis, parasitic skin diseases, autoimmune skin diseases, additional tests used in the diagnosis of skin diseases).

3. Practical diagnosis and treatment of gastrointestinal diseases in dogs and cats (diseases with vomiting signs, diseases with diarrhea or difficult passing of feces, endoscopic diagnostics of anterior and posterior part of the alimentary tract).

4. Practical diagnosis and treatment of liver and pancreatic diseases in dogs and cats (inflammatory and noninflammatory diseases of the liver and biliary tract, laboratory and imaging diagnostics of liver diseases, liver biopsy, pancreatitis, exocrine pancreatic insufficiency, laboratory diagnostics of pancreatic diseases).

5. Practical diagnosis and treatment of respiratory diseases in dogs and cats (diseases with sneezing signs, diseases with cough and dyspnoea signs, endoscopic diagnostics of diseases of nasal cavities, larynx, trachea and bronchi, broncho-alveolar lavage).

6. Practical diagnosis and treatment of nervous system diseases in dogs and cats (inflammatory and noninflammatory diseases of the brain, meninges and spinal cord, differentiation of causes of epileptic seizures, laboratory and imaging diagnostics of nervous system diseases, puncture and collection of cerebrospinal fluid).

7. Practical diagnosis and treatment of urinary tract diseases in dogs and cats (diseases of kidney and lower urinary tract, laboratory and imaging diagnostics of the urinary system, cystoscopy, kidney biopsy).

8. Practical diagnosis and treatment of endocrine diseases in dogs and cats (disturbances in the function of the thyroid, adrenal gland and pancreas, laboratory diagnostics of endocrine diseases).

9. Principles of diagnosis of neoplastic diseases and the principles of tumours therapy.

SURGERY

1. Surgery in the abdominal cavity in dogs and cats (the alimentary tract - surgery of the stomach, intestines and liver, the urinary system – surgery of the kidneys, ureters, urinary bladder and urethra, the reproductive system - surgery of the ovaries, testes, uterus, vagina, prostate and mammary gland; splenectomy, oncological operations).

2. Surgery in the chest in dogs and cats (thoracotomy, surgery of the thoracic part of the esophagus, surgery of the thoracic part of the trachea, vascular anomalies in the chest, the operating procedures of mediastinum, pneumothorax, subcutaneous emphysema, diaphragmatic hernia, lung lobe resection).

3. Surgery in the neck and head (surgery of the oral cavity and throat, surgery of the sinuses and nasal cavities, surgery of the larynx and cervical part of the trachea).

4. Orthopedic joint procedures (diagnostics, conservative and surgical treatment).

5. Veterinary traumatology (fractures, luxations), diagnostics, surgical and conservative treatment).

6. Anesthesiology (methods of anesthesia used in various surgical procedures, intensive care, cardiopulmonary resuscitation).

7. Imaging diagnostic of surgical patients (X-ray, ultrasound).

REPRODUCTION

1. The practical gynecological examination of bitches and queens: anamnesis, anamnesis questionnaire, clinical examination, cytological examination of the vagina. Vaginal swabs collection. Swabs staining.

Cytological evaluation of vaginal swabs. Review of preparations from different physiological and pathological states. Collection material from the urogenital system for additional tests.

2. Endoscopic examination of the reproductive tract: patient preparation and the technique, principles and interpretation of results, determination of the oestrus cycle phase on the basis of endoscopic examination, pathological lesions of the reproductive tract, methods for uterine cervix catheterization.

3. The endocrinological examination of reproductive functions in small animals: collection of material, determination and analysis of concentrations of progesterone, estrogen and other sex hormones in the blood, hormonal stimulation tests, interpretation of results, analysis of the dynamics of changes in sex hormone concentrations in the blood. The principles for determining the optimum date for insemination of females.

4. The ultrasound examination of the reproductive system in small animals: ultrasound examination of the ovaries in various physiological and pathological states, ultrasound examination of the uterus and other parts of the reproductive system, interpretation of results.

5. Obstetric-gynecological procedures in small animals: caesarean section - surgical technique, preparation for surgery, postoperative proceeding, female sterilization, male castration, total and partial mastectomy, hysterectomy and ovariectomy in females with pyometra.

Allocation of ECTS for the course/module

Course title: Diseases of dogs and cats - clinical internship I

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	61	2
Student's own work	20	1
Total hours/ECTS of student's workload	81	3

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **: 60
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description – SYLLABUS

Code	MWW-AJ>InterDogs2
Course Title	Diseases of dogs and cats – Clinical Internship II
Subject area /Field of study	VETERINARY

Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	XI
ECTS / including contact hours	5
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES
	CLASSES - LAB. GROUP:
	CLASSES - CLIN. GROUP: 60
	CLASSES - AUD. GROUP:
Teacher responsible for the course	WRZOSEK MARCIN
Language of instruction	ENGLISH*
Prerequisites	Preceding subjects that should be completed: Animal Anatomy, Biochemistry, Histology and Embryology, Veterinary Microbiology, Animal Physiology, Veterinary Pharmacology, Veterinary Immunology, Pathophysiology, Clinical and Laboratory Diagnostics, Veterinary Dietetics, Parasitology, Pathological Anatomy, Surgery and Anaesthesiology, Diagnostic Imaging, Diseases of Dogs and Cats.
Short description of the course (max. 500 characters)	The aim of the course is practical knowledge and participation in the work of clinic, operating theater and diagnostic imaging of Small Animals Surgery Clinic.
Content of the course unit (detailed description)	Students engaged in clinical internship in surgery of dogs and cats are required to participate actively in the activities of diagnosis and treatment. Activities related to this include clinical examination of the patient, the preparation of the operative field, conducting anesthetic, monitoring of intra- and post-operative, surgical assistance and postoperative care. Interns gain experience in conducting medical documentation, ie. anesthesia protocol, the description of the surgical and post-operative indications. In addition, they participate in the activities performed in the diagnostic imaging (x-ray, ultrasound, CT).

Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	describes and defines the causes and clinical signs of disease and functional disorders that occur in dogs and cats	credit	Wet_WSK_03
2	describes the diagnosis (including differential diagnosis), treatment and prevention in specific disease in dogs and cats	credit	Wet_WSK_04
3	interprets the results of laboratory tests (such as eg: blood tests, urinalysis, examination of fluid from body cavities, cerebrospinal fluid examination, ultrasound, ECG, X-ray, CT, MRI, EEG, cytological smears)	credit	Wet_WSK_06
<i>Skills</i>			
1	performs clinical examination and uses specialized terminology describing the disease		Wet_USK_03
2	diagnose diseases in dogs and cats and can provide assistance in an emergency		Wet_USK_04
3	collects and protects the material for laboratory tests and interprets the results of laboratory tests		Wet_USK_06
4	can practically use treatment (including operations) and prevention in dogs and cats		Wet_USK_13 Wet_USK_18
<i>Social competences</i>			
1	students realize how important it is to constantly learn and improve their skills and they are aware of their limitations		Wet_KS_07
2	put the patient's good first and act in accordance with ethical rules		Wet_KS_02
3	aware for fact that they are responsible for the decision they make		Wet_KS_06
Literature - compulsory - complementary/optional 1. Morgan R.V. – Handbook of small animal practise. 5ed. Saunders Elsevier 2. Noakes D., Parkinson T., England G. - Arthur's Veterinary Reproduction and Obstetrics. W.B. Saunders 2001 3. Johnston S. D., Kustritz M. V. R., Olson P. N. S. - Canine and Feline Theriogenology, Elsevier Health Sciences 2001 4. Kustritz M. V. R. - Clinical Canine and Feline Reproduction, Wiley-Blackwell 2009 5. Simpson G., England G., Harvey M. - Manual of Small Animal Reproduction and Neonatology, BSAVA 1998			

6. England G., von Heimendahl A. - BSAVA Manual of Canine and Feline Reproduction and Neonatology. BSAVA 2010. 7. Green C.E. Infectious diseases of dog and cat. Elsevier. Wyd. 1 polskie., 2010	
Total grade components	<i>Graduation of the clinical classes: Diseases of Dogs and Cats – Clinical Internship I+ II</i>
Comments:	

List of subjects and exercises for the course/module

<p>INFECTIONS DISEASES</p> <p>1. Infectious diseases in dogs and cats</p> <p>Epizootic management and currently binding documentation concerning management in suspected rabies in dogs and cats:</p> <ul style="list-style-type: none"> - rules of observing the animals suspected of rabies, differential diagnosis, intravital diagnosis. <p>The procedure and documentation in official observation for rabies in animals observed after biting a human:</p> <ul style="list-style-type: none"> -taking epizootic history from the owners of animals observed for rabies, -rules of official observation by a decision of the County veterinary doctor and observation at the expense of the owner -conditions of the premises meeting the requirements for temporary detention of observed animals -principles of cooperation with the County veterinary doctor and SANEPID. <p>Vaccination against rabies:</p> <ul style="list-style-type: none"> -performance of vaccination, -rule of documentation for vaccination against rabies. <p>Collection of blood samples for testing blood samples and rules of antibody titration and interpretation of examination results in the case of dogs going abroad of Poland in respect to international requirements for rabies.</p> <p>2. Infectious diseases in dogs and cats</p> <p>Serological (ELISA, DIF, IFAT, OA, Rivlta test) and microbiological (cultures) examinations of material from clinical cases (EPI-VET laboratory).</p> <p>Evaluation of preparations, principles for interpretation of serological tests and possible procedures in infectious diseases of dogs (distemper, leptospirosis, Rubarth disease, canine coronavirus infection, canine parvovirus infection, ehrlichiosis, borreliosis, kennel cough and FIV, FIP, FeLV, feline distemper, feline rhinitis, mycoplasmosis, chlamydia, herpes viruses infection).</p> <p>Principles of preparation of material for diagnostic tests using techniques of molecular biology and flow cytometry (collection samples, lymphocyte raft preparation, DNA isolation, isolation of subpopulations of haemocytes in evaluation of the background immune thrombocytopenia).</p> <p>Interpretation of the results of PCR examination in animals at different stages of infection and in vaccinated animals.</p> <p>3. Infectious diseases in dogs and cats</p>
--

Veterinary proceedings in case of infectious diseases in dogs and cats:

- proceeding in animals kennels,
- principles of vaccination and using appropriate preparations,
- principles for conducting therapy,
- principles of combining sick animals, animals after recovery, healthy animals,
- bioassurance.

Vaccinations for dogs and cats.

INTERNAL DISEASES

1. Practical diagnosis and treatment of cardiovascular diseases in dogs and cats (congenital and acquired heart diseases, vascular diseases, heart ultrasound, heart electrocardiography).
2. Practical diagnosis and treatment of skin diseases in dogs and cats (bacterial dermatitis, fungal skin diseases, allergic dermatitis, parasitic skin diseases, autoimmune skin diseases, additional tests used in the diagnosis of skin diseases).
3. Practical diagnosis and treatment of gastrointestinal diseases in dogs and cats (diseases with vomiting signs, diseases with diarrhea or difficult passing of feces, endoscopic diagnostics of anterior and posterior part of the alimentary tract).
4. Practical diagnosis and treatment of liver and pancreatic diseases in dogs and cats (inflammatory and noninflammatory diseases of the liver and biliary tract, laboratory and imaging diagnostics of liver diseases, liver biopsy, pancreatitis, exocrine pancreatic insufficiency, laboratory diagnostics of pancreatic diseases).
5. Practical diagnosis and treatment of respiratory diseases in dogs and cats (diseases with sneezing signs, diseases with cough and dyspnoea signs, endoscopic diagnostics of diseases of nasal cavities, larynx, trachea and bronchi, broncho-alveolar lavage).
6. Practical diagnosis and treatment of nervous system diseases in dogs and cats (inflammatory and noninflammatory diseases of the brain, meninges and spinal cord, differentiation of causes of epileptic seizures, laboratory and imaging diagnostics of nervous system diseases, puncture and collection of cerebrospinal fluid).
7. Practical diagnosis and treatment of urinary tract diseases in dogs and cats (diseases of kidney and lower urinary tract, laboratory and imaging diagnostics of the urinary system, cystoscopy, kidney biopsy).
8. Practical diagnosis and treatment of endocrine diseases in dogs and cats (disturbances in the function of the thyroid, adrenal gland and pancreas, laboratory diagnostics of endocrine diseases).
9. Principles of diagnosis of neoplastic diseases and the principles of tumours therapy.

SURGERY

1. Surgery in the abdominal cavity in dogs and cats (the alimentary tract - surgery of the stomach, intestines and liver, the urinary system – surgery of the kidneys, ureters, urinary bladder and urethra, the reproductive system - surgery of the ovaries, testes, uterus, vagina, prostate and mammary gland; splenectomy, oncological operations).
2. Surgery in the chest in dogs and cats (thoracotomy, surgery of the thoracic part of the esophagus, surgery of the thoracic part of the trachea, vascular anomalies in the chest, the operating procedures of mediastinum, pneumothorax, subcutaneous emphysema, diaphragmatic hernia, lung lobe resection).
3. Surgery in the neck and head (surgery of the oral cavity and throat, surgery of the sinuses and nasal cavities, surgery of the larynx and cervical part of the trachea).
4. Orthopedic joint procedures (diagnostics, conservative and surgical treatment).
5. Veterinary traumatology (fractures, luxations), diagnostics, surgical and conservative

- treatment).
6. Anesthesiology (methods of anesthesia used in various surgical procedures, intensive care, cardiopulmonary resuscitation).
 7. Imaging diagnostic imaging of surgical patients (X-ray, ultrasound).

REPRODUCTION

1. The practical gynecological examination of bitches and queens:

- anamnesis,
- anamnesis questionnaire,
- clinical examination,
- cytological examination of the vagina.

Vaginal swabs collection. Swabs staining. Cytological evaluation of vaginal swabs. Review of preparations from different physiological and pathological states.

Collection material from the urogenital system for additional tests.

2. Endoscopic examination of the reproductive tract:

- patient preparation and the technique,
- principles and interpretation of results,
- determination of the oestrus cycle phase on the basis of endoscopic examination, pathological lesions of the reproductive tract,
- methods for uterine cervix catheterization.

3. The endocrinological examination of reproductive functions in small animals:

- collection of material, determination and analysis of concentrations of progesterone, estrogen and other sex hormones in the blood,
- hormonal stimulation tests, interpretation of results, analysis of the dynamics of changes in sex hormone concentrations in the blood.

The principles for determining the optimum date for insemination of females.

4. The ultrasound examination of the reproductive system in small animals:

- ultrasound examination of the ovaries in various physiological and pathological states,
- ultrasound examination of the uterus and other parts of the reproductive system,
- interpretation of results.

5. Obstetric-gynecological procedures in small animals:

- caesarean section - surgical technique, preparation for surgery, postoperative proceeding,
- female sterilization,
- male castration,
- total and partial mastectomy,
- hysterectomy and ovariectomy in females with pyometra.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	61	5

Student's own work	40	3
Total hours/ECTS of student's workload	101	2

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **: 60
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher: 1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Sylabus przedmiotu/modułu kształcenia

Kod przedmiotu	MWW-SJ>ChorobyZw
Nazwa przedmiotu	Choroby Zwierząt Gospodarskich / Diseases of farm animals (S)
Kierunek	WETERYNARIA
Poziom studiów	JEDNOLITE MAGISTERSKIE
Profil	OGÓLNOAKADEMICKI
Rodzaj przedmiotu	OBLIGATORYJNY/ WYBIERALNY *
Semestr studiów	7
Punkty ECTS/ogólne/w tym z udziałem nauczyciela akademickiego	18/12/6

Formy zajęć (wykłady/ćwiczenia/inne) - liczba godz.	<p>WYKŁADY: 125</p> <p>choroby wewnętrzne/internal diseases 25,</p> <p>chirurgia/surgery 15,</p> <p>rozdród/reproduction 40,</p> <p>choroby zakaźne/infectious diseases 45,</p>
	<p>ĆW. LABORATORYJNE: 50</p> <p>rozdród/reproduction 35</p> <p>chirurgia/surgery 15,</p>
	<p>ĆW. KLINICZNE: 75</p> <p>choroby wewnętrzne/internal diseases 35</p> <p>rozdród/reproduction 10,</p> <p>choroby zakaźne/infectious diseases 30,</p>
Odpowiedzialny/a za przedmiot	<p>NIŻAŃSKI WOJCIECH (MORDAK RYSZARD, PRZĄDKA PRZEMYSŁAW, TWARDOŃ JAN, RYPUŁ KRZYSZTOF)</p>
Język	<p>POLSKI*</p>
Wymagania wstępne	<p>ukończenie przedmiotów podstawowych: Anatomia zwierząt, Biochemia, Histologia i embriologia, Mikrobiologia weterynaryjna, Fizjologia zwierząt, Diagnostyka kliniczna i laboratoryjna, Farmakologia weterynaryjna.</p>
Skrócony opis przedmiotu (max. 500 znaków)	<p>Celem nauczania przedmiotu jest przekazanie studentom podstawowej wiedzy nt. czynników etiologicznych, wywołanych objawów klinicznych, koniecznych lub możliwych badań dodatkowych, końcowej interpretacji celem rozpoznania choroby, rozpoznania różnicowego, zastosowania leczenia i profilaktyki chorób zwierząt gospodarskich.</p>
Treści kształcenia (szczegółowy opis	<p>Przyczyny, objawy chorobowe , przebieg, rozpoznawanie (techniki diagnostyczne), leczenie i</p>

przedmiotu)		zapobieganie chorobom wewnętrznym, zakaźnym, chirurgicznym i ginekologiczno-położniczym u zwierząt gospodarskich.	
<i>Efekty kształcenia (max. po 3 efekty)</i>			
<i>Nr</i>	<i>Efekt przedmiotowy (opis)</i>	<i>Metoda oceny</i>	<i>Symbol efektu uczenia się dla kierunku studiów</i>
<i>Wiedza</i>			
1	zna w pogłębionym stopniu i szczegółowo opisuje zasady i mechanizmy leżące u podstaw zdrowia zwierząt, a także powstawania chorób i ich terapii – od poziomu komórki przez narząd, zwierzę do całej populacji zwierząt	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_WO_01
2	wyjaśnia i interpretuje etiologię, patogenezę i objawy kliniczne chorób występujących u poszczególnych gatunków zwierząt oraz zna zasady postępowania terapeutycznego i sposoby postępowania diagnostycznego i terapeutycznego właściwe dla stanów chorobowych występujących u zwierząt;	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_WO_03
3	szczegółowo charakteryzuje sposoby wykorzystani weterynaryjnych produktów leczniczych w celu profilaktyki i leczenia zwierząt, a także w celu zagwarantowania bezpieczeństwa łańcucha żywnościowego i ochrony środowiska	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_WO_04
<i>Umiejętności</i>			
1	przeprowadza badanie kliniczne zwierzęcia zgodnie z zasadami sztuki lekarskiej	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_UO_01
2	analizuje i interpretuje zmiany anatomopatologiczne oraz wyniki badań laboratoryjnych i dodatkowych, formułuje rozpoznanie stanu chorobowego, z uwzględnieniem diagnostyki różnicowej, oraz podejmuje czynności terapeutyczne lub profilaktyczne	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_UO_02
3	monitoruje stan zdrowia stada, a także podejmuje działania w przypadku stwierdzenia choroby podlegającej obowiązkowi zwalczania lub rejestracji	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_UO_04

Kompetencje społeczne

1	wykazuje odpowiedzialność za podejmowane decyzje wobec ludzi, zwierząt i środowiska przyrodniczego	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_KS_01
2	prezentuje postawę zgodną z zasadami etycznymi i podejmuje działania w oparciu o kodeks etyki w praktyce zawodowej oraz wykazuje tolerancję dla postaw i zachowań wynikających z odmiennych uwarunkowań społecznych i kulturowych	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_KS_02
3	współpracuje z przedstawicielami innych zawodów w zakresie ochrony zdrowia publicznego	Egzamin (pisemny), zaliczenie (pisemne/ustne)	Wet_KS_10

Literatura (max. 8 pozycji, w tym strony www, prezentacje na youtube itp.)

- obowiązkowa:

1. Blowey R.W., Weaver A.D.: Atlas chorób bydła. Elsevier, Urban & Partner, Wrocław 2014.
2. Choroby bydła mlecznego. Tom 1 i 2. Praca zbiorowa pod redakcją Thomas J. Divers i Simon F Peek. Wydanie I polskie redakcja Twardoń J. i Fabisiak M. Elsevier Urban & Partner Wrocław 2011.
3. Dirksen G., Grynder H.-D., Stöber M.: Choroby wewnętrzne i chirurgia bydła. Wyd. Galaktyka, Łódź 2009.
4. Gliński Z., Kostro K.: Choroby zakaźne zwierząt z zarysem epidemiologii zwierząt i zoonoz, PWRiL, Warszawa 2003
5. P.R. Greenough: Kulawizny bydła. Elsevier, Urban & Partner 2010.
6. P.G.G., Jackson : Położnictwo weterynaryjne. Elsevier, Urban & Partner, Wrocław 2009.
7. P.G.G., Jackson, P. D. Cockroft : Choroby świń. Elsevier, Urban & Partner, Wrocław 2009.
8. Pejsak Z.: Ochrona zdrowia świń. Polskie Wydawnictwo Rolnicze, Poznań 2007.

- uzupełniająca:

1. Badanie kliniczne w diagnostyce chorób wewnętrznych zwierząt domowych. Wydanie II uzupełnione. Praca zbiorowa pod redakcją J. Nicponia. Wydawnictwo UP we Wrocławiu, 2015.
2. Bednarski M.: Choroby bydła, podstawy diagnostyki i terapii. Apra – wetpress, Myślecinek 2015.
3. Dejneka G.J.: Poporodowe choroby macicy u bydła. Wyd. Elamed 2018.
4. Mordak R.: Podstawy prawne działalności klinicznej oraz dokumentacji w medycynie weterynaryjnej. Wyd. Medpharm Wrocław 2006.
5. Mordak R.: Monitorowanie problemów zdrowotnych stad bydła. Wyd. Medpharm, Wrocław, 2008.
6. Wybrane elementy żywienia a problemy zdrowotne krów mlecznych. Praca zbiorowa pod redakcją Preś J. i Mordak. Wydawnictwo Medpharm, Wrocław, R. 2010 część I i 2013 część II.

Sposób ustalania oceny łącznej z przedmiotu	Ocena po 25% z 4 działów
Uwagi	

Wykaz tematów wykładów i ćwiczeń dla przedmiotu/modułu kształcenia

Tematyka wykładów:

Choroby wewnętrzne – 25 godzin

1. Choroby jamy ustnej dotyczące tkanek miękkich. Zapalenie jamy ustnej, dziąseł, języka, gardła, podniebienia, migdałków, ślinianek.
2. Różnicowa diagnoza patologicznych zmian w jamie ustnej nie infekcyjnych i infekcyjnych. Wybrane choroby przełyku.
3. Choroby przedżołądków – niestrawność, kwasica i zasadowica żwacza.
4. Przepelnienie żwacza, zatkanie ksiąg, ostre i przewlekłe wzdęcia przedżołądków, rogowacenie żwacza.
5. Zespół Hoflunda, urazowe zapalenie czepca, niestrawność wywołana ciałami tępyimi, ostre i przewlekłe niezbyt żołądka, przemieszczenie i skręt trawieńca, zapalenie otrzewnej.

6. Choroby wątroby, choroby trzustki. Mięśniochwat porażenny bydła, choroba transportowa krów.
7. Ketoza bydła i ketoza owiec, zespół stłuszczenia wątroby u krów i ujemny bilans energetyczny.
8. Zaburzenia mineralne niedobór makroelementów. Porażenie poporodowe - hipokalcemia , hipofosfatemia, hipomagnezemia.
9. Zaburzenia przemiany mineralnej, witaminowej w kościach zwierząt fermowych - osteopatie: osteoporoza, osteomalacja, osteopetroza, krzywica, epifizjoliza.
10. Anemia fizjologiczna prosiąt, hipoglikemia prosiąt.
11. Pierwiastki śladowe-mikroelementy, witaminy, antyoksydanty –rola dla zdrowia zwierząt fermowych i ich produktywności.
12. Konsekwencje nierównowagi niedoboru i nadmiaru, pierwiastków śladowych witamin i elektrolitów u zwierząt gospodarskich
13. Choroby układu oddechowego: ostra i przewlekła pęcherzykowa rozedma płuc, śródmiąższowa rozedma płuc, obrzęk i rozedma płuc bydła na pastwiskach, przekrwienie i obrzęk płuc, zakrzepy i zatory płucne.
14. Odoskrzelowe zapalenie płuc, przewlekłe śródmiąższowe zapalenie płuc, włóknikowe zapalenie płuc, zgorzel płuc, grzybica płuc, zapalenie opłucnej i puchlina opłucnowa.
15. Choroby układu moczowego u bydła – zapalenie nerek, marskość nerek, zespół nerczycowy, ropne odmiedniczkowe zapalenie nerek.
16. Zapalenie pęcherza moczowego, krwimocz pęcherzowy bydła, napadowy krwimocz bydła, poporodowa hemoglobinuria bydła, porażenie i przemieszczenie pęcherza moczowego.
17. Badanie neurologiczne. Lokalizacja zmian neurologicznych.

18. *Encephalitis, meningitis*, ropnie mózgu, ropnie przysadki mózgowej. Diagnostyka różnicowa zmian tła nie infekcyjnego i infekcyjnego.

19. Niedobór tiaminy, zatrucie ołowiem, zatrucie siarką, zatrucie solą, zatrucie ciałami ketonowymi. Choroby rdzenia kręgowego zapalenie, choroby urazowe rdzenia kręgowego.

20. Uraz , stany ropne , mieloencefalopatia zwyrodnieniowa (Weaver Syndrome). Urazy nerwów obwodowych.

21. Dermatologiczne problemy zdrowotne u zwierząt fermowych.

22. Różnicowa diagnostyka nie infekcyjnych i infekcyjnych chorób skóry.

23. Środowiskowe i żywieniowe aspekty zdrowia i problemów zdrowotnych u świń.

24. Organizacja ochrony zdrowia na fermach na fermach trzody chlewnej.

25. Choroby serca – urazowe zapalenie osierdzia, zapalenie mięśnia sercowego, Zapalenie wsierdzia, choroby naczyń.

Choroby zakaźne – 45 godzin

1. Pryszczycza i choroby pryszczycopodobne.

2. Gruźlica przeżuwaczy

3. Choroby bydła podlegające zgłaszaniu i zwalczaniu (pleuropneumonia bydła, księgosusz, pastereloza)

4. Choroby bydła podlegające zgłaszaniu i zwalczaniu (białaczki bydła, zakażenia reowirusowe (BTV, Krwotoczna choroba zwierzyny płowej)

5. Choroby bydła podlegające zgłaszaniu i zwalczaniu (BSE, wścieklizna, wąglik)

6. Choroby wirusowe i bakteryjne owiec cz.1. (adenomatoza, Maedi-Visna, gruźlica rzekoma, parautuberkuloza)

7. Choroby wirusowe i bakteryjne owiec cz.2. (pomór małych przeżuwaczy, ch. skokowa, Scrapie, ch. graniczna)

8. Choroby świń podlegające zgłaszaniu i zwalczaniu (ASF, CSF)

9. Choroby świń (wścieklizna, bruceloza, leptospiroza, wąglik, różycyca)

10. PRDC cz. 1 (AD, PRRS, SI, pleuropneumonia)

11. PRDC cz.2 (PCV-2, streptokokoza, ch. Glassera)

12. PIDC (wirusowe i bakteryjne choroby przewodu pokarmowego świń)

13. Choroby zakaźne świń przebiegające z zaburzeniami w rozrodzie

14. Egzotyczne choroby zwierząt gospodarskich

15. Wykład aktualne problemy w chorobach zakaźnych przeżuwaczy na terenie Europy.

Rozród – 40 godzin

1. Fizjologia i specyfika rozrodu bydła

2. Indukcja i synchronizacja rui i krów i jałówek, embriotransfer u bydła.

3. Zaburzenia czynnościowe jajników i zaburzenia cyklu u bydła cz. 1

4. Zaburzenia czynnościowe jajników i zaburzenia cyklu u bydła cz. 1

5. Zapalenia i zaburzenia macicy u bydła.

6. Wpływ żywienia na rozród bydła.

7. Zaburzenia okresu ciąży u bydła cz. I. (obumieranie zarodków, niezakaźne zaburzenia okresu ciąży – m.in. anomalie w zakresie rozwoju ciąży, anomalie płodowe, ruja u ciężarnych samic, przepukliny ciążowe, obrzęki ciążowe, toksemia ciążowa, mumifikacja, maceracja i gnicie płodu)

8. Zaburzenia okresu ciąży u bydła cz. II. (ronienia zakaźne i na tle innych przyczyn, przerywanie ciąży, indukcja porodów, zaleganie przedporodowe, przerywanie ciąży i indukcja porodów).

9. Schorzenia okresu poporodowego cz. I. (wpadnięcie macicy, krwotok poporodowy, pęknięcie macicy, wypadnięcie pęcherza moczowego, uszkodzenia tkanek powstałe przy porodzie, poporodowy paraliż nerwów obwodowych)

10. Schorzenia okresu poporodowego cz. II. (zatrzymanie łożyska, porażenie i zaleganie poporodowe)

11. Etiopatogeneza *mastitis* u bydła

12. Leczenie i profilaktyka *mastitis*

13. Nadzór nad rozrodem świń w warunkach fermowych

14. Zaburzenia płodności świń

15. Zaburzenia płodności owiec i kóz

Chirurgia

1. Zasady znieczulenia ogólnego i miejscowego przeżuwaczy

2. Zasady znieczulenia ogólnego i miejscowego świń

3. Ortopedia bydła: prawidłowości i patologie w budowy postaw kończyn bydła. Fizjologiczne parametry i patologiczne zniekształcenia puszki racicowej

4. Rozpoznawanie chorób narządu ruchu, kulawizny i ich kategorie

5. Choroby palców bydła I: przerwy w ciągłości puszki rogowej, ściana oddzielona, podwójna podeszwa, ochwat, stłuczenie i nagwożdżenie tworzywa, zapalenie i martwica tworzywa ściennego i podeszwowego

6. Choroby palców bydła II: głębokie ropne zapalenie tworzywa, opuszki, skóry szpary racicowej, korony, kości racicowej, przerost skóry szpary międzypalcowej (limax).

7. Zabiegi profilaktyczne i pielęgnacyjne w ortopedii przeżuwaczy: korekcja racic, kąpiele kończyn, znaczenie diety oraz monitoringu zdrowia narządu rodowego, mlekowego i pokarmowego w ograniczeniu chorób kończyn.

8. Traumatologia bydła: kości czaszki i złamania żuchwy, wyrostka rogowego k. czołowej, kręgosłupa (kręgi, k. krzyżowa), miednicy, kości długich, kręcz szyi.

9. Przeżuwacze: zwichnięcia i zwyrodnienia stawów (barkowego, biodrowego, rzepki), promienica kości

10. Przeżuwacze: porażenia i zapalenia nerwów (splot barkowy, n. promieniowy, łokciowy, pośrodkowy, strzałkowy), niedowład spastyczny, zerwanie mięśni, więzadeł.

11. Przeżuwacze: zapalenia mięśni, nerwów, kaletek (puchlina kaletki przedgarstkowej, międzyguzkowej, kolanowej, piętowej), kulawizna barkowa, biodrowa.

12. Urazowe zapalenie czepca, drenaż ropnia, torakotomia

13. Choroby chirurgiczne trawieńca ich rozwiązywanie operacyjne u bydła. Repozycja zachowawcza i operacyjna. Umocowanie trawieńca do ściany brzucha na zwierzęciu stojącym, leżącym.

14. Choroby chirurgiczne trzody chlewnej I: osteoarthritis i ropowica palców, brak i wypadnięcie odbytu, krwiak ucha, przemieszczenie pęcherza

15. Choroby chirurgiczne trzody chlewnej II: zabieg kastracji prosiąt i knurów, wnętrostwo, przepukliny pępkowe, pachwinowe, mosznowe, amputacja palca, ogona, obcinanie zębów, wazektomia.

Tematyka ćwiczeń:

Choroby wewnętrzne

1. Badanie kliniczne ogólne oraz specjalistyczne badanie *per rectum* u bydła.
2. Pobieranie i badanie płynu żwacza u bydła.
3. Pobieranie krwi żyłnej i tętniczej do badań laboratoryjnych oraz podawanie leków u bydła
4. RKZ krwi żyłnej i tętniczej.
5. Praktyczne aspekty ochrony zdrowia bydła w fermach. Monitorowanie i terapia zaburzeń metabolicznych u krów mlecznych.
6. Punkcja żwacza, ksiąg, trawieńca, kl. piersiowej, worka osierdziowego, wątroby (badanie płynów).
7. Endoskopia pęcherza moczowego bydła, Pobieranie moczu.
8. Badanie kliniczne ogólne u innych zwierząt gospodarskich (owiec, kóz i świń). Sposoby pobierania krwi oraz drogi podawania leków.
9. Praktyczne aspekty ochrony zdrowia świń w fermie. Przykłady monitorowania i terapii.
10. Badanie koprologiczne u zwierząt gospodarskich.
11. Badanie neurologiczne u zwierząt gospodarskich.
12. Badanie skóry u zwierząt gospodarskich bydła, owiec, kóz i świń. Pobieranie materiału do badań.
13. Badanie skóry – omówienie zmian dermatologicznych w wybranych chorobach bydła owiec kóz i świń.
14. Echokardiografia u bydła. EKG.
15. Odrabianie ćwiczeń, korekty testów i zaliczanie ćwiczeń.

Rozród

1. Badanie ginekologiczne krów i jałowic cz. 1. - praktyczne aspekty anatomii i fizjologii narządu płciowego bydła, ocena stanu macicy i jajników *per rectum* (narządy wyizolowane).
2. Badanie ginekologiczne krów cz. 2 – badanie zewnętrzne i *per vaginam*, rozpoznawanie ciąży, cewnikowanie pęcherza moczowego.
3. Badanie rektalne macicy i jajników u bydła – zajęcia na symulatorach.
4. Pomoc porodowa u bydła cz. 1 (plan badania położniczego, dysproporcje płodowo – matczyne, nieprawidłowe ułożenia płodu).
5. Pomoc porodowa u bydła cz. 2 (skręt macicy, nieprawidłowe położenia i postawy).

6. Kolokwium I (2 godz.) oraz Badanie *per vaginam* (oglądanie i omacywanie), zakładanie wkładek dopochwowych (1 godz.).
7. Badanie rektalne macicy i jajników u bydła – zajęcia w RZD.
8. Badanie USG narządu płciowego bydła.
9. Cięcie cesarskie u bydła (narządy wyizolowane). Instrumentarium położnicze.

10. Zabiegi chirurgiczne na pochwie i sromie (narządy wyizolowane). Instrumentarium położnicze.

11. Badanie kliniczne gruczołu mlekowego. Badanie terenowe i laboratoryjne mleka.

12. Interpretacja wyników badania gruczołu mlekowego. Zabiegi operacyjne na gruczole mlekowym (narządy wyizolowane).

13. Diagnostyka zaburzeń rozrodu świń (badanie kliniczne, USG).

14. Diagnostyka zaburzeń rozrodu owiec i kóz. (badanie kliniczne, USG).

15. Kolokwium II , zaliczanie ćwiczeń.

Choroby zakaźne

1. Choroby zakaźne zwierząt gospodarskich (wykazy chorób podlegających w Polsce zwalczaniu i rejestracji. Postępowanie w przypadku wybuchu choroby zakaźnej). Ćwiczenie obejmuje: zapoznanie się z listą chorób występujących w Polsce podlegających zwalczaniu i zgłaszaniu oraz postępowaniu lekarsko-weterynaryjnemu w przypadku wybuchu choroby zakaźnej.

2. Zakażenia herpeswirusowe bydła (BHV-1, Głowica, BHV-2). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażenia BHV-1 oraz możliwości rozpoznania i zwalczania.

3. Wirusowa biegunka i choroba błon śluzowych (BVD/MD) , zakaźne zapalenie rogówek i spojówek u bydła (IBK). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń BVDV i IBK oraz możliwości rozpoznania i zwalczania.

4. Chlamydiozy, chlamydophilozy, gorączka Q bydła i owiec. Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń oraz możliwości rozpoznania, leczenia i zwalczania.

5. Choroby grzybicze u bydła, owiec i świń oraz Kolokwium I . Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny grzybic oraz możliwości rozpoznania, leczenia i zwalczania.

6. Choroby wirusowe i bakteryjne układu oddechowego bydła (BRSV, PI-3, Adeno-, Reowirus, Rhinowirus, mykoplazmoza, pastereloza). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń układu oddechowego oraz możliwości rozpoznania i zwalczania.

7. Choroby wirusowe i bakteryjne przewodu pokarmowego bydła (rota- i koronawirus, kolibakterioza, salmoneloza, zakażenia). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń przewodu pokarmowego oraz możliwości rozpoznania i zwalczania.

8. Choroby wirusowe i bakteryjne owiec (zanokcica owiec, niesztowica owiec, ospa owiec). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń oraz możliwości rozpoznania, leczenia i zwalczania.

9. Choroby wirusowe i bakteryjne owiec (zakażenia *Clostridium* spp.). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń oraz możliwości rozpoznania, leczenia i zwalczania.

10. Choroby wirusowe i bakteryjne bydła i owiec (listerioza, leptospiroza) oraz Kolokwium II. Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń oraz możliwości rozpoznania, leczenia i zwalczania.

11. Choroby wirusowe i bakteryjne układu oddechowego świń (mykoplazmozy świń, bordetelloza, ZZZN). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń oraz możliwości rozpoznania, leczenia i zwalczania.

12. Zakażenia przewodu pokarmowego świń (*E.coli*, *Salmonella*, Rota- i koronawirus). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń oraz możliwości rozpoznania, leczenia i zwalczania.

13. Choroby przewodu pokarmowego świń (dyszenteria, spirochetozy, adenomatoza). Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń oraz możliwości rozpoznania, leczenia i zwalczania.

14. Choroby wirusowe i bakteryjne świń (zakażenia picorna-, korona-, entero-, herpeswirusowe) oraz Kolokwium III. Ćwiczenie obejmuje: etiologię, patogenezę, drogi zakażenia oraz obraz kliniczny zakażeń oraz możliwości rozpoznania, leczenia i zwalczania.

15. Zaliczenie i odrabianie zaległych ćwiczeń.

Chirurgia

1. Małe przeżuwacze, trzoda chlewna. Znieczulenia: praktyczny trening: wkłucia dożylna i dotętnicze; sedacja, wywiązanie, unieruchomienie farmakologiczne zwierząt; wykonywanie znieczulenia miejscowego nasiękowego i okołonerwowego do zabiegów w okolicy głowy, brzucha, pachwiny, krocza, ogona, kończyn. Operacje do wyboru: dekornizacja, kaudotomia, amputacja palca, języka.

2. Ortopedia bydła I. Znieczulenie międzypalcowe, miejscowe dożylna. Zabiegi: okresowa korekcja rogu racicowego, opracowanie wrzodu podeszwy, resekcja ścięgna mięśnia zginacza głębokiego palców i stawu racicowego.

3. Ortopedia bydła II. Artrodeza stawu międzypaliczkowego dalszego, amputacja niska i wysoka palca, prezentacja innych chorób narządy ruchu przeżuwaczy.

4. Rumenotomia. Znieczulenie nadoponowe, przykręgowe, bliższe i dalsze. Zabieg: wykonanie laparotomii lewostronnej bocznej z rumenotomią metodą Goetzego, Weingarda, Kulczyckiego.

5. Przemieszczenie i skręt trawieńca u bydła; zabiegi: repozycja, omento- i abomazopeksja.

6. Zabiegi operacyjne u trzody chlewnej: kastracja, wnętrostwo, przepuklina, skracanie zębów, odtworzenia odbytu, krwiak małżowiny usznej, kaudotomia

7. Demonstracja znieczuleń i operacji u krów: blokady okołonerwowe, epiduralne odcinkowe i zabiegi na głowie, żwaczu, trawieńcu.

8. Zaliczenie ćwiczeń.

Przedmiot:

Forma aktywności	Średnia liczba godzin na realizację aktywności	Punkty ECTS
1. Godziny zajęć z nauczycielem (zajęcia, konsultacje, zaliczenie, egzamin)	254	12
2. Praca własna studenta	115	6
Suma (całkowity nakład pracy studenta)	369	18

Podział godzin:

- Wykłady: 125
- Ćwiczenia laboratoryjne/projektowe/lektoraty/sportowe**: 50
- Ćwiczenia kliniczne**: 75
- Ćwiczenia audytoryjne/seminaryjne**:
- Zajęcia stażowe**:
- Praktyki**:
- Inne z nauczycielem: 4

*wybrać właściwe

** jeśli dotyczy

Course description - SYLLABUS

Code	MWW-AJ>FarmAnimal
Course Title	Diseases of farm animals (S)
Subject area /Field of study	VETERINARY

Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ ELECTIVE
Semester of study	7
ECTS / including contact hours	18/12/6 LECTURES: 125 internal diseases 25, surgery 15, reproduction 40, infectious diseases 45,
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	CLASSES - LAB. GROUP: 50 reproduction 35 surgery 15
	CLASSES - CLIN. GROUP: 75 internal diseases 35 infectious diseases 30 reproduction 10
Teacher responsible for the course	NIŻAŃSKI WOJCIECH (MORDAK RYSZARD, PRZĄDKA PRZEMYSŁAW, TWARDONŃ JAN, RYPUŁA KRZYSZTOF)
Language of instruction	ENGLISH*
Prerequisites	completion of core subjects: anatomy of animals, Biochemistry, Histology and Embryology, Veterinary Microbiology, Animal Physiology, Clinical and Laboratory Diagnostics, Veterinary Pharmacology,
Short description of the course (max. 500 characters)	The aim of the course is to provide students with basic knowledge about the etiological factors, caused clinical signs, necessary or possible additional tests, the final interpretation of the purpose of diagnosis, differential diagnosis, treatment and prevention of use

		of farm animal diseases.	
Content of the course unit (detailed description)		Causes, disease symptoms, course, treatment and prevention of internal, infectious, surgical and gynecological-obstetric diseases in farm animals. Diagnostic techniques used in farm animals.	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, to the entire animal population;	Exam (written), pass (written / oral)	Wet_WO_01
2	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	Exam (written), pass (written / oral)	Wet_WO_03
3	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	Exam (written), pass (written / oral)	Wet_WO_04
<i>Skills</i>			
1	conducts clinical examination of the animal in accordance with the principles of medical art;	Exam (written), pass (written / oral)	Wet_UO_01
2	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Exam (written), pass (written / oral)	Wet_UO_02
3	monitors health of the herd, as well as undertakes action in the case of a disease that is subject to the obligation of disease eradication or its registration;	Exam (written), pass (written / oral)	Wet_UO_04

Social competences

1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Exam (written), pass (written / oral)	Wet_KS_01
2	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	Exam (written), pass (written / oral)	Wet_KS_02
3	cooperates with representatives of other professions in the scope of public health protection	Exam (written), pass (written / oral)	Wet_KS_10
<p>Literature (max. 8, including Youtube presentations, etc.)</p> <p>- compulsory</p> <p>1. A.H. Andrews, R.W. Blowey, H. Boyd, R.G. Eddy (ed): Bovine Medicine. Diseases and Husbandry of Cattle. Blacwell Science Ltd., Oxford 2004.</p> <p>2. Blowey R.W., Weaver A.D.: Color Atlas of Diseases and Disorders of Cattle. Mosby, London 2003.</p> <p>3. Divers T.J., Peek S.F. (ed.): Reburn's Diseases of Dairy Cattle Saunders Elsevier, St. Louis 2008.</p> <p>4. Fubini S., Ducharme N.: Farm Animal Surgery, Saunders, St. Louis 2004.</p> <p>5. Jackson P.G.G., Cockroft P. D.: Handbook of Pig Medicine. Saunders, Elsevier, London 2007.</p> <p>6. Radostits O.M., Gay C.C., Hinchcliff K.W., Constable P.D.: Veterinary Medicine. A textbook of the diseases of cattle, sheep, goats, pigs and horses. 10th Edition, Saunders Elsevier, London, 2007.</p> <p>7. Smith B.P. (ed.): Large Animal Internal Medicine. Saunders, Elsevier 2015.</p> <p>8. Veterinary Reproduction and Obstetrics. D.E. Noakes, T.J. Parkinson, G.C.W. England (editors). 9th ed. Saunders, Elsevier, 2009.</p> <p>-optional:</p> <p>1. GREENOUGH P.R.: BOVINE LAMINITIS AND LAMENESS : A HANDS-ON APPROACH. SAUNDERS, ELSEVIER LONDON</p>			

2007.	
2. Jackson P.G.G. : Handbook of Veterinary Obstetrics. 2nd ed. W.B. Saunders Company, Edinburgh 2004.	
3. Large Animal Theriogenology. R.F. Youngquist, W.L. Threlfall. 2nd ed. Saunders, Elsevier. 2007.	
4. Weaver A.D., St. Jean G., Steiner A.: Bovine Surgery and Lameness. Blackwell, Oxford 2005.	
5. Coole K.G., Johnson R.A.: Veterinary Anesthetic and Monitoring Equipment. Wiley Blackwell, Oxford 2018.	
Total grade components	<i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i>
Comments:	Final grade consists 25% of each of 4 departments

List of subjects and exercises for the course/module

Titles of lectures:

Internal medicine:

1. Diseases of oral cavity, Inflammations of the mouth and throat: stomatitis cheilitis, glossitis, gingivitis, pharyngitis, tonsillitis.

2. Differential diagnosis of noninfectious and infectious lesions in oral cavity. Selected diseases of the esophagus.

3. Forestomach diseases – indigestion. Acidosis and alkalosis of the rumen.

4. Rumen overloading, omasum obstipation, acute and chronic bloat of the rumen, rumen, hyperkeratosis, peritonitis.

5. Hoflund's syndrome, traumatic reticulitis, foreign bodies indigestion., acute and chronic abomasal indigestion, dislocation and torsion of abomasum. Peritonitis.

6. Hepathopathies, pancreas diseases,. Bovine myoglobinuria, shipping fever.
7. Bovine and ovine ketosis, hepatolipidosis syndrome. Negative energy balance in dairy cows.
8. Mineral imbalance, macrolements deficieny Hypocalcemia, Hypophosphatemia, Hypomagnesemia.
9. Mineral imbalances in bones of farm animals, osteopathies (osteoporosis, osteopetrisis, osteomalacia, rachitis epiphysiolysis).
10. Physiological anemia in piglets, hypoglycemia in piglets.
11. Trace elements, vitamins – antioxidants – a role for health of farm animals and their productivity.
12. Cosequences of trace elements vitamins and electrolytes deficiency – imbalance (shortage or excess).
13. Respiratory system diseases- Acute and chronic pulmonary vesicular emphysema. Interstitial pulmonary emphysema. Lung oedema. Hyperaemia and lung oedema. Pulmonary thrombosis and embolism.
14. Bronchopneumonia, chronic interstitial pneumonia, fibrosing pneumonia, fungal pneumonia, Pleuritis.
15. Nephritis, kidney cirrhosis, pyelonephritis.
16. Cystitis, haematuria, paroxysmal haemoglobinuria, puerperal haemoglobinuria, urinary bladder paralysis, urinary bladder dislocation.
17. Neurological examination. Neurological lesion localisation.
18. Encephalitis, Meningitis, Brain abscesses, Pituitary abscesses, Differential diagnostics by non infectious and infectious diseases.
19. Thiamine insufficiency, Lead poisoning, Sulfur poisoning, Salt intoxication, Nervous Ketosis. Spinal cord diseases – Inflammation, Compressive disease.

20. Trauma, Abscessation. Degenerative Myeloencephalopathy (Weaver Syndrome). Peripheral nerve injury.

21. Dermatological health problems in farm animals

22. Differential diagnostics of noninfectious and infectious diseases of the skin.

23. Environmental and nutritional aspects of health and health problems of pigs.

24. Organisation of the health protection on pigs farms.

25. . Cardiac diseases – traumatic pericarditis, myocarditis, . Endocarditis, vasculature disease.

Infectious diseases

1. Foot and mouth disease and other vesicular diseases.

2. Ruminant tuberculosis.

3. Notifiable and reportable bovine diseases (bovine pleuropneumonia, rinderpest, pasterelosis).

4. Notifiable and reportable (bovine leukemia, infections reowirusowe (BTV, Hemorrhagic disease of deer)

5. Controlled and registered bovine diseases (BSE, rabies, anthrax).

6. Viral and bacterial diseases of sheep part 1. (adenomatosis, Maedi-Visna, Caseous lymphadenitis – CLA, paratuberculosis).

7. Viral and bacterial diseases of sheep part 2. (PPV, Lumpy skin disease, Scrapie, Border disease).

8. Swine diseases (ASF, CSF).

9. Swine diseases (rabies, brucellosis, leptospirosis, anthrax, erysipelas).

10. PRDC part. 1 (AD, PRRS, SI, pleuropneumonia).

11. PRDC part 2 (PCV-2, streptococosis, Glasser disease)

12. PIDC (viral and bacterial alimentary diseases in pigs)

13. Infectious diseases affect pigs reproduction.

14. Exotic disease of farm animals.

15. The lecture given by visiting profesor – Ruminant infectious diseases in Europe – actual problems.

Reproduction

1. Physiology of the bovine reproductive tract and specificity of bovine reproduction.
2. Induction and synchronization of estrus in cows and heifers, embriotransfer in cattle.
3. Functional ovary disorders and abnormal oestrus cycle in cattle part. I.
4. Functional ovary disorders and abnormal oestrus cycle in cattle part. II.
5. Uterus infections and disorders in cattle.
6. Effect of nutrition on fertility.
7. Disorders of pregnancy in cattle part. I. (death of embryos, non-infectious disorders of pregnancy - including abnormalities of pregnancy development, fetal anomalies, estrus during gestation, pregnancy uterus hernia, pregnancy oedema, pregnancy toxemia, mummification, fetal maceration and putrefaction).
8. Disorders of pregnancy in cattle parts. II. (infectious and non-infectious causes of abortion, induced abortion, induction of parturition, prepartum recumbency).
9. Disorders of the postpartum period part. I. (uterine prolapse, postpartum hemorrhage, uterine rupture, prolapse of the bladder, tissue damage during parturation, postnatal peripheral nerve paralysis).
10. Disorders of the postpartum period part. II. (Retained fetal membranes, postpartum recumbency and milk fever).
11. Etiopathogenesis of mastitis in cattle.
12. Treatment and prevention of mastitis in the herd.
13. Supervision of the reproduction in the large swine farm.
14. Fertility disorders in pigs.
15. Fertility disorders in seep and goats.

Surgery

1. Principles of general and local anesthesia in ruminants
2. Principles of general and local anesthesia in pigs
3. Bovine orthopedics: Physiology and pathology of posture and limbs built. Physiology and pathology

of bovine hoof

4. Diagnosis of locomotor diseases, lameness and their categories

5. Disease of cattle fingers part I: discontinuity of hoof capsule, separated wall, double sole, laminitis, bruised and nail hole of corium, inflammation and necrosis of the wall and plantar corium

6. Disease of cattle fingers part II: deep purulent inflammation of corium, pads, skin of claw crack , corona, distal phalanx, limax.

7. Treatments and preventive care in ruminant orthopedics: correction of the claws, the treatment baths of legs, the role of diet and health monitoring of reproductive organs, the mammary gland and digestive track to reduce diseases of limbs.

8. Bovine traumatology: bones of the skull and fractures of mandible, the cornual process, spine (vertebrae, sacrum), pelvis, long bones, torticollis.

9. Ruminants: dislocation and degeneration of joints (shoulder, hip, patella) bone actinomycosis.

10. Ruminants: paralysis and inflammation of nerves (brachial plexus, radial n., ulnar n., median n., fibular n.), spastic paralysis, rupture of muscles, ligaments.

11. Ruminants: inflammation of muscles, nerves, bursa (bursitis hydrops, precarpal, intertubercular, popliteal, calcaneal bursitis), shoulder and hip lame.

12. Traumatic reticulopericarditis, abscess drainage, thoracotomy.

13. Surgical diseases of the abomasum. Conservative and operational repositioning. Fixation of abomasum to the abdominal wall on the animal standing and lying.

14. Surgical diseases of pigs I: osteoarthritis and fingers phlegmon , anal atresia prolapse of the anus, ear hematoma, displacement of the bladder

15. Surgical diseases of pigs II: castration of piglets and boars, cryptorchidism, umbilical hernia, inguinal h., scrotal h., finger and tail amputation , teeth cutting, vasectomy.

Titles of classes:

Internal Medicine

1. Clinical general examination and rectal examination in cattle.
2. Collection and examination of the rumen fluid in cattle.
3. Arterial and venous blood sampling for laboratory tests and drugs administration in cattle.
4. Acid base balance in venous and arterial blood.
5. Practical aspects of health protection in cattle farms. Examples of monitoring and therapy of metabolic diseases in highly productive dairy cows.
6. Urine sampling in cattle and sheep. Diagnostic puncture – rumen, omasum, thorax, pericardial sac, liver. Examination of samples.
7. Urinary bladder endoscopy.
8. Clinical general examination in other farm animals (sheep, goats and pigs). Techniques of blood sampling and drugs administration in these animals.
9. Practical aspects of health protection in swine farms. Examples of monitoring and therapy.
10. Examination of feces.
11. Neurological examination in farm animals.
12. Dermatological examination in cattle, , sheep, goats and pigs. Collection of samples.
13. Dermatological examination - continuation. Discussion of clinical lesions observed in selected diseases in ruminants and pigs.
14. Echocardiography in cattle. Electrocardiography (ECG) Clinical cases, examples in farm animals, recording in medical documentation.
15. Completing a course, corrections of tests , complementation of grades.

Reproduction

1. Gynecological examination of cows and heifers, part. 1 – anatomy and physiology of genital organs – practical aspects, rectal evaluation of uterus and ovaries.
 2. Gynecological examination of cows and heifers, part. 2 – examination – external and per vaginam, pregnancy diagnosis in cows and heifers, catheterization of the bladder.
- Rectal palpation of the bovine genital organs – practice on a simulator.
4. Obstetric aid in cattle part I (obstetrics examination, fetal-maternal disproportion, abnormal fetal habitat).
 5. Obstetric aid in cattle part II (abnormal fetal positions and postures, uterine torsion).

6. Test I (2 h) and Vaginal examination, application of intravaginal devices – practice.
7. Rectal palpation of the bovine genital organs – practice.
8. Ultrasound of bovine genital track – practice.
9. Cesarean section in cattle (isolated organs). Obstetric instruments.
10. Surgical procedures on vagina and vulva (isolated organs).
11. Clinical examination of the mammary gland. Field and laboratory milk tests.
12. Interpretation of tests results. Surgery of mammary gland (isolated organs).
13. Diagnosis of porcine reproductive disorders (clinical examination, USG).
14. Diagnosis of ovine and caprine reproductive disorders (clinical examination, USG).
15. Test II. Credits.

Infectious diseases

1. Infectious diseases of farm animals (lists of notifiable and reportable diseases in Poland. Proceedings in case of outbreak of contagious disease)
Class includes: reading the list of diseases occurring in Poland, medical and veterinary procedures in the event of an outbreak of infectious disease.

2. Bovine herpesvirus infection (BHV-1, Bovine malignant catarrh, BHV-2)
Class includes: etiology, pathogenesis, route of infection, and clinical signs BHV-1 infection and the ability to diagnose and treatment.

3. Viral diarrhea and mucosal disease (BVD / MD), Pink eye (IBK)
Class includes: etiology, pathogenesis, route of infection and the clinical signs of BVDV infection and IBK and the ability to recognize and control.

4. Chlamydiosis, chlamyphilosis, bovine and sheep Q fever (query fever)
Class includes: etiology, pathogenesis, route of infection, and clinical signs the diagnosis, treatment and control.

5. Fungal diseases in cattle, sheep and pigs. Test I

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

6. Viral and bacterial diseases of bovine respiratory system (BRSV, PI-3, Adeno-, reovirus, Rhinovirus, mycoplasmosis, pasterelosis).

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

7. Viral and bacterial diseases of bovine gastrointestinal tract (rota- and koronawiroza, kolibakterioza, salmonellosis, infection)

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and

control.

8. Viral and bacterial diseases of sheep (sheep paronychia, contagious ecthyma, sheep pox)

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

9. Viral and bacterial diseases of sheep (Clostridium spp infections,)

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

10. Viral and bacterial diseases of cattle and sheep (listeriosis, leptospirosis). Test II

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

11. Viral and bacterial diseases of swine respiratory tract (swine mycoplasmosis, bordetellosis, atrophical rinitis).

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

12. Infections of the swine gastrointestinal tract (E. coli, Salmonella, Rotavirus and coronavirus).

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

13. Infections of the swine gastrointestinal tract (dysentery, spirochetosis, adenomatosis)

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

14. Viral and bacterial diseases of pigs (Picorna-infection, corona-, entero-, herpesvirus). Test III

Class includes: etiology, pathogenesis, route of infection, and clinical signs, diagnosis, treatment and control.

15. Making up for classes and credit

Surgery

1. Small ruminants, pigs. Anesthesia: a practical training: intravenous and intra-arterial injection, fixation of animals, , pharmacological immobilization of animals, local anesthetic infiltration and perineural for the head, abdomen, groin, perineum, tail, limbs surgery treatments. Surgery treatments to choose : removal of the horns, caudotomy, amputation of a finger, tongue.

2. Bovine orthopedics part I: interdigital anesthesia, local intravenous analgesia. Surgery: periodic correction of claw, treatment of sole ulcer, resection of the deep digital flexor tendon and distal interphalangeal joint tissue.

3. Bovine orthopedics part II. Distal interphalangeal arthrodesis, low and high amputation of a finger, the presentation of other diseases of movement apparatus.

4. Rumenotomy. Paravertebral and epidural anaesthesia (high and low). Surgery: laparotomy with left-side method Goetze's, Weingard's, Kulczycki's.

5. Displacement and torsion of abomasum in cattle. Surgery treatments: repositioning, omento- and abomazopexy.
6. Swine surgery: castration, cryptorchidism, hernia, shortening of the teeth, restoration of the anus, ear hematoma, caudotomy.
7. Demonstration of anesthesia and surgery in cows: perineural and epidural blockade; head, rumen and abomasum surgery.
8. Credits

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	254	12
Student's own work	115	6
Total hours/ECTS of student's workload	369	18

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>InterFarm
Course Title	DISEASES OF FARM ANIMALS - CLINICAL INTERNSHIP I
Subject area /Field of study	VETERINARY

Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY		
Semester of study	10		
ECTS / including contact hours	3 / 2/ 1		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 0		
	CLASSES - LAB. GROUP: 0		
	CLASSES - CLIN. GROUP: 60		
	CLASSES - AUD. GROUP: 0		
Teacher responsible for the course	Wojciech Nizański (Ryszard Mordak, Przemysław Prządka, Grzegorz J. Dejneka, Krzysztof Rypuła)		
Language of instruction	ENGLISH*		
Prerequisites	Animal anatomy, Biochemistry, Histology and embryology, Veterinary microbiology, Animal physiology, Clinical and laboratory diagnostic, Veterinary pharmacology, Veterinary immunology, Pathophysiology, Veterinary dietetics, Parasitology and invasiology, Pathomorphology, Surgery and anesthesiology, Imaging diagnostic, Diseases of farm animals, Andrology		
Short description of the course (max. 500 characters)	The aim of the course is to provide students with practical knowledge about: clinical examination of animals, diagnosis of livestock diseases and differential diagnosis of individual disease entities, collection and preservation of material for laboratory tests, interpretation of laboratory tests results and referring them to the patient's clinical condition and appropriate treatment (in including operational) and prevention diseases of farm animals.		
Content of the course unit (detailed description)	Practical examination of animals, practical diagnosis of farm animal diseases, practical initiation of therapy (including surgery) in ruminants and pigs.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	describes the causes and symptoms of anatomopathological changes, principles of treatment and prophylaxis in individual disease entities	credit (oral)	Wet_WSK_03
2	knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure	credit (oral)	Wet_WSK_04

3	presents the principles of conducting clinical examination and monitoring animal health	credit (oral)	Wet_WSK_05
<i>Skills</i>			
1	conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment	credit (oral)	Wet_USK_02
2	performs a full clinical examination of the animal	credit (oral)	Wet_USK_03
3	collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests	credit (oral)	Wet_USK_06
<i>Social competences</i>			
1	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions	credit (oral)	Wet_KS_02
2	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity	credit (oral)	Wet_KS_05
3	deepens his/her knowledge and improves skills	credit (oral)	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) 1. A.H. Andrews, R.W. Blowey, H. Boyd, R.G. Eddy (ed): Bovine Medicine. Diseases and Husbandry of Cattle. Blacwell Science Ltd., Oxford 2004. 2. Blowey R.W., Weaver A.D.: Color Atlas of Diseases and Disorders of Cattle. Mosby, London 2003. 3. Divers T.J., Peek S.F. (ed.): Rebuhn's Diseases of Dairy Cattle. Saunders Elsevier, St. Louis 2008. 4. Fubini S., Ducharme N.: Farm Animal Surgery, Sauders, St. Louis 2004. 5. Jackson P.G.G., Cockroft P. D.: Handbook of Pig Medicine. Saunders, Elsevier, London 2007. 6. Radostits O.M., Gay C.C., Hinchcliff K.W., Constable P.D.: Veterinary Medicine. A textbook of the diseases of cattle, sheep, goats, pigs and horses. 10th Edition, Saunders Elsevier, London, 2007. 7. Smith B.P. (ed.): Large Animal Internal Medicine. Saunders, Elsevier 2015. 8. Veterinary Reproduction and Obstetrics. D.E. Noakes, T.J. Parkinson, G.C.W. England (editors). 9th ed. Sauders, Elsevier, 2009.			
Total grade components		<i>grade obtained at classes 100%</i>	

Comments:	
-----------	--

List of subjects and exercises for the course/module

Titles of lectures: -

Titles of classes:

INFECTIONS DISEASES

1. Infection diseases in farm animals: FMD, BrB, EBB. Sampling material for diagnosis FMD - in cattle, sheep, goat and swine, BrB - cattle, sheep, goat and swine, EBB – cattle. Prossidings with farm animals with suspected and after diagnosis of FMD, BrB, EBB infection. Practical procedure: identification, clinical examinations, age and time of production in cattle. Different clinical diagnosis of FMD, BrB, EBB in farm animals.

2. Infection diseases in farm animals – Rabies. Prossidings with farm animals before and after diagnostics rabies infection. Practical procedure: identification, clinical examinations, age and time of production in cattle, sheep, goat and swine. Practical cooperation with National Veterinary Sugeron and with Sanepid (documents). Vaccination against Rabies in farm animals – prevention and special vaccination farm animals.

3. Infection diseases sheep and goat. Material for diagnosis TBR in cattle, sheep and swine. Prossidings with farm animals after diagnostics results, practical procedure: identyfication, clinical examinations, age and time of production in cattle.. Alergic diagnosis (tuberculinisation) in farm animals with Bovituberculin and Avituberculin.

4. Infection diseases in sheep (ekhtyma and whitlow). Prossidings with sheep before and after laboratory diagnosis, Practical procedure: identyfication, clinical examinations, age and time of production in cattle. Qualification infected animals. Choice of method of therapeutics method. Practical prevention – vaccination and bath in sheep with enzootic and epidemic diseases.

5. Infection diseases in swine. Clinical examination in the direction PRDC and PIDC. Sampling for laboratory diagnosia (blood, etc.) – serology and microbiology. Practical prevention PRDC and PIDC.

6. Infection diseases in farm animals – laboratory diagnosis bacterial and viral diseases. Practical procedures with infected samples. Practical diagnosis: serological tests (ELISA, iIF, dIF, OA) and bacteriology examinations from clinical cases. Practical interpretation of laboratory investigations.

7. Infection diseases in farm animals. Practical training with documents in Veterinary Sugeron with statistics and data base about infection diseases in Paland and UE).

INTERNAL DISEASES

1. Animal taming.

2. Collection of matherial for tests (blood, feces, urine, rumen contents, fluid from body cavities), techniques of medicaments administration.

3. Practical recognition (trichogram, scrapings, test with tape, cytology) and treatment of skin diseases.
4. Practical recognition and treatment of respiratory system diseases.
5. Practical recognition and treatment of digestive system diseases.
6. Practical recognition and treatment of musculoskeletal and nervous system disease.
7. Practical recognition and treatment of metabolic diseases.
8. Practical recognition and treatment of urinary system diseases (including endoscopy of bladder).

SURGERY

1. Surgical treatment of digestive system diseases of ruminants and swine.
2. Dehorning in cattle
3. Practical performing of anesthesia in farm animals
4. Practical recognition and treatment of fingers diseases in farm animals.

REPRODUCTION

1. Gynecological examination *per rectum* of cows and heifers- diagnosis of state of reproductive tract, introduction of proper treatment
2. Gynecological examination *per vaginam* of cows and heifers- diagnosis of state of reproduction tract, introduction of proper treatment
3. Ultrasound evaluation of reproductive tract of cattle- diagnosis of state of reproductive tract, introduction of proper treatment
4. Catheterization of bladder, catheterization of cervix
5. Assistance during parturition (conservative and surgical) for females of farm animals
6. Performing fetotomy
7. Examination for pregnancy in females of farm animals (external, internal, ultrasound, ultrasonic).
8. Performing of anesthesia useful in obstetrics and gynecology in farm animals
9. Clinical examination and evaluation of mammary gland in cattle, field trial of milk and introduction of proper treatment in case of *mastitis*
10. Gynecological examination in sheeps and goats
11. Clinical examination of mammary gland in a small ruminants and swine
12. Gynecological examination sows– clinical and ultrasound evaluation of reproductive tract

Allocation of ECTS for the course/module

Course title: Diseases of dogs and cats - clinical internship I

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	61	2
Student's own work	20	1
Total hours/ECTS of student's	81	3

workload		
----------	--	--

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **: 60
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>InterFarm2
Course Title	DISEASES OF FARM ANIMALS - CLINICAL INTERNSHIP II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	11
ECTS / including contact hours	5 /3 /2
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 0
	CLASSES - LAB. GROUP: 0
	CLASSES - CLIN. GROUP: 60
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	Wojciech Niżański (Ryszard Mordak, Przemysław Prządka, Grzegorz J. Dejneka, Krzysztof Rypuła)
Language of instruction	ENGLISH*
Prerequisites	Animal anatomy, Biochemistry, Histology and embryology, Veterinary microbiology, Animal physiology, Clinical and laboratory diagnostic, Veterinary pharmacology, Veterinary immunology, Pathophysiology, Veterinary dietetics, Parasitology and invasiology, Pathomorphology, Surgery and anesthesiology, Imaging diagnostic, Diseases of farm animals, Andrology
Short description of the course (max. 500 characters)	The aim of the course is to provide students with practical knowledge about: clinical examination of animals, diagnosis of livestock diseases and differential diagnosis of individual disease entities, collection and preservation of material for laboratory tests, interpretation of laboratory tests results and referring them to the patient's clinical condition and

	appropriate treatment (in including operational) and prevention diseases of farm animals.		
Content of the course unit (detailed description)	Practical examination of animals, practical diagnosis of farm animal diseases, practical initiation of therapy (including surgery) in ruminants and pigs.		
Learning outcomes (max. 3)			
Nr No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	describes the causes and symptoms of anatomopathological changes, principles of treatment and prophylaxis in individual disease entities	credit (oral)	Wet_WSK_03
2	knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure	credit (oral)	Wet_WSK_04
3	presents the principles of conducting clinical examination and monitoring animal health	credit (oral)	Wet_WSK_05
<i>Skills</i>			
1	conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment	credit (oral)	Wet_USK_02
2	performs a full clinical examination of the animal	credit (oral)	Wet_USK_03
3	collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests	credit (oral)	Wet_USK_06
<i>Social competences</i>			
1	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions	credit (oral)	Wet_KS_02
2	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity	credit (oral)	Wet_KS_05
3	deepens his/her knowledge and improves skills	credit (oral)	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) 1. A.H. Andrews, R.W. Blowey, H. Boyd, R.G. Eddy (ed): Bovine Medicine. Diseases and Husbandry of Cattle. Blacwell Science Ltd., Oxford 2004. 2. Blowey R.W., Weaver A.D.: Color Atlas of Diseases and Disorders of Cattle. Mosby, London 2003.			

<p>3. Divers T.J., Peek S.F. (ed.): Reburn's Diseases of Dairy Cattle. Saunders Elsevier, St. Louis 2008.</p> <p>4. Fubini S., Ducharme N.: Farm Animal Surgery, Sauders, St. Louis 2004.</p> <p>5. Jackson P.G.G., Cockroft P. D.: Handbook of Pig Medicine. Saunders, Elsevier, London 2007.</p> <p>6. Radostits O.M., Gay C.C., Hinchcliff K.W., Constable P.D.: Veterinary Medicine. A textbook of the diseases of cattle, sheep, goats, pigs and horses. 10th Edition, Saunders Elsevier, London, 2007.</p> <p>7. Smith B.P. (ed.): Large Animal Internal Medicine. Saunders, Elsevier 2015.</p> <p>8. Veterinary Reproduction and Obstetrics. D.E. Noakes, T.J. Parkinson, G.C.W. England (editors). 9th ed. Sauders, Elsevier, 2009.</p>	
Total grade components	<i>grade obtained at classes 100%</i>
Comments:	

List of subjects and exercises for the course/module

Titles of lectures: -

Titles of classes:

INFECTIONS DISEASES

1. Infection diseases in farm animals: FMD, BrB, EBB. Sampling material for diagnosis FMD - in cattle, sheep, goat and swine, BrB - cattle, sheep, goat and swine, EBB – cattle. Prossidings with farm animals with suspected and after diagnosis of FMD, BrB, EBB infection. Practical procedure: identification, clinical examinations, age and time of production in cattle. Different clinical diagnosis of FMD, BrB, EBB in farm animals.

2. Infection diseases in farm animals – Rabies. Prossidings with farm animals before and after diagnostics rabies infection. Practical procedure: identification, clinical examinations, age and time of production in cattle, sheep, goat and swine. Practical cooperation with National Veterinary Sugeron and with Sanepid (documents). Vaccination against Rabies in farm animals – prevention and special vaccination farm animals.

3. Infection diseases sheep and goat. Material for diagnosis TBR in cattle, sheep and swine. Prossidings with farm animals after diagnostics results, practical procedure: identyfication, clinical examinations, age and time of production in cattle.. Alergic diagnosis (tuberculinisation) in farm animals with Bovituberculin and Avituberculin.

4. Infection diseases in sheep (ekhtyma and whitlow). Prossidings with sheep before and after laboratory diagnosis, Practical procedure: identyfication, clinical examinations, age and time of production in cattle. Qualification infected animals. Choice of method of therapeutics method. Practical prevention – vaccination and bath in sheep with enzootic and epidemic diseases.

5. Infection diseases in swine. Clinical examination in the direction PRDC and PIDC. Sampling for laboratory diagnosis (blood, etc.) – serology and microbiology. Practical prevention PRDC and PIDC.

6. Infection diseases in farm animals – laboratory diagnosis bacterial and viral diseases. Practical procedures with infected samples. Practical diagnosis: serological tests (ELISA, iIF, dIF, OA) and bacteriology examinations from clinical cases. Practical interpretation of laboratory investigations.

7. Infection diseases in farm animals. Practical training with documents in Veterinary Sugaron with statistics and data base about infection diseases in Poland and UE).

INTERNAL DISEASES

1. Animal taming.
2. Collection of material for tests (blood, feces, urine, rumen contents, fluid from body cavities), techniques of medicaments administration.
3. Practical recognition (trichogram, scrapings, test with tape, cytology) and treatment of skin diseases.
4. Practical recognition and treatment of respiratory system diseases.
5. Practical recognition and treatment of digestive system diseases.
6. Practical recognition and treatment of musculoskeletal and nervous system disease.
7. Practical recognition and treatment of metabolic diseases.
8. Practical recognition and treatment of urinary system diseases (including endoscopy of bladder).

SURGERY

1. Surgical treatment of digestive system diseases of ruminants and swine.
2. Dehorning in cattle
3. Practical performing of anesthesia in farm animals
4. Practical recognition and treatment of fingers diseases in farm animals.

REPRODUCTION

1. Gynecological examination *per rectum* of cows and heifers- diagnosis of state of reproductive tract, introduction of proper treatment
2. Gynecological examination *per vaginam* of cows and heifers- diagnosis of state of reproduction tract, introduction of proper treatment
3. Ultrasound evaluation of reproductive tract of cattle- diagnosis of state of reproductive tract, introduction of proper treatment
4. Catheterization of bladder, catheterization of cervix
5. Assistance during parturition (conservative and surgical) for females of farm animals
6. Performing fetotomy
7. Examination for pregnancy in females of farm animals (external, internal, ultrasound, ultrasonic).

8. Performing of anesthesia useful in obstetrics and gynecology in farm animals
9. Clinical examination and evaluation of mammary gland in cattle, field trial of milk and introduction of proper treatment in case of *mastitis*
10. Gynecological examination in sheeps and goats
11. Clinical examination of mammary gland in a small ruminants and swine
12. Gynecological examination sows– clinical and ultrasound evaluation of reproductive tract

Allocation of ECTS for the course/module

Course title: Diseases of dogs and cats - clinical internship I

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	61	3
Student's own work	40	2
Total hours/ECTS of student's workload	101	5

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **: 60
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>HorsesDis
Course Title	Diseases of horses (S)
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	8
ECTS / including contact hours	15/10/5

Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES internal diseases 30, surgery 25, reproduction 20, infectious diseases 15,		
	CLASSES - LAB. GROUP: reproduction 24 infectious diseases 15		
	CLASSES - CLIN. GROUP: internal diseases 35 surgery 50		
	CLASSES - AUD. GROUP: reproduction 6		
Teacher responsible for the course	NIEDŹWIEDŹ ARTUR (NIEDŹWIEDŹ ARTUR, KIEŁBOWICZ ZDZISŁAW, NIŹAŃSKI WOJCIECH, RYPUŁA KRZYSZTOF)		
Language of instruction	ENGLISH*		
Prerequisites	completion of core subjects: anatomy of animals, Biochemistry, Histology and Embryology, Veterinary Microbiology, Animal Physiology, Clinical and Laboratory Diagnostics, Veterinary Pharmacology, Andrology		
Short description of the course (max. 500 characters)	The aim of the course is to provide students with basic knowledge about the etiological factors, caused clinical signs, necessary or possible additional tests, the final interpretation of the purpose of diagnosis, differential diagnosis, treatment and prevention of use of equine diseases.		
Content of the course unit (detailed description)	Causes, disease symptoms, course, treatment and prevention of internal, infectious, surgical and gynecological-obstetric diseases in horses. Diagnostic techniques used in horses and other equidae.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			

1	knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, to the entire animal population;	Exam (written), pass (written / oral)	Wet_WO_01
2	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	Exam (written), pass (written / oral)	Wet_WO_03
3	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	Exam (written), pass (written / oral)	Wet_WO_04
<i>Skills</i>			
1	conducts clinical examination of the animal in accordance with the principles of medical art;	Exam (written), pass (written / oral)	Wet_UO_01
2	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Exam (written), pass (written / oral)	Wet_UO_02
3	plans the diagnostic procedure;	Exam (written), pass (written / oral)	Wet_UO_03
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Exam (written), pass (written / oral)	Wet_KS_01
2	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	Exam (written), pass (written / oral)	Wet_KS_02
3	deepens his/her knowledge and improves skills;	Exam (written), pass (written / oral)	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory 1. Veterinary Reproduction and Obstetrics. D.E. Noakes, T.J. Parkinson, G.C.W. England 9th ed. Saunders, Elsevier, 2009 2. Large Animal Theriogenology. R.F. Youngquist, W.L.			

<p>Threlfall. 2nd ed. Saunders, Elsevier. 2007</p> <p>3. Fossum T.W. Small Animal Surgery, 3rd edition, Mosby Elsevier, 2007.</p> <p>4. Auer J.A., Stick J.A.: Equine surgery. Elsevier Saunders, 4th edition, 2012.</p> <p>5. Muir W.W., Hubbell J.A.E.: Equine anesthesia, monitoring and emergency therapy. Elsevier, 2nd edition, 2009.</p> <p>6. Ross M.W., Dyson S.J.: Diagnosis and management of lameness of the horse, Elsevier Saunders, 1st edition, 2003.</p> <p>7. Equine infectious diseases, D. C. Sellon & M. T. Long, Saunders, 2007</p> <p>8. O. M. Radostits, C.C. Gay, K. W. Hinchcliff, P. D. Constable: Veterinary Medicine 10th Edition, Saunders Elsevier, 2007</p> <p>Optional:</p> <p>Journals: The Horse, Equine Vet J, Equine Vet Educ, J Vet Res, Veterinary Medicine</p>	
<p>Total grade components</p>	<p><i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i></p>
<p>Comments:</p>	<p>Final grade consists 25% of each of 4 departments</p>

List of subjects and exercises for the course/module

Titles of lectures:

Internal medicine:

1. Diseases of the digestive tract part 1.
2. Diseases of the digestive tract part 2
3. Colic in horses – etiology, diagnostics.
4. Colic in horses – treatment.
5. Upper respiratory tract diseases

6. Lower airway diseases part .1
7. Lower airway diseases part 2
8. Liver diseases
9. Metabolic and endocrine diseases of horses.
10. Selected diseases of the nervous system.
11. Tying up syndrome
12. Skin disease
13. Diseases of the urinary tract
14. Cardiovascular and hematologic diseases.
15. Emergency in horses.

Infectious diseases

1. Diseases of horses to be reported and fighting - African horse sickness
2. Diseases of horses to be reported and fighting - horses tuberculosis, brucellosis horses
3. Diseases of horses to be reported - viral equine encephalitis (WEE, EEE, VEE, Japanese encephalitis)
4. Infectious diseases of bacterial horses – CEM, Lyme disease
5. Infectious diseases of bacterial horses - pleuropneumonia, bacterial air sacs
6. Equine infectious diseases of bacterial - infection caused by Clostridium sp
7. Infectious diseases of bacterial horses - colibacillosis, salmonellosis, adenomatosis
8. Equine infectious diseases of viral etiology - EHV-1, -2, -4, EAV, reo-and rhinovirus
9. Equine infectious diseases of viral etiology - adenovirus, rotavirus, coronavirus
10. Equine infectious diseases of viral etiology - West Nile fever, a disease Bornaska, equine rabies
11. Infectious diseases of horses - rodokokkoza
12. Infectious diseases of horses - ehrlichiosis, anaplasmosis
13. Infectious diseases of horses in international trade
14. Diagnosis and prevention of infectious diseases of horses

Reproduction

1. Neurohormonal regulation and conduct of the estrous cycle in mares. Seasonality of breeding horses. The role of light. Anestrus and transition periods. Wave follicular growth and differentiation. Signs of heat. Effects on reproductive performance condition
2. Control and synchronization of oestrus and ovulation. The importance of synchronization of oestrus and ovulation. Induction heat through shortening of the luteal phase cycle (prostaglandin F_{2α}).

The extension of the luteal phase with progestogen. Induction of ovulation and hCG using GnRH-analogue deslorelin (Ovuplant)

3. Preparing the mare for mating and artificial insemination. Care mare headed for mating and artificial insemination. Determining the date of insemination. Differences in the insemination procedure depending on the type of seed. Allergic reaction to semen frozen.
4. Embryo transfer in horses. The importance of Embryo in breeding horses. Acquisition of embryos and transfer them. Factors affecting the efficiency of embryo.
5. Physiology of pregnancy. The duration of the pregnancy. Fertilization. Mobility embryos. Additional corpora lutea. Endometrial cups, the role of eCG. Progestogens and estrogens in the course of physiological pregnancy.
6. Pathology of pregnancy. Early embryonic death. Abortion (Infectious against fungal-related injuries, and others). Inflammation of the bearing.
7. Twin pregnancy. The causes, predisposing factors. Effects on fertility twins horses. One twin pregnancy and oburozona. Dealing with a twin pregnancy.
8. Childbirth and caring mare. Trailers birth. Physiology of labor. Parturition. Premature separation of placenta (red bag). Research bearing.
9. Stop bearing. The definition of predisposing factors. Methods of treatment (manual peeler and others)
10. Study after foaling mares. Puerperium. The problems associated with childbirth. Postpartum Hemorrhage. Prolapse of the uterus. Colic associated with childbirth. Postpartum metritis. Treatment of mares affected by postpartum complications.
11. Care of the newborn foal. Colostrum and its importance. Artificial feeding. Physiological parameters of the newborn foal. Toilet navel. Stop meconium. Problems associated with lactation.
12. Introduction to infertility horses. What is normal fertility in horses.
13. Endometritis (chronic and subclinical forms). The cause, diagnosis, treatment.
14. Endometriosis (impact on fertility, incidence, predisposing factors, diagnosis, treatment). Endometrial Cysts (diagnosis, incidence, effects on reproduction)
15. Dysfunction of the ovaries. Chromosome aberrations. Anovulatory, passing luteinization bubbles. Ovarian hematomas. Persistent corpus luteum. Ovarian tumors in mares.

Surgery

1. Equine anesthesiology. Preparation of horses for anesthesia. Indications for pharmacological immobilization. Tranquilizers used for pharmacological sedation (phenothiazines, alpha 2 agonists, benzodiazepines, and butyrophenone derivatives. Local, perineural, general infusion and inhalation anesthesia. The most commonly used anesthetic systems for equine anesthesia.
2. Equine ophtalmology. Eye diseases and their treatment. Eyelid and anterior eye pole diseases with post-traumatic and infectious etiology in horses. Corneal pathologies with dystrophic, bacterial and fungal background. Periodic uveitis (monthly blindness).
3. Hernias and their surgical treatment. Characteristics and diagnosis of true and pseudo hernias in horses. Methods of surgical treatment of umbilical, scrotal, inguinal and traumatic abdominal hernias. Male genital diseases, castration of a stallion. Methods of surgical treatment of

cryptorchidism. Castration with closed and open method. Handling after castration and treatment of post-castration complications (scrotal edema, edema and prolapse of the penis, botriomycosis).

4. Diseases of the front limbs - part I. Horse anatomy and its influence on hooves, clinical anatomy of hooves. Posture defects of the limbs and their effect on the hooves and gait of the horse. Orthopedic shoeing at faulty horse gaits. Bucked shins in racehorses and methods of their treatment with cooling and warming compresses or cryoapplication. Sesamoiditis and navicular disease. Navicular syndrome - diagnosis and treatment.
5. Diseases of the front limbs - part II. Diagnosis and treatment of acute and chronic laminitis. Acute and chronic diseases of flexor tendons and tendon sheaths. Causes of tendon diseases. Tendon diseases in draft and racing horses. Tendinitis and tendon sheaths inflammation in horses. Physiotherapeutic and surgical methods of tendon treatment. Cryotherapy. Surgical methods of treatment of tendon contractures.
6. Diseases of the hind limbs - part I. Diagnosis and treatment of chronic inflammation of the hock (bone spavin). Diagnosis of inflammation in the area of the hock. Surgical treatment of hoof cancer. Upward patella fixation. Desmotomy.
7. Diseases of the hind limbs - part II. Diseases of the fetlock, pastern and coffin joint - symptoms, recognition. Aseptic and septic arthritis and methods of their treatment. Flat and convex hoof. Sprained fetlockjoint. Treatment of the wounds in the toe region. Neurectomy in a horse.
8. Diseases of the oral cavity, teeth, tongue, mandible and maxillary bone. Examination of the oral cavity and teeth. Oral cavity inflammation. Equine dental occlusion. Determination, identification and disorders of tooth exchange. Dental diseases. Tooth extraction. Tongue diseases (wounds, inflammation, paralysis, cancer). Fractures of the maxillary and mandible bone, and methods of osteosynthesis.
9. Throat, larynx and esophagus diseases. Pharyngitis and foreign bodies in the throat, wounds and abscesses. Laryngeal hemiplegia in horses and methods of its treatment. Esophageal wounds and fistulas. Stenosis and obstruction of the esophagus.
10. Diseases of the skull, spine and pelvis. Skull fractures, maxillary sinusitis and guttural pouches diseases. Diseases of the neck and withers (bursitis). Diseases of the cervical spine (torticollis, developmental disorders, desmopathy of the nuchal ligament attachment). Diseases of the thoracolumbar spine (wounds, fractures, spondylosis and spondyloarthrosis, withers fistula).
11. Management of colic horses. Gastric and intestinal colic - etiology, symptoms, diagnostics and therapeutic management. Clinical and detailed research. Gastric intubation and rectal examination, ultrasound examination of the abdomen. Abdominal puncture. Indications for colic surgery.
12. Gastric and intestinal colic. Stomach enlargement and rupture. Small, large intestine, cecum and large and small colon obstruction. White line laparotomy . Intestinal displacement (duodenal torsion, torsion and cecum fold, large colon torsion).
13. Small and large intestine displacement. Small intestine obstruction: mechanical (obstructive and strangulative) and functional (ileus: paralytic or spastic). Methods of conservative and surgical treatment.

Titles of classes:

Internal Medicine

1. Clinical examination of horses
2. Dermatologic examination of horses
3. Rectal examination of horses p. I
4. Endoscopy of airways in horses
5. Nasogastric intubation in horses
6. Neurologic examination of horses. Cerebrospinal fluid examination in horses.
7. Injections and blood sampling in horses
8. Test
9. Additional diagnostic procedures in horses
10. Rectal examination of horses p. II
11. Ultrasound techniques in horses p.I
12. Electrocardiography, Holter test and echokardiography in horses
13. Ultrasound techniques in horses p.II
14. Test
15. Clinical cases discussion

Reproduction

- 1 Clinical aspects of genital anatomy mares (classes on isolated organs).
- 2 The study mares towards fertility. Interview, external research, preparing mares for rectal examination, rectal examination rules.
- 3 Ultrasound genital mares. Principles, meaning, equipment, technology research, interpretation of images).
- 4 Rectal examination and transrectal ultrasound genital mares (in live animals).
- 5 Catheterisation uterine cervix in mares, technology, indication. Sampling of the uterus for laboratory tests (smears, biopsy, cytology, uterine lavage. (Classes on isolated organs)
- 6 Diagnosis of pregnancy (pregnancy symptoms, hormone testing, rectal palpation, ultrasound-interpretation of images)
- 7 Consultation and credit.
- 8 Rectal examination and transrectal ultrasound genital mares (in live animals).
- 9 Heavy parturition in mares. Improper alignment. Methods of procedure. Classes on the phantom.
- 10th Heavy parturition in mares. Abnormal position and attitude. Classes on the phantom.

11th Fetotomia. Classes on the dead fetus.

12th Cesarean section in mares. Indications. Methods of anesthesia and surgery. Sewing isolated uterus.

13th Hysteroscopy. Indications. Equipment. Preparing the mare to hysteroscopy. (Address on live animals)

14th Incorrect configuration of the perineum. Caslick treatment. Treatment of postpartum perineal damage.

15th Consultation.

Infectious diseases

1 Viral infections of the respiratory and reproductive horses (EHV1-4, EAV) Exercise involves the viral respiratory diseases including infection, depending on the environment, etiology, pathogenesis and clinical changes and differential diagnosis, laboratory tests, taking into account the type of material and the method of its collection and treatment and prophylaxis.

2 Influenza, and strangles in horses, equine plague chest exercise involves the bacterial respiratory diseases including infection, depending on the environment, etiology, pathogenesis and clinical changes and differential diagnosis, laboratory tests, taking into account the type of material and the method of its collection, treatment and prophylaxis non-specific and specific.

3 Glanders equine specific prevention of infectious diseases of horses exercise includes the glanders, etiology, pathogenesis and clinical changes, and depending on the infected species, differential diagnosis, laboratory tests, taking into account the type of material and the method of its collection and handling of horses suspected of glanders and maleinisation.

4 Diseases of horses no anaerobic exercise include the infections in horses: Clostridium spp, Fusobacterium necrophorum, Bacteroides spp in the context of: aetiology, pathogenesis and clinical changes, differential diagnosis, laboratory tests with the principles of sample collection for research.

5 Fungal diseases of horses - fungal infections of the skin and organ mycosis exercise involves about ringworm and fungal organ, etiology, pathogenesis and changes in clinical laboratory tests, taking into account the type of material and the method of its collection, treatment of horses with fungal infection and prophylaxis.

6 Infectious diseases of horses - SCA, leptospirosis exercise includes the SCA and leptospirosis, etiology, pathogenesis and changes in clinical laboratory tests, taking into account the type of material and how to download, depending on the form of the disease, treatment, treatment of horses.

7 The differential diagnosis of infectious diseases of horses

8 Catching-up, completion exercises

Surgery

1. Hoof correction and opening of the hoof capsule. On cadaver distal limbs students will perform: shortening of the excessively grown hoof horn, partial removal of the hoof wall and sole, antiseptic dressings for wound and exposed laminae.
2. Diagnostic and therapeutic joint injections, perineural anesthesia and basics of arthroscopy. Perineural high and low nerve anesthesia of the toe, diagnostic injections of the fetlock, pastern and coffin joint. Demonstration of operation and use of arthroscopy equipment in equine joint surgery.
3. Aseptic and septic inflammation of the hoof laminae. Practical exercises on cadaver horses' distal limbs. Methods of opening the hoof capsule, debilitating cuts, removing the hoof wall and applying dressings.
4. Removal of soles, frog, hoof wall, pressure dressing. Deep digital flexor tendon necrosis, partial removal of the hoof capsule with superficial and deep inflammation of the hoof laminae.
5. Hoof cartilage diseases, ceratoma, hoof canker (cuts burdening the hoof capsule, pressure dressing). Surgical approaches to the hoof cartilage and methods of their resection. Removing the front wall of the hoof (removing ceratoma). Cutting burdening the hoof capsule (Lungwitz, Collin, Bayer). Practise on cadaver hoofs.
6. Diseases of tendons and tendon sheaths (ultrasound, resection of the deep flexor tendon insertion, drainage of tendon sheaths and toe joints). Clinical and ultrasound examination of the SDFT and DDFT and SL. Demonstration on slaughterhouse limb preparations tenotomy of the flexor tendons and their additional attachments. Practical exercises of injecting drugs into the toe joints.
7. Diseases of the SDFT and DDFT and SL. Injection of regenerative drugs, application of stem cells, blistering, cryotherapy, tenotomy. Orthopedic examination in tendon diseases. Demonstration of cooling and warming dressings in tendon diseases and blister demonstration. Tendon splitting. Injection of regenerative and anti-inflammatory drugs in tendon diseases.
8. Assessment.
9. Equine orthopedic examination. Examination of the lame horse in the outpatient clinic and in open space by students in the walk and trot. Algorithms for the diagnosis of lameness in a horse.
10. Equine orthopedic examination cont. Methods of orthopedic examination with the location of lameness in the horse's thoracic and pelvic limb. Assessment of correct and incorrect attitudes and their impact on the shape of the hoof capsule.
11. Rules for farrier job - shoeing. Demonstration of a horseshoe made by a farrier and shoeing a horse.
12. Pathologies of the limbs leading to a change in the shape of the hoof capsule. Abnormal posture of the limbs. Demonstration of correct and incorrect hooves on preparations. Demonstration of standard and orthopedic shoeing.
13. Diagnostics of diseases of the horse's bone and ligament system. Osteitis, bucked shins, fractures of the toe bones, dislocations, inflammation of the sesamoid and navicular bones. Conservative and surgical treatment methods.
14. Equine joint disease. Aseptic and septic arthritis of the toe joint - clinical and ultrasound examination. Methods of diagnosis and treatment of bone spavin in horses. Upward patellar fixation - diagnosis and surgery.
15. Assessment.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	224	10
Student's own work	100	5
Total hours/ECTS of student's workload	324	15

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>InterHorse/MWW-AJ>InterHorse2
Course Title	Diseases of horses - Clinical internship I/ Diseases of horses - Clinical internship II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ ELECTIVE
Semester of study	10/11
ECTS / including contact hours	Sem. 10: 2/1,5/0,5 Sem. 11: 2/1,5/0,5
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 0
	CLASSES - LAB. GROUP: 0
	CLASSES - CLIN. GROUP: 40
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	NIEDŹWIEDŹ ARTUR (NIEDŹWIEDŹ ARTUR, KIEŁBOWICZ ZDZISŁAW, NIŻAŃSKI WOJCIECH, RYPUŁA KRZYSZTOF)
Language of instruction	ENGLISH*

Prerequisites		Animal physiology, Animal anatomy, Histology and embryology , Veterinary pharmacology, Pathomorphology, Diagnostic imaging, Clinical and laboratory diagnostics, Parasitology and invasiology Immunology, Biochemistry, Veterinary microbiology, Diseases of horses	
Short description of the course (max. 500 characters)		Practical independent examination and treatment of horses - patients of the Equine Clinic, discussion of cases, presentation with a demonstration and discussion of the presented cases	
Content of the course unit (detailed description)		During the internship, students will independently conduct a medical history, conduct a general and detailed examination of all systems of the horse's body, collect material for diagnostic tests, perform additional imaging tests, analyze differential diagnosis, make a diagnosis based on the results of the conducted test, perform therapeutic procedures and present methods disease prevention	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, to the entire animal population;	pass (written / oral)	Wet_WO_01
2	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	pass (written / oral)	Wet_WO_03
3	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	pass (written / oral)	Wet_WO_04
<i>Skills</i>			
1	conducts clinical examination of the animal in accordance with the principles of medical art;	pass (written / oral)	Wet_UO_01
2	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	pass (written / oral)	Wet_UO_02
3	plans the diagnostic procedure;	pass (written /	Wet_UO_03

		oral)	
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	pass (written / oral)	Wet_KS_01
2	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	pass (written / oral)	Wet_KS_02
3	deepens his/her knowledge and improves skills;	pass (written / oral)	Wet_KS_07
<p>Literature (max. 8, including Youtube presentations, etc.)</p> <p>- compulsory</p> <p>- compulsory</p> <ol style="list-style-type: none"> 1. Veterinary Reproduction and Obstetrics. D.E. Noakes, T.J. Parkinson, G.C.W. England 9th ed. Saunders, Elsevier, 2009 2. Large Animal Theriogenology. R.F. Youngquist, W.L. Threlfall. 2nd ed. Saunders, Elsevier. 2007 3. Fossum T.W. Small Animal Surgery, 3rd edition, Mosby Elsevier, 2007. 4. Auer J.A., Stick J.A.: Equine surgery. Elsevier Saunders, 4th edition, 2012. 5. Muir W.W., Hubbell J.A.E.: Equine anesthesia, monitoring and emergency therapy. Elsevier, 2nd edition, 2009. 6. Ross M.W., Dyson S.J.: Diagnosis and management of lameness of the horse, Elsevier Saunders, 1st edition, 2003. 7. Equine infectious diseases, D. C. Sellon & M. T. Long, Saunders, 2007 8. O. M. Radostits, C.C. Gay, K. W. Hinchcliff, P. D. Constable: Veterinary Medicine 10th Edition, Saunders Elsevier, 2007 <p>Optional:</p> <p>Journals: The horse, Equine Vet J, Equine Vet Educ,</p>			
Total grade components		<i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i>	
Comments:		Final grade consists 25% of each of 4 departments	

List of subjects and exercises for the course/module

Practical classes with patients of the Horse Clinic. Procedures, as the case may be, include:

- diagnosis and treatment of infectious and non-infectious diseases
- use of specialized diagnostic equipment
- taking samples for laboratory tests (bacteriology, biochemistry, cytology, endocrinology, histopathology)
- diagnosis of reproductive disorders in relation to individual animals and herds
- using methods of assisted reproduction and artificial insemination of horses
- diagnosing and conducting pregnancy in mares
- delivering births by bloodless and bloody methods
- postpartum care for mare - methods for subtracting retained fetal membranes
- care for the newborn, prevention and treatment of foal diseases
- examination of stallions for fitness for reproduction with semen collection and assessment

- surgery on the testicles, penis, foreskin and accessory glands
- the use of modern methods of therapy and prevention as well as modern drugs
- moving horse examination and lameness diagnostics
- use of diagnostic and therapeutic procedures in horse orthopedics
- surgery on the limbs
- treatment of diseases of the digestive system of horses, including oral and dental diseases
- surgery in the treatment of equine diseases of horses
- dietitian and horse nutrition
- parasitological prevention and recognition of parasite invasion in horses
- immunology and immunoprophylaxis of horses
- diagnosis and treatment of eye diseases
- diagnosis and treatment of cardiological diseases in horses

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	41	1,5
Student's own work	10	0,5
Total hours/ECTS of student's workload	51	2

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **: 40
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Ecology
Course Title	Ecology of game animals
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC

Type of course	OBLIGATORY/ ELECTIVE		
Semester of study	yr II/ sem. 4		
ECTS / including contact hours	1		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES		
	CLASSES - LAB. GROUP:		
	CLASSES - CLIN. GROUP:		
	CLASSES - AUD. GROUP: 15		
Teacher responsible for the course	Dr Rafał Ciaputa		
Language of instruction	ENGLISH*		
Prerequisites	<i>Biology, animal anatomy, histology and embryology</i>		
Short description of the course (max. 500 characters)	Teaching the subject is to provide the student with knowledge and skills to analyze and combine various pathomorphological changes in relation to clinical knowledge acquired so far. This will allow you to learn in detail about the various cases of clinical diseases, translating into the effects that these diseases may cause ultimately leading to the death of the patient.		
Content of the course unit (detailed description)	The aim of the course is to provide basic knowledge on mechanisms of ecosystems function, bionomy and physiology of game animals in Europe. The course presents both the ethic interrelations human - animal, adaptation of animals to life in different environments and information on morphological features, food and digestive system function, organs of senses, exchange of information and reproduction of each species. The impact of anthropogenic agents on contemporary ecosystems transformation is also discussed.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree, describes in detail and explains the development, structure, functioning, behaviours and physiological mechanisms of animals in normal conditions, as well as the mechanisms of disorders in pathological conditions;	colloquium (written)	Wet_ WO_02
2	describes legal standards associated with the activities of veterinary physicians;	colloquium (written)	Wet_ WO_12
3			
<i>Skills</i>			
1	uses Latin medical nomenclature to the extent necessary to understand and describe medical activities, as well as state	colloquium (written)	Wet_ UO_08

	of animal health, diseases, pathological changes and conditions;		
2	conducts clinical examination of the animal in accordance with the principles of medical art;	colloquium (written) discussion	Wet_ UO_01
3			
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	colloquium (written)	Wet_KS_01
2	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	colloquium (written) discussion	Wet_ KS_02
3			
Literature (max. 8, including Youtube presentations, etc.) 1. L. Baskin, K. Danell „Ecology of Ungulates”, Springer, 2003. 2. G. Gorman “Central and Eastern European Wildlife”, Bradt Travel Guides, 2008. 3. P. Chanin, G, Troughton “The British Natural History Collection: Otters”, Whittet Books Ltd, 2013. 4. S. Tapper, D. Yalden “The Brown Hare”, Mammal Society, 2010. 5. M. Woods “The Badger”, Mammal Society, 2010.			
Total grade components		<i>100% of the grade obtained in the written test</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures

Titles of classes:

1. Different faces of ecology

2. Human-animal interaction.

3. Ethology and physiology of the roe deer (*Capreolus capreolus*)

4. Ethology and physiology of the european deer (*Cervus alaphus*)

5. Ethology and physiology of the fallow deer (*Dama dama*)
6. Ethology and physiology of the boar (*Sus scrofa*)
7. Ethology and physiology of brown hare (*Lepus europaeus*)
8. Ethology and physiology of the red fox (*Vulpes vulpes*) and other carnivores.
9. Ethology and physiology of gray partridge (*Perdix perdix*) and pheasant (*Phasianus colchicus*)¹
10. Ethology and physiology of waterfowl
11. Medical treatment and first aid for wild animals

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	16	0,9
Student's own work	2	0,1
Total hours/ECTS of student's workload	18	1

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Environment
Course Title	Environmental protection
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	1
ECTS / including contact hours	2
Form of instruction (lectures, classes, seminar, other) -Number of teaching	LECTURES 10 CLASSES - LAB. GROUP:20

hours	CLASSES - CLIN. GROUP:0		
	CLASSES - AUD. GROUP:0		
Teacher responsible for the course	Agnieszka Suszko-Pawłowska		
Language of instruction	ENGLISH*		
Prerequisites	<i>Chemistry, Cell biology, Biophysics</i>		
Short description of the course (max. 500 characters)	The aim of the course is to introduce students with the links of cause - and effect of problems related to consumer and professional burdening the environment and adverse global and local ecological phenomena. During the course we discuss the basic problems of environmental protection, the source of the pollution and emission reduction methods and neutralization of hazardous substances as well as regulations on environmental protection in Poland and in the world and the structure of the systems of environmental protection in Poland.		
Content of the course unit (detailed description)	European and Polish legislation on environmental protection. Current zoological problems. The importance of the veterinarian in the field of environmental protection. Ecotoxicological risks associated with industrial production, agriculture and animal breeding. Pollution of air, water and soil - monitoring, methods to reduce pollution. Treatment of industrial and municipal waste. Methods used to reduce industrial gases and dusts. The problems associated with overpopulation of the Earth.		
Learning outcomes (max. 3)			
Nr No.	Subject-specific	Assessment method	Symbol of the learning effect for the field of study
<i>Knowledge</i>			
1	knows and describes the relationship of cause-and-effect problems associated with consumer and professional burdening the environment and the adverse global and local environmental phenomena	Written credit	Wet_WSP_04
2	knows and interprets basic environmental problems; identifies the sources of pollution and knows the methods of limitation and neutralization of hazardous substances	Written credit	Wet_WO_08
3	knows the outline of legislation on environmental protection in Poland and in the world	Written credit	Wet_WO_12
<i>Skills</i>			
1	critically analyses veterinary literature and draws conclusions on the basis of available literature (has a skill of obtaining information about an ecotoxicological)	Written credit	Wet_UZU_02
2	uses and processes information with the use of IT tools and modern sources of veterinary knowledge (has a skill of searching for sources of knowledge about the environment and its dangers)	Written credit	Wet_UZU_03
3	effectively communicates with employees of control bodies and offices, as well as central and local government administration (has a skill of discussion of general and local issues of environmental threats)	Written credit	Wet_UZU_04

<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Written credit	Wet_KS_01
2	uses the objective sources of information;	Written credit	Wet_KS_04
Literature (max. 8, including Youtube presentations, etc.) - compulsory Cunningham W.P., Cunningham M.A.: "Principles of Environmental Science. Inquiry and Applications" Eight edition, 2017 - complementary/optional www.iucnredlist.org www.cites.org/eng http://europa.eu/legislation_summaries/environment/index_en.htm www.codexalimentarius.org www.who.org www.epa.gov			
Total grade components		<i>grade obtained at classes (50%) + grade obtained at lectures (50%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

TEMAT	LICZBA GODZIN
1 History and the action program in the field of environmental protection in Poland and world. International conventions on environmental protection. Environmental protection in the light of the laws of Poland and the EU.	2
2. International ecological organizations. Areas of ecological risks in Poland and in the world, the types of threats. The organic compounds of ecotoxicological importance (dioxins, nitrofurans, biphenyls, polycyclic aromatic hydrocarbons, plastics).	2
3. Metal pollution and its effects on human and animal health. The main causes of environmental change caused by industrial production. Global circulation of mercury.	2
4. Environmental pollution by pesticides and their impact on human and animal health. The main causes of environmental change caused by agricultural production, breeding and veterinary. The fate of the antibiotics in the environment.	2
5. Environmental impact of pharmaceutical and personal care products. Law challenged the Environmental Protection act lawfully European Union. System and environmental protection organization in Poland (environment monitoring).	2

Titles of classes:

1. Basic definitions associated with environment: ecology, zoology, biocenosis, biotope, biosphere, habitat, ecosystem, population, ecological niche, eutrophication, biodegradation, recycling. Basic ecosystems of the world.	2
2. Sources and types of atmosphere pollution. Emission of SO ₂ , CO and nitric	2

oxides. Methods for reducing their emissions.	
3. Photochemical and “classical” smog as a result of atmosphere pollution. Acid rains – mechanism of development, influence on plants and animals.	2
4. Freons and the decrease of ozone layer as a global phenomenon associated with air pollution. The greenhouse effect – mechanisms and results of development.	2
5. Sources and types of water pollution (oceans, seas, rivers, lakes, aquacultures). Polish water resources in comparison to other European countries and the world.	2
6. Sewage – types, content, threat to the environment, methods of treating and water conditioning.	2
7. Causes of soil degradation (desertification, terrain malformation, chemical contamination, erosion). Ways of soil protection – reclamation, treatment against erosion.	2
8. Types of wastes, recycling, storage and neutralization.	2
9. Threats to the environment associated with agriculture (pesticides, fertilizers, animal farming).	2
10. Global environmental problems associated with overpopulation, taking into account the difficulties in obtaining food from natural sources as an example of overexploitation of the seas and oceans - overfishing. Repetition of material and final test.	2

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	32	1,5
Student's own work	10	0,5
Total hours/ECTS of student's workload	42	2

Hours:

1. Lectures: 10
2. Laboratory : 20
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher: 1 (consultation)

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>ERGONOMICS
------	-------------------

Course Title	Ergonomics, intellectual protection and work safety
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	1st
ECTS / including contact hours	1/0.9
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15
	CLASSES - LAB. GROUP: 0
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	Marek Brennensthul PhD
Language of instruction	ENGLISH*
Prerequisites	<i>Knowlegde from physics, mathematics and human biology (secondary education level)</i>
Short description of the course (max. 500 characters)	<i>The subject concerns safety and comfortable conditions of work (both at professional and non-professional activities). The basic information about ergonomics are presented. The use of ergonomics at the designing and improvement of workplaces are shown. There are discussed the types of factors at the workplaces; the potential impact of these factors on human is also analyzed. Moreover, there are shown overall information about protection of intellectual property.</i>
Content of the course unit (detailed description)	<i>The scope of ergonomics as an interdisciplinary science; the history of ergonomics. The courses of ergonomic actions – corrective and conceptual actions. Ergonomic formation of workplaces; use of anthropometry in ergonomics. Physical and mental workload. Physical effort and energy expenditure of human organism. Assessment of energy expenditure at dynamic works, evaluation of workload at static works. Assessment of monotype. The basics of work safety. The types of factors; dangerous, harmful, onerous factors. The kinds of factors impact on human organism. Characteristic of selected dangerous factors; mechanical threats; fire and explosion, electrical shock, risk related with working at high. Harmful and onerous factors: exposure to dusts, radiations, vibrations, noise (audible, infrasonic, ultrasonic). Occupational accidents; procedures after accident; prevention. Methods of assessment of occupational risk. Protection of intellectual property; the ways to correct use of intellectual property.</i>
Learning outcomes (max. 3)	

<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	<i>Student has knowledge about ergonomics and the factors at the workplaces</i>	Written test	Wet_WZU_03
<i>Skills</i>			
1	<i>Student can identify the dangerous, harmful, onerous factors at the workplaces.</i>	Written test	Wet_USP_23
2	<i>Student can optimize the workplace taking into account the ergonomic requirements and OHS rules</i>	Written test	Wet_USP_23
<i>Social competences</i>			
1	<i>Student is aware to role of ergonomics and work conditions for health and safety of working people</i>	Written test	Wet_KS_01
Literature (max. 8, including Youtube presentations, etc.) - compulsory: 1. Rączkowski B. 2009; BHP w praktyce – wydanie XII. ODDK Gdańsk 2. Romanowska – Słomka I., Słomka A. 2003; Zarządzanie ryzykiem zawodowym, Tarbonus, Tarnobrzeg, wyd. III, uzupełnione. - complementary/optional: 1. Bridger R. S. Introduction to ergonomics; 3rd edition. CRC Press 2009. 2. Stanton N. et al. Handbook of Human Factors and Ergonomics Methods, CRC Press 2005.			
Total grade components		<i>grade obtained at lectures: 100%</i>	
Comments:		-	

List of subjects and exercises for the course/module

Titles of lectures:

1. Basic definitions of occupational health and safety. Overall characteristics of factors at the workplaces.
2. Dangerous factors at the workplaces: threats related to movement of people. Mechanical threats.
3. Dangerous factors at the workplaces: the fire and explosion, fire protection.
4. Dangerous factors at the workplaces: the protection against electrical shock.
5. Risk of accidents. The definition of occupational accident. Procedures after the accidents, protection against accidents.
6. The harmful and onerous factors; vibrations and their impact on human. Minimization of vibration effects at the workplaces.
7. Dangerous, harmful and onerous factors at the works at animals.
8. The harmful and onerous factors; exposure to audible noise at the workplaces.
9. Microclimate. The temperature and air pressure at the workplaces.
10. Introduction to ergonomics, basis definitions, historical background.
11. Basic ergonomic system. Anthropometry – geometric shaping of workplaces.

12. Workload evaluation – energy expenditure of human organism.
13. Workload evaluation – static loads on the musculo-skeletal system. Repetitive works and monotype.
14. Protection of intellectual property. The types and features of copyright laws. The ways to correct use of intellectual property.
15. Protection of intellectual property. Industrial property.

Allocation of ECTS for the course/module

Course title: Ergonomics, intellectual protection and work safety

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	16	0.9
Student's own work	2	0.1
Total hours/ECTS of student's workload	18	1

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **: 0
3. Clinical classes **: 0
4. Auditorium / seminar **: 0
5. Internship classes **: 0
6. Practice **: 0
7. Others with the teacher: 1

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>SFeedstuff
Course Title	SAFETY OF FEEDSTUFF
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	V year/semester 10
ECTS / including contact hours	2/1
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 10
	CLASSES - LAB. GROUP: 20
	CLASSES - CLIN. GROUP: 0

	CLASSES - AUD. GROUP: 0		
Teacher responsible for the course	dr hab. JAROSŁAW BYSTRONŃ, prof. nadzw.		
Language of instruction	ENGLISH		
Prerequisites	Sanitary-veterinary law, hygiene of food of animal origin		
Short description of the course (max. 500 characters)	The aim of the course is to acquaint students with the factors influencing the feed safety. During the course they are discussed problems of microbiological and chemical hazards in feed production, and presence of GMO in feed. Students learn how to identify the presence of xenogenic proteins in feed and acquaint with the current veterinary feed law. They learn the method of feed production, and sanitary-veterinary supervision of feed plants.		
Content of the course unit (detailed description)	Technology and processing of feed, utilization of slaughter by-products, microbiological and chemical hazards in feed production, identification of xenogenic proteins and GMO, current feed law, and sanitary-veterinary supervision of feed plants.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
Knowledge			
1	Student identifies and describes in detail the principles of management and utilisation of animal by-products and waste associated with animal production	credit - written test	Wet_WO_08
2	Student knows and describes the principles of functioning of the Veterinary Inspection, also in the aspect of public health;	credit - written test	Wet_WSK_16
Skills			
1	Student is able to collect samples for monitoring tests for the presence of prohibited substances, chemical and biological residues, medicinal products and radioactive contamination in animals, in their secretions, excretions, tissues or organs, in products of animal origin, food, in water intended for animal drinking and in the feed	credit - written test	Wet_USK_19
2	Student uses his/her professional skills to improve the quality of veterinary care, animal welfare, as well as public health;	credit - written test	Wet_USP_19
Social competences			
1	Student cooperates with representatives of other professions in the scope of public health protection	visit in feed factory	Wet_KS_10
Literature Compulsory: 1. McLandsborough, "Food Microbiology Laboratory", CRC			

Press, 2005 2. Websites presenting the EU feed law: eur-lex.europa.eu lex.pl Complementary: 1. Sava Buncic “Integrated food safety and veterinary public health” Cromwell Press, Trowbridge, UK 2006	
Total grade components	Credit = grade obtained at classes (80%) + grade obtained at lectures (20%)
Comments:	

List of subjects and exercises for the course

Titles of lectures

1. The rules of feed supervision in the area of feed production and distribution according to actual veterinary feed law. European Parliament and Council Regulations, Feed Enactment, medicament feed.
2. Classification, processing, distribution and veterinary supervision of slaughter by-products.
3. Undesirable substances in feeds.
4. Bacterial, fungal and prions hazards in feed production. Antibiotic resistance of feed-derived microorganisms.
5. Detection of mycotoxins in feeds – chromatography methods (TLC - Thin Layer Chromatography, HPTLC, GC – Gas Chromatography), acceptable levels of some mycotoxins in feeds.

Titles of classes

1. National plan of official feed control, control plans in feed processing plants, interpretation of laboratory feed examination results.
2. Microbiological examination of feeds. The rules of feed sampling used in microbiology, interpretations of feed microbiological examination results.
3. Methods of analysis referring to assessment of animal derived components in official animal feed examination. Microscopic method of detection - preparation of specimens and examination.
4. Assessment of fibre content and nitrates and nitrites presence in animal feed. Risk connected with presence of nitrites and nitrates in animal feed. Determination of nitrites and nitrates by colorimetric method with diphenylamine reagent.
5. Application of molecular techniques in identification of xenogenic protein additives. Feed DNA isolation. Preparation and application of PCR.
6. Application of molecular techniques in identification of GMO. Electrophoresis and data analysis.

7. Feed additives. Soil improvers. Organic fertilizers. Antibiotic growth stimulators. Detection of antimicrobials substances in feedstuffs.
8. Detection of coccidiostats in animal feed. General rules of feed sampling and official feed analysis. The use of coccidiostats in animal husbandry. Determination of the ionophoric coccidiostats by qualitative method and quantitative colorimetric method.
9. Production of feeds of animal origin. Visit in feed plant.
10. Technology and processing of slaughter by-products.

Allocation of ECTS for the course/module

Course title: SAFETY OF FEEDSTUFF

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	31	1
Student's own work	20	1
Total hours/ECTS of student's workload	51	2

Hours:

1. Lectures: 10
2. Laboratory: 20
3. Clinical classes: 0
4. Auditorium / seminar: 0
5. Internship classes : 0
6. Practice : 0
7. Others with the teacher: 1

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Fish
Course Title	Fish diseases
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE

Semester of study	IV/Sem 7		
ECTS / including contact hours	2/1		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 10		
	CLASSES - LAB. GROUP: 15		
	CLASSES - CLIN. GROUP:		
	CLASSES - AUD. GROUP:		
Teacher responsible for the course	dr Małgorzata Bednarska		
Language of instruction	ENGLISH*		
Prerequisites	Anatomy, Histology, Immunology, Bacteriology, Virusology, Parasitology		
Short description of the course (max. 500 characters)	Student learns about basic issues of fish anatomy, immunology, correct diagnosis of fish diseases based on the clinical, pathological examinations and laboratory tests. During the course a student should acquire the theoretical knowledge and practical skills necessary to diagnose and treat diseases in fish. Student acquires both basic and detailed information and knowledge in the field of fish production based on traditional and intensive culture (aquaculture).		
Content of the course unit (detailed description)	Student has a basic knowledge of anatomy and topography of different species of fish. Student is able to diagnose the most common contagious disease. Student has knowledge about major diseases in fish and principles of disease prevention,		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Student has a basic knowledge of anatomy and topography of different species of fish	test	Wet_WO_07
2	Student can describe clinical signs of disease	test	Wet_WO_2
3	Student has a basic knowledge of prevention of fish diseases	test	Wet_WO_3 Wet_WO_4
<i>Skills</i>			
1	Student is able to diagnose the most common contagious and metabolic diseases in fish	test	Wet_UO_01
2	Student can perform necropsy of different species of fish and can interpret of results	test	Wet_UO_02 Wet_UO_03
3	Student can evaluate prevention methods in fish farm	test	Wet_UO_04

<i>Social competences</i>			
1	Student can cooperate with the owner of fish farm in matters of prevention and protection of fish and public health		Wet_KS_01
2			
3			
Literature (max. 8, including Youtube presentations, etc.) Noga E. I. : Fish Disease: Diagnosis and Treatment. Wiley – Blackwell, 2010. 2. Roberst R. J. : Fish Pathology. Wiley – Blackwell, 2012. 3. Austin B., Austin D.A.: Bacterial Fish Pathogens: Disease of Farmed and Wild Fish. Springer, 2012. 4. Whitman K.A.: Bacteriology Manual Techniques and Procedures of Finfish and Shellfish. Iowa State Press, Blackwell Publishing Company, 2004.			
Total grade components		<i>grade obtained at classes (80%) + grade obtained at lectures (20%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Species, anatomy and physiology of cyprinid and salmonid fish. Identity biological features, anatomy, physiology habitat and biology of salmonid fish. Identity biological features, anatomy and physiology, habitat and biology of cyprinid fish. Fish reproduction and fertilization, incubation of fish eggs
2. Production cycle of salmonid and cyprinid fish . History of common carp in Poland. Intoduction of rainbow trout in Poland. Responsible aquacultures practices. Pond fish culture. Characteristic of common carp polyculture. Types of ponds. Feeding systems. Natural and artificial reproduction of fish.
3. Causes of fish disease. Fish immunology. The immune system . Modulation of the immune response. Vaccines. Types of vaccines. Methods of vaccine administration. Fish managment healt.
4. Bacterial diseases. Enteric Redmouth Disease -*Yersinia ruckeri*, *Bacterial Kidney Disease* - *Renibacterium salmoninarum*, *Columnaris Infection* - *Flavobacterium columnare*, *Bacterial Cold Water Disease* *Flavobacterium psychrophilum* Infection, *Bacterial Gill Disease* - *Flavobacterium branchiophilum*, *Motile Aeromonad Infection*, *Aeromonas salmonicida* Infection, *Carp erythrodermatitis (CE)*, *Edwardsiella tarda*, *Streptococcosis*.). Etiopathology, clinical signs, prevention, treatment
Virial diseases of fish. Spring Viremia of Carp (SVC), Koi Herpesvirus (KHV), Infectious pancreatic necrosis (IPN), Viral hemorrhagic septicemia (VHS), Infectious hematopoetic necrosis (IHN). Etiopathology, clinical signs, prevention, treatment
5. Environmental diseases . Environmental hypoxia. Gas bubbles disease. Ammonia poisoning. Nitrite poisoning. Sterss due to variations in pH values. Fish toxicology.

Titles of classes:

1. Methods for diagnosis fish disease. Clinical examination, taking the history, water analysis biopsy techniques (mucus smear, fin biopsy, gill biopsy, kidney biopsy,
2. Clinical examination and procedures II. External examination and internal examination. Fish disease diagnosis form. Biopses and culture.
3. Fungal disease - Typical Water Mold Infection, Branchiomycosis, Ichthyophonus
- Protozoan disease- (ciliates and flagellates), Trypanoplasma, Trichodinosis, Chilodonella, Ichthyobodo, Ichthyophthirius multifiliis, Cryptocaryonosis, Myxozoan Infection. Etiopathology, clinical signs, prevention, treatment
4. Monogenean Infestation- *Dactylogyrus sp.*, *Gyrodactylus sp.*, *Diplozoon sp.*, *Digenea flukes – Sanguinicola sp.*, *Diplostomum sp.*, *Posthodiplostomum cuticola*, Tapeworm Infection - *Bothriocephalus acheilognathi*, *Caryophyllaeus laticeps (cloverworm)*, *Khawia sinensis (khawiosis)*, *Ligula intestinalis*. Etiopathology, clinical signs, prevention, treatment
5. Nematode Infection. *Anisakis simplex*, *Capillaria sp.*, *Philometra lusiana*. Acanthocephalan Infection. *Acanthocephalus sp.*, *Neoechinorhynchus sp.*, *Echinorhynchus sp.*, *Pomporhynchus sp.*
- Copepoda Infestation. *Argulus foliaceus*, *Ergasilus sieboldi*, *Lernaea cyprinacea*
- Leech Infestation Etiopathology, clinical signs, prevention, treatment
6. Fish production management. Water management, hatchery management, pond management, feed and feeding management, security management, labour management.
7. Zoonoses associated with fish. Test.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	26	1,5
Student's own work	20	0,5
Total hours/ECTS of student's workload	46	2

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>FoodLaw		
Course Title	Food sanitary law		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY		
Semester of study	sem. 7		
ECTS / including contact hours	3/1,5		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES : 15 hours		
	CLASSES - LAB. GROUP: 0		
	CLASSES - CLIN. GROUP: 0		
	CLASSES - AUD. GROUP: 15 hours		
Teacher responsible for the course	Aleksandra Tabiś		
Language of instruction	ENGLISH*		
Prerequisites	Basic knowledge about society at the high school level.		
Short description of the course (max. 500 characters)	Students will learn the concepts and trends in food legislation. Course helps to understand the legal requirements in relation to food standards and their application to food and an understanding of how food affects health. Tasks and competencies of veterinary administration and administrative decisions for meat evaluation are presented.		
Content of the course unit (detailed description)	Classification and structure of European Union an national law instruments, promulgation authority, principles of laws promulgation, basic concepts of law, the classification of legal rules and principles, administrative decision and appeal procedure, national law acts governing the structure of inspection and supervision over the production, processing, distribution and marketing of food of animal origin. National and UE legislation in the field of veterinary public health in the area of hazard coming from food of animal origin. Rights and responsibilities of veterinarians performing the tasks in area of supervision of food.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>

<i>Knowledge</i>			
1	describes legal standards associated with the activities of veterinary physicians;	tests oral answers	Wet_ WO_12
2	identifies and describes in detail the principles of management and utilisation of animal by-products and waste associated with animal production;	tests oral answers	Wet_ WO_08
3	explains in detail the principles of consumer health protection, as well as the principles of appropriate supervision over the production of foodstuffs of animal origin;	tests oral answers	Wet_ WO_10
<i>Skills</i>			
1	performs activities that are associated with the veterinary supervision, including trade in animals, as well as sanitary and veterinary conditions of animal gathering locations and processing products of animal origin;	tests	Wet_ UO_06
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	oral answers	Wet_ KS_01
2	uses the objective sources of information;	tests oral answers	Wet_ KS_04
3	cooperates with representatives of other professions in the scope of public health protection;	tests oral answers	Wet_ KS_10
4	gets involved in the activities of professional and local government organisations.	tests oral answers	Wet_ KS_11
Literature (max. 8, including Youtube presentations, etc.) - compulsory: http://eur-lex.europa.eu , http://ec.europa.eu/index_en.htm http://www.fao.org/food/food-safety-quality/capacity-development/food-regulations/en/ - complementary/optional: <ul style="list-style-type: none"> Regulating food law. Risk analysis and the precautionary principle as general principles of EU food law, Anna Szajkowska, European Institute for Food Law series, 2012, Volume 7 EU Food Law Handbook, European Institute for Food Law series, , Volume 9, 			
Total grade components		<i>The rating obtained for the classes of 70% and an assessment of credit obtained from the lectures: 30%.</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Why do we need law in the society? The concept and content of state and law. The right to health and food safety in the context of public health protection. EU law on food safety issues.
2. The definition of state, the state apparatus, the government agency, legal entity, legal person, natural person. Categories of law, legislation, rule of law, legal provision. Criteria for the division and hierarchy of legal acts. The European Union history, organization, tasks
3. EU rules of interpretation, the law-making procedures. Permanent and advisory committees acting on behalf of the EU veterinary and other organizations associated with the veterinarian profession.
4. Sources of international law in relation to food. Sources of national laws in relation to food.
5. The main objectives of regulation EC Regulation No. 178/2002 laying down general principles of food law in the EU.
6. Regulation No. 178/2002 of the organization and tasks of EFSA. Regulation No. 178/2002, Proceedings in cases of crises (failure), to establish a uniform policy on hygiene requirements for all types of food all the operators in the chain of manufacture
7. Consumer protection under the law. Veterinary Inspection - the organization, the legal basis: Act of 29 January 2004 at the State Veterinary Service.

Titles of classes:

Classes
1. The main objectives of regulation EC Regulation 852/2004 on the hygiene of foodstuffs
2. The main objectives of regulation EC Regulation 853/2004 laying down specific hygiene rules for on the hygiene of foodstuff
3. The main objectives of regulation EC Regulation 854/2004 laying down detailed rules for the organization of official control of food of animal origin. Regulation No. 854/2004, the task of an official veterinarian. Regulation No. 854/2004, the professional qualifications required of supervisors, the question of specialization veterinarians.
4. The competence of the State Veterinary Service in veterinary public health. Act of January 29, 2004 veterinary requirements for products of animal origin. (OJ No 33, item. 288) - the main objectives of the Act.
5. The main objectives of regulation EC Regulation 1441/2007 on microbiological criteria for foodstuffs
6. Food additives under the law (REGULATION (EC) No 1333/2008)
7. Veterinary drugs. Antibiotics and other residues. Max levels allowed in food. Pharmaceutical Law.

Allocation of ECTS for the course/module

Course title: Food sanitary law

Activities/Workload	Average number of hours per activity	ECTS points

Student's workload, including: teaching hours + tutorials + tests + exam	30+1	1,5
Student's own work	25	1,5
Total hours/ECTS of student's workload	56	3

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **: 15
5. Internship classes **:
6. Practice **:
7. Others with the teacher: 1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Forensic
Course Title	FORENSIC VETERINARY
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ ELECTIVE
Semester of study	10
ECTS / including contact hours	2
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15 H
	CLASSES - LAB. GROUP:
	CLASSES - CLIN. GROUP:
	CLASSES - AUD. GROUP:15 H
Teacher responsible for the course	PROF.DR HAB. ZENON SOŁTYSIAK
Language of instruction	ENGLISH*
Prerequisites	Pathology, Microbiology, Pharmacology, Toxicology, Parasitology and Invasiology, Biochemistry and Laboratory diagnostics
Short description of the course (max. 500 characters)	The course is the acquaint students with the structure, organization, function and court jurisdiction in Poland. The students learn the basic concepts and terms in, explains how to follow the law and Veterinary Medicine ethic. Students learn the competence to an expert witness in the field of veterinary medicine. During the course can

		formulate an expert opinion. They learn the method of animal tissue examination and other material evidence.	
Content of the course unit (detailed description)	The object of the course is to provide theoretical and practical knowledge in the field of forensic veterinary medicine. The course makes you aware of your responsibilities, teaches you the responsibility that rests with your veterinary practitioner. Completing the course allows you to appear in the Court as a court expert, teaches you the skills of editing medical and veterinary documentation, and especially the expert opinion, becomes a translator of medical issues in the area of Forensic Medicine for the needs of judicial authorities that are needed to resolve a given court case. During the course, students perform laboratory identification of animal species based on tissue fragments.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Wet_WO_06 specifies the principles of conducting clinical examination, in accordance with the plan of clinical examination, analysis of clinical symptoms and anatomopathological changes;	Test	P7S_WG
2	Wet_WO_12 describes legal standards associated with the activities of veterinary physicians;	Test	P7S_WK
<i>Skills</i>			
1	Wet_UO_07 issues veterinary medical opinion and certificate	Opinion	P7S_UW P7S_UK
2	Wet_WSK_07 knows and interprets the regulations of the law, rules for issuing judgments and preparing opinions for the needs of courts, state, local government and professional administration bodies;	Opinion	P7S_WG P7S_WK
<i>Social competences</i>			
1	Wet_KS_01 exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Opinion	P7S_KO P7S_KR
2	Wet_KS_06 is ready for reliable self-assessment, formulating constructive criticism in the scope of veterinary practice, accepting criticism of presented solutions, reacting to such criticism in a clear and material manner, also with the use of arguments referring to the available scientific achievements in the discipline	Opinion	P7S_KK
3	Wet_KS_07 deepens his/her knowledge and improves skills;	Opinion	P7S_KK

Literature (max. 8, including Youtube presentations, etc.) 1. Barbara P. Wheeler Lori J. Wilson: Practical Forensic Microscopy A laboratory Manual, Wiley Blackwell 2008, 2. Dorothy E. Gennard: Forensic entomology An Introduction, Wiley 2007., 3. Norman F. Cheville: Introduction to Veterinary Pathology, Third Edition, Blackwell Publishing, 2006., 4. Brain A. Summers, John F. Cummings, Alexander de Lahunta: Veterinary Neuropathology, Mosby-Year Book, Inc.1995.	
Total grade components	<i>grade obtained at classes (60%) + grade obtained at lectures (40%)</i>
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

1. The aim and task of Forensic Veterinary law. Veterinary regulations in Poland.
2. Civil law. Legal proceeding - selected issues.
3. The responsibility under civil law in veterinary practice.
4. Criminal law. Criminal responsibility - selected issues. Criminal conduct. Source, circumstances and effects to commit a crime in veterinary practice.
5. Administration conduct. Administration responsibility in veterinary practice. The evidence and their kind.
6. Veterinary surgeon as an expert in judicature procedure. The occasional situation in which the veterinary surgeon is forming an expert opinion. The types of veterinarian expert witness opinion.
7. Animals main disadvantages. (Aerophagia in horses, Hemiplegia laryngis sinistra in horses, brain diseases of horses, horses irido-cyclo-chorioiditis, sheep scabies, and minks tuberculosis).
8. Stigmata mortis (livor mortis, rigor mortis, body temperature, decomposition etc.) Animals examination for judicature procedure.
9. Sudden animal death. Mechanism of sudden death (cardiomyopathy, valvular disease, myocarditis, intracerebral hemorrhage, brain neoplasms, pulmonary thromboemboli, pneumonia, liver and spleen neoplasms, diseases of the urogenital and digestive animal organs, infective disease). Shock death, cardiac death, smothering, choking, mechanical asphyxia, hanging, ligature strangulation, manual strangulation, death by drowning, suffocating gases, death caused by motor vehicle accidents.
10. Other types of sudden death (electrocution, radiation, hyperthermia and hypothermia.
11. Veterinary toxicology. Frequent animals toxicosis.
12. Blunt force injuries: abrasions, contusions, lacerations, fractures of the skeletal system, epidural, subdural and subarachnoid hemorrhages.
13. Tissue sample examination, Examining of blood samples, groups of animals blood, hemine and

hemochromogene detection. Diagnostic methods suitable for muscle parasites detection. examining of small samples (bones, hair, birds feather) – identification of animal species on the basis of anatomy and histology and DNA profiling.
14. Bioterrorism
15. The European Union Directives, Selected directives on Environmental protection.

Titles of classes:

1. The students formulate leitmotif letter, 1a/Discussion.
2. The students are asked questions concerning of veterinary field, 2a/The students answer for lawyer formulate questions about veterinary field, 2b/ Discussion.
3. Students prepare a civil or criminal suit (petition), 3a.Discussion.
4. Veterinary acts obligatory in Poland, 4a/ Discussion.
5. Types of veterinarian expert opinions and principle of their formulation, 5a. The student writes expert opinion about veterinarian field.
6. The students write formulation working card and calculation of their expert opinion.
7. The students prepare veterinarian certificate.
8. Test of Law Part of Forensic Veterinary (learning and topics material).
9. Professional expert opinion. 9a/ Discussion.
10. Providing oral answers by students on given court topics. 10a/ Discussion.
11. Bioterrorism. 11a.Discussion.
12. Students appointed as experts in veterinary matters. Discussion.
13. Test of Medical Part of Forensic Veterinary (learning and topics material).
14. Test of Material Evidence (learning and topics material).
15. The time for assessment and passing the subject.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	31	1,5
Student's own work	10	0,5
Total hours/ECTS of student's workload	41	2

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **:15
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Genetics
Course Title	General and Veterinary Genetics
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	2
ECTS / including contact hours	2/1
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 15
	CLASSES - LAB. GROUP: 15
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	Maciej Zacharski
Language of instruction	ENGLISH
Prerequisites	General knowledge of plant, animal and human genetics on the high-school level
Short description of the course (max. 500 characters)	During the course students learn rules of inheritance and mechanisms generating genetic diversity.
Content of the course unit (detailed description)	Issues are discussed related to Mendelian genetics, chromosome theory of inheritance, genetic mutations and their influence on single organism or population. Students perform Mendelian crosses using fruit fly as model organism. Students also learn and apply modern methods of molecular genetics for the diagnosis of single trait diseases. Estimation of allelic and genotypic frequencies of selected genes associated with traits important for animal's health is performed.

Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	describes and characterises the principles and processes of inheritance, genetic disorders and the basics of genetic engineering		Wet_WSP_14
<i>Skills</i>			
1	analyses genetic crosses and pedigree of the characteristics of individuals from respective species		Wet_USP_09
2	performs basic statistical analysis and uses appropriate methods for presentation of the results		Wet_UO_10
<i>Social competences</i>			
1	uses the objective sources of information		Wet_KS_04
2	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity		Wet_KS_05
3	communicates with the co-workers and shares knowledge		Wet_KS_08
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional			
Total grade components		Lecture (written final test) 67%, Labs (quizzes and lab report) 28%, Positive contribution to classroom environment, activity 5%	
Comments:			

List of subjects and exercises for the course/module

Lecture topics:

1. Introduction to genetics. The history of genetics including key theories that led to its development. Definitions of basic concepts, among others, gene, genome, genotype, phenotype homozygote, heterozygote. Mendel laws. Basic knowledge of the chemical structure of genes. Organizational information.
2. The chromosomal theory of inheritance. Differences between prokaryotic and eukaryotic chromosome. Structure and morphology of the metaphase chromosome. Karyotypes and idiogramy selected livestock and pet. The use of differentiating staining. Feedback features, map distance. The concept of alleles. Cell division with a particular indication of meiosis as a source of genetic variation. Gametogenesis.
3. . General features of inheritance. Complete, incomplete dominance, heterozygote advantage, codominance. Multiple alleles, lethal and sub-lethal alleles, examples of synthetic lethality in animals and humans. Testing carrier lethal alleles. Mapping of chromosomes. Calculating

- distances mapped using crosses 2- and 3 points. Sex determination in mammals, birds and other animals.
4. Deviations from the laws of Mendel and chemical basis of heredity. Complementarity epistasis, gene complementation, modifier genes, examples of their presence in animals. Chemical structure of DNA and RNA, molecular processes leading to copy the genetic information and expression of phenotypes. Types of RNA. The genetic code.
 5. Regulation of gene expression and quantitative traits. The levels of gene expression. Mechanisms of action of transcription factors. Hox genes. Epigenetics, genetic imprinting. Inactivation of X chromosome, cumulative genes. Calculations of phenotypic fission using Pascal's triangle. Transgression and heritability.
 6. Mutations. Types of chromosome mutations, gene and point mutations. Mosaicism. Causes of mutations. Physical and chemical mutagens. The concept carcinogen. Recombination and DNA repair. Markers of recombination. Biochemical phenotypes. Organization of mitochondrial genomes.
 7. Introduction to population genetics. Basic concepts (population, the incidence of an allele). Law Hardy-Weinberg equilibrium. Factors affecting the frequency of alleles in a population.

Lab topics:

1. Genetic calculations. Mono-, dihybrid crosses and the crosses of larger numbers of genes. Mendelian genetics calculation. Complete and incomplete dominance. Chi² test.
2. Fruit fly as a model organism for genetic research. Morphology, culture conditions, sexual dimorphism, life cycle and developmental stages. The stereoscopic microscope use. Anesthetizing the flies, observation of the mutant strains' phenotypes, setting up the new cultures.
3. Preparation and staining of the polytenic chromosomes from fruit fly larvae salivary glands. Chromosome structure, different types of chromosomes. Setting up the cross of two different strains of fruit flies.
4. The molecular diagnostics of the ivermectin hypersensitivity in dogs. Polymerase chain reaction, agarose gel electrophoresis. Phenotyping of the progeny (F1) of crossed fruit fly strains. Transferring of the fruit fly progeny to the new culture tube (F1x F1).
5. Phenotyping and counting of the fruit fly second generation (F2). Creating phenotypic ratios. Preparation of lab reports and calculations.
6. Final test.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	31	1.5
Student's own work	10	0.5
Total hours/ECTS of student's workload	41	2

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **: 15
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher: 1

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Histology1 MWW-AJ>Histology2
Course Title	Histology and embryology I Histology and embryology II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	1 and 2
ECTS / including contact hours	8 (4/4)
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	Lectures: 45 (15 / 30)
	CLASSES - LAB. GROUP: 60 (30/30)
Teacher responsible for the course	dr Piotr Kuroпка
Language of instruction	English
Prerequisites	Knowledge of chemistry and biology at general secondary school level
Short description of the course (max. 500 characters)	The aim of the course is to familiarize students with the cell and tissue structure of domestic animals and with their histophysiology. Student gains experience in the use of microscope and basics of histological preparation. Student is familiar with the issues of embryonic and fetal development of animals from fertilization to early-onset.
Content of the course unit (detailed description)	Lectures Gametogenesis as a process preceding the onset of the new organism. Egg formation - oogenesis, sperm formation - spermatogenesis. Hormonal regulation of gametogenesis,

sex cycle. Insemination and fertilization. Stages of fertilization in mammals. Atypical and pathological ways of fertilization. Parthenogenesis. Cleavage types. Morula formation followed by blastula as a result of cleavage. Gastrulation and gastrula formation. Examples of gastrulation in different species. Formation of germ layers and primary embryonic organs. Formation of fetal membranes. Placenta in different species of domestic and wild animals. Placental disorders. Fetal circulation. Rules of fetal circulation. Development of heart, blood vessels and blood formation. The system of vessels in the fetal circulation and after birth. Circulatory system. Histological structure of the heart, arteries, capillaries and veins. Bone marrow and spleen. Hematocytopoiesis. Internal glandular secretion system. Hypothalamic-pituitary system. Endocrine glands. Hypothalamic-pituitary system. Endocrine cells in the gonads and in the pancreas. Unicellular intraepithelial endocrine glands. Digestive system. Histological structure of different sections of the gastrointestinal tract. Intramural and extramural glands. Structures involved in digestion and absorption. Structures involved in regulation of gastrointestinal function. Respiratory system. Histological structure of nasal cavity, larynx, trachea and lung. Blood – air barrier. Lungs in bird. Urinary tract. Histological structure of the kidney. Blood-urine barrier. Nephron and collecting tubules. Male reproductive system. Histological structure of the male gonad. Epididymis and vas deferens. Male genital glands. Female reproductive system. Histological structure of female gonad, oviduct and uterus. Ovarian cycle and uterine cycle. The nervous system. Histological structure of the central and peripheral nervous system. Nervous synapses Formation of nerve fibers. Outer shell of the body. Histological structure of the skin. Skin glands. Horn.

Lab

Principles of microscopy. Free cell and cell in unit. Epithelium simple- squamous, cuboidal and cylindrical, pseudostratified, stratified, glandular and sensory. Connective tissue - mature gelatinous tissue, loose connective tissue, adipose tissue, blood, fibrous tissue, bone marrow tissue. Chondrogenesis and osteogenesis. Muscle tissue: smooth muscle tissue, striated skeletal muscle, cardiac muscle. Nervous tissue: sensory nerve cell, motor neuron, glial cell, nerve fiber. Circulatory system - elastic arteries, arteries and veins of the muscular type, pre-arteries, capillaries, lymph nodes, spleen, thymus. Endocrine system - pituitary gland, thyroid gland, adrenal gland. Gastrointestinal tract – tongue and papillae, salivary glands, tooth, esophagus, gastric glands, stomach, small intestine: duodenum, jejunum, ileum, large intestine: colon; pancreas, liver. Respiratory system - trachea, lungs. Urinary system - kidney, urethra, bladder. Reproductive system - ovary, fallopian tube, uterus. Testes with epididymis, vas deferens. Nervous system, intervertebral disc, spinal cord,

		cerebellum, brain, eye. The skin - the hair, the hoof, the mammary gland.	
Learning outcomes (max. 3)			
Nr No.	Subject-specific	Assessment method	Symbol of the learning effect for the field of study
<i>Knowledge</i>			
1	knows to an extensive degree, describes in detail and explains the structure, activity and regulation mechanisms of organs and systems of the animal organism (respiratory, digestive, circulatory, excretory, nervous, reproductive, hormonal, immune system and skin), as well as their integration at the organism level;	Final exam -test Completion of classes (test and practical exam at the end of the second semester)	Wet_WSP_02
2	presents the development of organs and the entire animal organism in relation to the mature organism;	Final exam -test Completion of classes (test and practical exam at the end of the second semester)	Wet_WSP_03
3	knows and understands the Polish and Latin medical nomenclature	Final exam -test Completion of classes (test and practical exam at the end of the second semester)	Wet_WSP_20
<i>Skills</i>			
1	recognises (in the images from optical microscope) histological structures corresponding to organs, tissues and cells, and is able to formulate their description, interpret their structure and relations between their structure and activity, taking into account the animal species from which they originate;	Final exam -test Completion of classes (test and practical exam at the end of the second semester)	Wet_USP_08
<i>Social competences</i>			
1			
	Literature (max. 8, including Youtube presentations, etc.) - compulsory Dellman Textbook to the veterinary Histology Materials from EDUWET Gilbert S.F. Developmental biology. 7th edition, Sinauer Associates, Inc. 2003. - complementary/optional		
	Total grade components	<i>grade obtained at lab (50%) + grade obtained at lectures (50%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

Winter semester	
1. Tissues of the body.	4
2. Circulatory system. Histological structure of the heart, arteries, capillaries and veins. The organs thrown into the body fluid. Hematocytogenesis.	3
3. Internal glands system. Hypothalamic-pituitary system. Gill- derived endocrine glands. Adrenal gland and paraganglia. Endocrine cells in the gonads and in the pancreas. Unicellular intraepithelial endocrine glands (APUD cells).	2
4. Digestive system. Histological structure of particular sections of the gastrointestinal tract. Intramural and extramural glands. Structures involved in digestion and absorption. Structures involved in regulation of gastrointestinal function.	4
5. Respiratory system. Histological structure of nasal cavity, larynx, trachea and lung. Blood – air barrier. Lungs in birds.	2
Spring semester	
1. Urinary system. Histological structure of the kidney. Blood- urine barrier. Roads leading out urine.	3
2. Male reproductive system. Histological structure of the male gonad. Epididymis and vas deferens. Male genital glands.	2
3. Female reproductive system. Histological structure of female gonad, oviduct and uterus. Ovarian and uterine cycle.	2
4. The nervous system. Histological structure of the central and peripheral nervous system. Nervous synapses. Formation of nerve fibers.	4
5. The outer shell of the body. Histological structure of the skin. Skin glands. Horn products.	4
6. Gametogenesis as a process preceding the onset of the new organism. Egg formation - oogenesis, sperm formation - spermatogenesis. Hormonal regulation of gametogenesis, sex cycle.	3
7. Processes of insemination and fertilization. Stages of fertilization in mammals. Atypical and pathological ways of fertilization. Parthenogenesis.	3
8. Cleavage, types and meaning. Morula formation followed by blastula as a result of cleavage.	3
9. Gastrulation and gastrula formation. Examples of gastrulation in different species. Creation of germ layers and primary embryonic organs.	2
10. The formation of fetal membranes. Placenta in different species of domestic and wild animals. Placental disorders.	3
11. Fetal circulation. Rules of fetal circulation. Development of heart, blood vessels and blood formation. The system of vessels in the fetal circulation and after birth.	2
	2

Titles of classes:

Winter semester	
Histological techniques. Methods of staining used in histology. Special structures developed by specialized cells.	2
Epithelium (I). Epithelium simple squamous, cuboidal and cylindrical.	6
Epithelium (II) Epithelium pseudo- and multistratified.	8
Connective tissue (I) Mesenchyme, adipose and reticular tissue.	8
Connective tissue (II) Loose and fibrous connective tissue	
Connective tissue (III) Cartilage and bone.	
Muscle tissue	4
Nerve tissue	4

Circulation: Blood and lymph. Hemopoiesis Morphology of blood and lymph vessels Structure and function of lymphatic organs: Thymus, lymph node, spleen	6
Spring semester Endocrine system Organs of defense system	3
Digestive apparatus I: Tooth, tongue, salivary gland Digestive apparatus II: Esophagus, forestomach, glandular stomach Digestive apparatus III: Intestines Digestive apparatus W: Liver and pancreas	10
Respiratory system- trachea and lungs	2
Urinary system- kidney, urethra, bladder	3
Female reproductive apparatus- ovary, oviduct and uterus	3
Male reproductive apparatus- testes with epididymis and vas deferens	3
Nervous system I: brain, cerebellum, spinal cord	3
Nervous system II: Sensory organs: eye	
Integument I: Hair, mammary glands	
Integument II: Hoof, claw, horn, antler	3

Allocation of ECTS for the course/module

Course title: Histology and embryology

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	108 (47/61)	5 (3/2)
Student's own work	75 (25/50)	3 (1/2)
Total hours/ECTS of student's workload	183 (72/111)	8 (4/4)

Hours:

1. Lectures: 45 (15/30)
2. Laboratory : 60 (30/30)
3. Others with the teacher: 3 (1/2)

* choose the right one

** if applicable

Course description

Code	MWW-AJ>HygFood
Course Title	Hygiene of Food Processing
Subject area /Field of study	Veterinary Medicine
Study cycle (I, II)	full

Profile	general		
Type of course	compulsory		
Semester of study	winter (9), summer (10)		
ECTS / including contact hours	7/4		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	Lectures: 60 Classes: 75 135		
Teacher responsible for the course	Dr Katarzyna Kosek-Paszowska		
Language of instruction	English/Polish		
Prerequisites	Animal Anatomy, Physiology, Biochemistry, Microbiology, Food law		
Short description of the course (max. 500 characters)	The aim of the course is to give the students knowledge about most important processes used in food technology, about influence of each process on consumer health, about microbiological hazards related to different food of animal origin.		
Content of the course unit (detailed description)	Technological food processes: curing, smoking, drying, lyophilization, pasteurization, sterilization, chilling, freezing, marination, technology of animal origin food production: sausages, hams, offal meat products, cans, poultry slaughtering and poultry meat processing, fish processing, egg processing, good manufacturing and hygiene practice in food plants, risk analysis in food, methodology of veterinary inspection and veterinary surveillance in food plant.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>No. LO specific for the degree course</i>
<i>Knowledge</i>			
1	Student explains in detail the principles of consumer health protection, as well as the principles of appropriate supervision over the production of foodstuffs of animal origin;	Written, oral tests, final exam	Wet_ WO_10
2	Student presents the principles of consumer health protection, which are ensured by appropriate supervision over the production of foodstuffs of animal origin;		Wet_ WSK_17
	Student knows and interprets the conditions of hygiene and technology		

3	of animal production		Wet_WSK_20
<i>Skills</i>			
1	Student assesses the quality of products of animal origin.	Written, oral tests, final exam	Wet_USK_23
2	Student is able to estimate the risk of occurrence of chemical and biological hazards in food of animal origin.		Wet_USK_24
<i>Social competences</i>			
1	Student is ready for reliable self-assessment, formulating constructive criticism in the scope of veterinary practice, accepting criticism of presented solutions, reacting to such criticism in a clear and material manner, also with the use of arguments referring to the available scientific achievements in the discipline;	Visit in meat processing plant	Wet_KS_06
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional		1.Varnam A.H, Evans M.G. "Foodborne pathogens", Mancon Publishing, 2005; 2.McLandsborough, "Food Microbiology Laboratory", CRC Press, 2005 3. Hui Y.H. "Handbook of meat and meat processing", CRC Press, 2012 4. Shapton D.A, Shapton N.F "Principles and practices for the safe processing of foods", Woodehead Publishing, Cambridge, 2001. 1. Feiner G. "Meat products handbook", CRC Press, 2006. 2. Toldra F. "Safety of meat and Processed Meat, Springer, 2009. 3. Owens C., Alvarado Ch., Sams A. "Poultry meat processing", CRC Press, 2010.	
Total grade components		To pass the whole subject student must obtain a credit from the subject "Hygiene of food processing I" and from the subject "Hygiene of food processing II". The final grade consists of the grade from the classes: 40% and the grade from the exam: 60%. Thematic scope of the exam: " Hygiene of food processing I" classes and lectures and " Hygiene of food processing II" classes and lectures.	

Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

Semester 9th:
1. Healthy eating, basing rules of proper nutrition, main role of food technology, how to eat to stay healthy.
2. Microbial pathogenicity: steps of microbial invasiveness, colonization, adhesion of bacteria, mechanisms of adherence
3. Factors affecting microbial activity in food: pH, water activity, redox potential, temperatures: mesophilic, psychrophilic, thermophilic bacteria; change of water activity by physical and chemical processes and its influence on bacteria, the role of pH and red-ox potential in food.
4. Food poisoning: kinds of food poisoning, food intoxications, systemic infections, mechanism of food poisoning, how to avoid food poisoning, the most popular food poisonings
5. Bacterial defense against host immune system: bacterial defense against phagocytosis, bacterial defense against adaptive immune system, intracellular parasites.
6. Foodborne protozoa: the most important protozoa transmitted by food: Giardia, Cryptosporidium, Toxoplasma, Cyclospora, life cycles, reservoirs, sources of infections, food of concern, control in food chain
7. Allergens in food: law regulation about food allergens, main food allergens, difference between food allergy and food intolerance, mechanism of food allergy and food intolerance, protection of consumer against food allergies
8. Foodborne viruses: foodborne viral infections, the most important viruses transmitted via food, viruses that cause gastroenteritis, hepatitis viruses, other viruses, sources of food contamination by viruses, epidemiology
9. Foodborne botulism: infant type botulism, food involved in botulism, botulinogenic food, prevention against botulism
10. Emergency pathogens transmitted via food : main pathogens of concern: Arcobacter butzleri, Mycobacterium avium, Aeromonas hydrophila, Hepatitis E, sources of pathogens, prevention, epidemiology.
11. Food packaging and labeling: the role of packaging in food industry, primary, secondary, tertiary packaging, materials used for packaging, law requirements for packaging, evaluation of packaging materials , law requirements concerning food labeling in EU.
12. Microflora of food processing plants and production facilities and its impact on food safety: microflora of food processing plants, microbiological contamination of production facilities and production equipment, microflora of the air in large and small food processing plants.
13. The role of veterinary inspection in food processing plants: law requirements, main tasks of

vets, cooperation with other inspections.
14. Prerequisite Programs (PRPs), Sanitary Standard Operational Procedures (SSOP), Good Manufacturing Procedures, Good Hygienic Procedures (GMP/GHP) in food industry- practical approach, law regulations, methods of checking, veterinary surveillance.
15. New eating rules: new nutritional pyramid, the most popular diet- pros and cons, diet food- pros and cons, superfoods .
Semester 10th:
1. Convenience and functional food ; definitions of functional and convenience food, methods of preservation used for production of convenience food, sous vide technology, clean room technology, examples of functional food
2. Unconventional methods of food preservation- part I: positive aspects of new non thermal methods of food preservation, High Hydrostatic Pressure (history, technology, pros and cons, biological effects).
3. Unconventional methods of food preservation- part II: food irradiation (history, technology, pros and cons, biological effects, radurization, radicidation, risk for human health), microwaves radiation (history, technology, pros and cons, biological effects), atmospheric pressure plasma APP, ultrasonication.
4. Spoilage of food: chemical, microbiological, physical, enzymatic spoilage, mechanisms of food spoilage, microflora involved in spoilage, meat spoilage (aerobic and anaerobic), spoilage of other foodstuffs, prevention against food spoilage
5. Antibiotic resistant bacteria: mechanisms of antibiotic resistance, prevalence of antibiotic resistant bacteria in food chain, livestock associated MRSA, sources of contamination
6. Hygiene in food industry: basic hygienic rules in food plants, proper washing of hands, clothing, skin microbiota, transient and resistant microflora, methods of verification of hand washing in food industry, swabs, ATP
7. Supporting raw materials in food industry: spices, polyphosphates, vegetables, hydrocolloids, meat analogues- their role in food processing, natural and artificial casings, microbiology of spices.
8. Food additives: the most popular and controversial food additives: aspartame, fructose corn syrup, artificial coloring, MSG, the role of food additives, trans fats, E numbers, law regulation related to food additives in EU and other countries,
9. Bacillus cereus food poisoning: life cycle of Bacillus cereus, heat resistant endospores, emetic form and diarrheal form of Bacillus cereus food poisoning, sources, symptoms, prevention.
10. Quality management systems in food industry: ISO 22 000, FSSC, ISO 9001, BRC and IFS standards.
11. Chemical hazards in food: acrylamide, bisphenol A, melamine, dioxins, polychlorinated biphenyles, BFRs- sources, methods of prevention, maximum acceptable levels, law regulations.
12. Shelf life of food: best before date, expire date, consumer margin, testing of foodstuffs for shelf life, perishable and nonperishable food, contamination of raw materials and finished products with pathogenic bacteria, microbial durability of food, the rules for determining the margin of consumer safety.

13. Introducing into methodology of auditing in food processing plants: difference between control and audit, internal audit, audit as a tool of HACCP verification, basic rules of auditing in food industry.
14. Disinfection in the food industry: principles of disinfection in the food industry, the types of disinfectants and methods of their use, evaluation of disinfectants, characteristics of good disinfectants.
15. Hygiene and technology of wild game production: law requirements regarding wild game, processing of wild game, storage and distribution of wild game meat, veterinary surveillance,
Titles of classes
Year 5th, Semester 9th:
1.Role of food technology: definition of food, history of food technology, history of food preservation, sources of raw material for food processing, food resources in the terrestrial environment and water, sourcing of raw materials for food production, quality raw materials and their standardization, biotechnology and biotechnological methods of obtaining food.
2.Mechanical operations used in food technology: basic mechanical processes used in meat industry - grinding, mincing, mixing, filling, tumbling, characteristic of mechanical meat machineries – grinder, bowl cutter, tumbler, sanitary aspects of mechanical operations; chilling of food: classification of microorganisms according to their thermal growth conditions, characteristic of psychrotrophic and psychrophilic microorganisms, storage of food in chilling conditions.
3.Storage of raw materials, cutting and dressing operations, classes of meat trimmings: conditions during carcasses storage, temperatures of meat storage, cutting into primal cuts, meat ageing, primal pork and beef cuts, classification of pork and beef meat trimmings, veterinary examination of meat trimmings, classification of slaughter by-products- classes in meat processing plant.
4. Curing, salting and marinating: methods of curing- dry and wet curing, multi-needle injection curing, role of curing in meat technology, the role of nitrate and nitrite, health hazards connected with cured products, machines used for curing, role of salt in food preservation, microbiology of salted products, marinating as a method of food preservation.
Smoking, drying, freeze-drying: role of smoking in meat processing, types of smoking: cold, warm, hot smoking, smoking with smoke preparates, microbiology of smoked products, health hazards connected with smoked products, methods of food drying, natural and machine drying, machines used for drying, technology of freeze drying, triple point of water, role of freeze drying in food technology.
5.Thermal treatment – freezing of food: – shelf life, spoilage, microbiological safety, freezing of food – types, shelf life, susceptibility of microorganisms, defrost of food.
Hygiene and technology of animal fat processing: classification and chemical composition of fat raw materials, veterinary inspection of fat raw materials, hydrolytic and oxidative rancidity, Lea number, Kreis test, rendering of animal fat raw materials, production of lard and tallow, microbiological safety of rendered animal fat
6. Storage of food in vacuum and modified atmosphere: technology of vacuum and MAP packaging, microbiology of vacuum and MAP packed products, gases used in MAP technique, MAPAX technique in food packaging, spoilage of vacuum packed and MAP products.
Hygiene, technology and microbiology of egg and egg products: microbiology of eggs, good hygienic practice during egg production, production of powdered eggs, microbiology of eggs,

Salmonella in eggs, spoilage mechanisms.
7. Thermal treatment - high temperatures: definition and history of food thermal processing, botulinogenic food, pasteurization of food, SSP products, sterilization of food, types of food sterilization, appertization, microbial inactivation parameters used in thermal processing of food – F, z, L, A, D, survival curve, TDT curve, thermophilic microorganisms.
8. Thermal treatment - high temperatures – botulism: intoxication, toxicoinfection, botulinum toxins, foodborne botulism, infant-type botulism, wound botulism, pathogenesis of botulism, prevention of foodborne botulism.
9. Hygiene and technology of honey production (types of honey and bee products, evaluation of honey, examination of honey, organoleptic properties, law regulations. Hygiene and technology of slaughter by products (types of slaughter by products, using of such raw material for foodstuff production, edible and inedible products, preservation, spoilage, natural casings.
10. Hygiene in food plants in practice- examination of clothes and hands: microbiological criteria for personal hygiene, swabbing, hygiene of clothes, methods of hand disinfection, microbiological status of hands, permanent and non-permanent microflora.
11. Organoleptic evaluation, sensory analysis- practical aspects and organoleptic examination of sausages: definition of sensory analysis and organoleptic examination, role of sensory analysis in food quality evaluation, gustometry, sensory analysis laboratory, taste sensitivity tests, sensory analysis of sausages – external, cross-section, mouth-feel examination, protocol of organoleptic examination.
12. Hygiene and technology of meat cans production: types of cans, sterilization and pasteurization of meat cans, F value and meat cans, durability of meat cans, chilling after thermal treatment, microbiology of meat cans, technological production processes of sterilized and pasteurized meat cans. Practical laboratory examination of meat cans: thermostatic evaluation of pasteurized and sterilized cans, examination of cans tightness, microbiology examination, sensory evaluation of meat cans, swelling of cans, types of swelling, double seam examination, spoilage of meat cans.
13. Organoleptic examinations of fish and fish products: microbiological and chemical hazards connected with fish and fish products, raw fish examination, evaluation of freshness, microbiology of fish meat and fish products, sensory evaluation of fish products- fish marinations, smoked fish, fish cans.
14. Indicator bacteria in foodstuffs: definition of indicator bacteria, role of indicator bacteria in food technology, E. coli, Enterobacteriaceae, total bacteria count, enterococci as a indicator bacteria, indicator bacteria in meat products. Preservative chemical agents used in food technology: classification of food additives, characteristic of preservatives: benzoic acid, sodium benzoate, parabens, sorbic acid, sodium sorbate, sulphur dioxide, bacteriocins as preservatives, classification and function of bacteriocins, characteristic of nisin – the basic bacteriocin used in food industry.
15. Fungal spoilage; the most popular fungai in food, symptoms of fungal spoilage, mycotoxins, prevention, influence on consumer health, examination of food for fungai and mycotoxins.
Semester 10th:
1. Hygiene and technology of fish and fish products: classification of fish raw materials, veterinary inspection of fish raw materials, preliminary processing of fish, preservations of fish - smoked, salted and marinated fish, microbiological spoilage of fish and fish products, nutritive value of fish,

polyunsaturated fatty acids – DHA, EPA- visit in fish processing plant.
2. Hygiene and technology of poultry processing: technology of poultry slaughtering, chilling of poultry carcasses, cutting into primal cuts, microbiology of raw poultry and poultry products, microbiological hazards connected with poultry meat, preservation of poultry meat, cold chain in poultry processing- visit in poultry slaughterhouses.
3. Hygiene and technology of rabbit slaughter and processing: steps of rabbit slaughter, law requirements, microbiology of rabbit meat, spoilage, preservation, storage, methods of processing.
4. Hygiene and technology of ostrich slaughtering; technology of slaughtering, chilling of carcasses, using of slaughter by products, microbiology of raw meat, preservation, characteristic of meat, law regulations.
5. Hygiene and technology of sausage and ham production: technology of sausage production, technology of ham production, machines used for sausage and ham productions, hygiene of sausage and ham production, microbiology of sausages and hams, fermented sausages, types of sausages, sausage yield, high yielded hams- visit in meat plant.
6. Hygiene and technology of wild game processing: law regulations connected with wild game, obtaining of wild game, hygiene and microbiology of wild game meat and meat products, storage of wild game meat, ageing of wild game meat.
7. The role of veterinary inspection in surveillance in meat processing plant- visit in meat plant.
8. The evaluation and control of implementation of HACCP system and its documentation in meat industry- visit in meat plant.
9. GMP/GHP, SSOP, Prerequisite Programs in food plants, practical approach- visit in meat processing plant
10. Hygiene and technology of edible offal processed meat products and cold (deli) products: sorts of offal and deli products, technology of production, methods of preservation, microbiology, cold chain in deli products dispatch, storage and transportation, critical control point (CCP) in production of deli and offal product.
11. Critical control points, monitoring, corrective actions, records, verification of HACCP system, practical approach- visit in meat processing plant
12. Storage, packaging and distribution in food industry- requirements, cold chain, documentation, veterinary surveillance- visit in meat plant
13. Unconventional methods of food preservation: unconventional non-thermal methods – high pressure technology, pulsed electric field, ultrasound, ultraviolet radiation, ionizing radiation, radappertization, radurization, radacidation; microwave radiation, microbiological safety of unconventional preserved food products.
14. Probiotics, prebiotics, synbiotics: definition of probiotics, probiotics microorganisms, sources of probiotics, role and use of probiotics, definition and classification of prebiotics, sources of prebiotics, inulin as natural prebiotic, definition of synbiotics.
15. The role of official inspections in food control and surveillance; tasks of each inspections, responsibilities, documentation- visit in meat plant.

Allocation of ECTS for the course/module

Course title: Hygiene of Food Processing

Activities/Workload	Average number of hours per activity	
	Full-time students	Part-time students
Student's workload, including: teaching hours + tutorials + tests + exam	135	
Preparatory work at home	20	
Other: Eduwet	3	
Exam preparatory work	40	
Total hours of student's workload	198	
ECTS / including contact hours	9/ 6	

Course description – SYLLABUS

Code	MWW-AJ>Ittechn
Course Title	Information Technology
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	2
ECTS / including contact hours	2
Form of instruction (lectures, classes, seminar, other) - Number of teaching hours	CLASSES - LAB. GROUP: 30
Teacher responsible for the course	mgr inż. Sebastian Ploch
Language of instruction	ENGLISH
Prerequisites	mathematics, computer science
Short description of the course (max. 500 characters)	The overall purpose of the course is to provide students with the basics of computer processing different types of data. They learn about usage of tools and services including Internet methods.
Content of the course unit (detailed description)	Subject of IT; types of data; data processing history; structure and evolution of the computer hardware; operating system of the personal computer; computer-human interaction; OS installation on the PC

	(selected Linux distribution); basics of author law and kinds of computer software licences; text editing (Writer/LibreOffice package), spreadsheet (Calc/LibreOffice package); computer graphics (types and representing methods); Internet (history, network services, tools and resources, security in network); databases (types, relational databases, database query languages); new data processing techniques; methods and measurements of the scientific articles/journals; knowledge bases (practical usage with Internet access)		
Learning outcomes (max. 3)			
No.	Subject-specific	Assessment method	Symbol of the learning effect for the field of study
Knowledge			
1	A student presents the basic IT and biostatistic methods used in veterinary medicine	Computer test	Wet_WO_13
2	A student presents the concepts in the scope of intellectual property protection in relation to computer software and data obtained in electronic form	Computer test	Wet_WSP_23
Skills			
1	A student uses and processes information with the use of IT tools and modern sources of veterinary knowledge	Computer test	Wet_UZU_03
Social competences			
1	A student uses the objective sources of information	Computer test	Wet_KS_04
2	A student communicates with the co-workers and shares knowledge	Computer test	Wet_KS_08
Literature: All materials (Internet/books/press) related to the topic of classes			
Total grade components		grade obtained from 2 computer tests	
Comments:		-	

List of subjects and exercises for the course/module

Titles of classes:

- Subject of IT; types of data; data processing history; structure and evolution of the computer hardware
- Operating system of the personal computer (goals, construction, examples); computer-human interaction (history and overview)
- Operating system installation on the PC (selected Linux distribution); software included in the OS
- Basics of author law and kinds of computer software licences

- Text editing application (Writer/LibreOffice package) – environment, page/document formatting (breaks, symbols, header&footer, fields, footnotes, page numbering, margins, etc.), tables, graphical objects, embedding objects from external sources, hypertext, mail merge
- Spreadsheet (Calc/LibreOffice package) – environment, cell formatting, conditional formatting, references, functions (math, text, logical), data sorting, charts, pivot tables, subtotals
- Computer graphics – types and representing methods (bitmap, vector, file formats, compression), color space), sample applications (GIMP, Inkscape)
- Internet – history, network services and their evolution, Internet tools and resources, security in network, data confidentiality
- Databases – types, relational databases, database query languages, examples
- New data processing techniques – artificial intelligence, Big Data, machine learning, chances and dangers
- Methods and measurements of the scientific articles/journals – national and international classifications systems and their base, pros and cons of rankings; knowledge bases – practical usage with Internet access

Allocation of ECTS for the course/module

Course title: Information Technology

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + test	31	1.5
Student's own work (final project)	10	0.5
Total hours/ECTS of student's workload	41	2

Hours:

1. Lectures: 0
2. Laboratory: 30
3. Clinical classes: 0
4. Auditorium / seminar: 0
5. Internship classes: 0
6. Practice: 0
7. Others with the teacher: 0

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>LabAnalyt
Course Title	Laboratory analytic
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC

Type of course	OBLIGATORY/ELECTIVE		
Semester of study	11		
ECTS / including contact hours	2/1		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES -		
	CLASSES - LAB. GROUP: -		
	CLASSES - CLIN. GROUP: 25		
	CLASSES - AUD. GROUP: -		
Teacher responsible for the course	Popiel Jarosław		
Language of instruction	ENGLISH*		
Prerequisites	The student should have finished the following basic subjects: animal anatomy, biochemistry, histology and embryology, veterinary microbiology, animal physiology, clinical and laboratory diagnostics, veterinary pharmacology.		
Short description of the course (max. 500 characters)	The porpoise of the subject is to teach students specialist knowledge and skills in choosing and interpretation additional diagnostic test kits in selected internal diseases.		
Content of the course unit (detailed description)	<p><i>The porpoise of the subject is to teach students basic knowledge about laboratory tests in selected diseases of animals, possible abnormalities and deviations in laboratory test results in selected diseases as well as bone marrow cells in selected diseases.</i></p> <p><i>The students will learn what types of laboratory equipment is needed in case of blood, bone marrow, faeces, urine and tissue samples tests.</i></p> <p><i>Students will learn also about additional test kits needed to monitor health state and disease state, ways of laboratory tests interpretation and obtaining blood, bone marrow, faeces, urine and tissue fluids samples.</i></p>		
Learning outcomes (max. 3)			
Nr No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	<i>describes the causes and symptoms of anatomopathological changes, principles of treatment and prophylaxis in individual disease entities;</i>	Exam (test)	Wet_WSK_03
2	<i>knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure;</i>	Exam (test)	Wet_WSK_04
3	<i>explains the method of handling clinical data, as well as</i>	Exam (test)	Wet_WSK_06

	<i>results of laboratory tests and additional tests</i>		
<i>Skills</i>			
1	<i>conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment;</i>	Exam (test)	Wet_USK_02
2	<i>collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests;</i>	Exam (test)	Wet_USK_06
3	<i>chooses and applies the appropriate treatment;</i>	Exam (test)	Wet_USK_13
<i>Social competences</i>			
1	<i>has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;</i>	Exam (test)	Wet_KS_02
2	<i>uses the objective sources of information;</i>	Exam (test)	Wet_KS_04
3	<i>deepens his/her knowledge and improves skills;</i>	Exam (test)	Wet_KS_07
<p>Literature (max. 8, including Youtube presentations, etc.)</p> <p>- compulsory</p> <p>- complementary/optional</p> <p>1. M..D. Willard, H. Tvedten: Small Animal Clinical Diagnosis by Laboratory Methods. Saunders 2012,</p> <p>2. R. W. Nelson, C.G. Couto : Small Animal Internal Medicine. 6th Edition, Elsevier Urban & Partner, 2019.</p> <p>3. Harvey A., Tasker S.: Manual of Feline Practice: A Foundation Manual BSAVA 2013</p> <p>4. B.P.Smith: Large animal internal medicine. Elsevier Books, 2014</p>			
Total grade components		<i>Total grade components:</i>	
		<i>Credit 20%</i>	
		<i>Exam 80%</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:-

Titles of classes:

- Failures in laboratory diagnostics.
- Laboratory diagnostics in urinary tract diseases (strips, blood samples...)
- Practical interpretation of results in patients with urinary system diseases.
- Blood sampling technique and its preparing to laboratory. Classic and new techniques of blood analysis.
- Practical sampling and probes analysis in laboratory with use of modern equipment.
- Practical interpretation of laboratory results.

- Blood smears technique with its performing as well as evaluation of blood smears.
- Practical interpretation with- and red cells smears.
- Bone marrow sampling technique and practical interpretation of bone marrow smears.
- Biochemical profiles in different diseases of gastrointestinal system and practical test results interpretation.
- Biochemical and morphological profiles in body cavities diseases and practical test results interpretation.
- Laboratory diagnostics in central nervous system diseases and practical test results interpretation.
- Laboratory diagnostics in cardiovascular system diseases.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	26	1
Student's own work	25	1
Total hours/ECTS of student's workload	51	2

Hours:

1. Lectures: -
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:25
4. Auditorium / seminar **: -
5. Internship classes **: -
6. Practice **: -
7. Others with the teacher: 1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Latin
Course Title	Język łaciński / Latin
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY*
Semester of study	year I / sem. 1

ECTS / including contact hours	2		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: ---		
	CLASSES - LAB. GROUP: 30		
	CLASSES - CLIN. GROUP: ---		
	CLASSES - AUD. GROUP: ---		
Teacher responsible for the course	HAJDASZ EWA (POZNAŃSKI ADAM)		
Language of instruction	ENGLISH*		
Prerequisites	Student knows and understands basic grammar terminology (parts of speech, cases etc.) and at least basic vocabulary and grammar of one of languages recently used in Europe (from Romance, Germanic or Slavic family).		
Short description of the course (max. 500 characters)	The course aims to familiarize students with Latin veterinary nomenclature, especially anatomical terminology. It introduces students to basics of Latin grammar (especially word inflection), which is necessary for understanding and correct usage of veterinary nomenclature. The course gives occasion to exercise the phonetics and vocabulary using contents taught during veterinary studies.		
Content of the course unit (detailed description)	The course aims to present the rules of pronunciation, inflection and correct usage of Latin veterinary nomenclature, especially anatomical terminology, which is obligatory during first year of veterinary studies. During the course students will learn all the declension patterns of Latin substantives and adjectives using the whole material of animal anatomy vocabulary, they learn correct inflection of complex anatomical terms and basics of translation from Latin into English. They also conduct a critical analysis of sentence and recognize differences and similarities between Polish and Latin veterinary nomenclature. Finally, they acquire informations about science and culture of Antiquity, Medieval and Modern age, suitable for their profile.		
Learning outcomes (max. 3)			
<i>No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	<i>Knows and understands vocabulary and grammatical structures of at least one foreign language, which is a language of international communication, at the B2+ level of the Common European Framework of Reference for Languages, as well as specialised terminology in the scope of veterinary medicine, which is necessary in professional activity.</i>	<i>grade</i>	<i>Wet_WZU_01</i>
<i>Skills</i>			

1	<i>Uses at least one foreign language, which is a language of international communication, at the B2+ level of the Common European Framework of Reference for Languages, including specialised terminology in the scope of veterinary, which is necessary in professional activity.</i>	grade	Wet_UZU_01
2	<i>Critically analyses veterinary literature and draws conclusions on the basis of available literature.</i>	grade	Wet_UZU_02
<i>Social competences</i>			
1	---	---	---
Literature (max. 8, including Youtube presentations, etc.) - compulsory 1. <i>Nomina Anatomica Veterinaria</i> , Gasse H. [ed], Hannover 2017 [6th ed.] - complementary/optional 1. Morwood J., <i>A Latin Grammar</i> , Oxford 1999. 2. <i>Lexicon medicum. Anglicum, Russicum, Gallicum, Germanicum, Latinum, Polonum</i> , B. Złotnicki [ed.], Warszawa 1971.			
Total grade components		<i>knowledge (tests, writing) – 60%</i> <i>skills (reading, translation) – 20%</i> <i>attitude (preparation, activity) – 20%</i>	
Comments:		Students have the right to improve their grades by writing a short essay or preparing a presentation on actual course material, after agreement with teacher.	

List of subjects and exercises for the course/module

Titles of lectures: ---

Titles of classes:

1. Organizational class – course requirements and specification
2. Accent and pronunciation in Latin language, grammar repetition
3. 1st and 2nd declension of substantives, numerals
4. 1st, 2nd and 3rd declension of adjectives, basics of veterinary nomenclature
5. 3rd declension of substantives, adjective gradation
6. 4th and 5th declension of substantives, participles
7. Repetition class – 1st-5th declension of substantives, 1st-3rd declension of adjectives
8. Test I – 1st-5th declension of substantives, 1st-3rd declension of adjectives
9. Cultural class – Latin culture in Europe
10. Basics of Latin syntax and translation into English
11. Basics of word-building – Latin and Greek word-prefixes and suffixes, Greek alphabet
12. Basic Latin veterinary texts reading I
13. Basic Latin veterinary texts reading II

14. Repetition class – 1st-5th declension of substantives, 1st-3rd declension of adjectives, translations
15. Test II – 1st-5th declension of substantives, 1st-3rd declension of adjectives, translations

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	31	1,5
Student's own work	10	0,5
Total hours/ECTS of student's workload	41	2,0

Hours:

1. Lectures: ---
2. Laboratory / project / language classes / sports classes **: 30
3. Clinical classes **: ---
4. Auditorium / seminar **: ---
5. Internship classes **: ---
6. Practice **: ---
7. Others with the teacher: 1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>MilkHyg
Course Title	Milk hygiene
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	8 summer
ECTS / including contact hours	3 (2)
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 15 h
	CLASSES - LAB. GROUP: 24 h
	CLASSES - CLIN. GROUP: 6 h
	CLASSES - AUD. GROUP: 0

Teacher responsible for the course		prof. dr hab. Jacek Bania	
Language of instruction		ENGLISH*	
Prerequisites		Food law.	
Short description of the course (max. 500 characters)		During the course the student gain the knowledge on milk testing as a raw material for the dairy industry, the principles of surveillance of processing plants as well as quality and safety management systems of dairy products. Technology used in dairy plants are presented.	
Content of the course unit (detailed description)		The aim of the course is to teach students the principles of milk testing as a raw material for the dairy industry. Students will learn the principles of supervision over processing plants as well as safety management systems for dairy products. Technologies used in dairy are presented.	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Presents in detail the principles of examination of the slaughter animals, meat and other animal products;	tests oral answers	Wet_ WO_09
2	explains in detail the principles of consumer health protection, as well as the principles of appropriate supervision over the production of foodstuffs of animal origin;	tests oral answers	Wet_ WO_10
3	knows to an extensive degree the standards, principles and conditions of animal production technology and maintaining the hygiene of technological process.	tests oral answers	Wet_ WO_11
<i>Skills</i>			
1	Performs activities that are associated with the veterinary supervision, including trade in animals, as well as sanitary and veterinary conditions of animal gathering locations and processing products of animal origin;	oral answers	Wet_ UO_06
2	issues veterinary medical opinion and certificate.	oral answers	Wet_ UO_07
<i>Social competences</i>			
1	Exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	oral answers	Wet_ KS_01
2	is ready to act in the conditions of uncertainty and stress;	oral answers	Wet_ KS_09
3	cooperates with representatives of other professions in the	oral answers	Wet_

	scope of public health protection,		KS_10
Literature (max. 8, including Youtube presentations, etc.) - compulsory 1. Milk Processing and quality management. A. Y. Tamime. Wiley-Blackwell 2009.			
- complementary/optional			
Total grade components		<i>grade obtained at classes (70%) + grade obtained at lectures (30%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Milk as main raw material in dairy business 4. chemical milk content 5. milk nutritional value 6. components features 7. allergizing properties of milk proteins
2. Physicochemical properties of milk 8. density and viscosity of milk 9. potential and active acidity of milk 10. buffering system 11. milk foaming 12. milk fat creaming and buttering
3. Nitrogenous milk compounds 13. milk proteins – casein and whey proteins 14. coagulation 15. thermal, 16. enzymatic 17. by ion action forces 18. utilized for production
4. Milk microflora 19. origin 20. influence on hygiene and technology 21. homo and heterofermentative bacteria 22. usage of bacteria in dairy industry
5. Milk microflora 23. fungi and moulds utilized in dairy production 24. psychrophile microflora
6. Natural defense mechanisms in milk 25. health promoting properties of lactic bacteria 26. probiotics 27. udder origin
7. Breed and environmental considerations of milk production 28. milk quotas system 29. agents influencing yield, composition and quality of milk 30. lactation
8. Milking conditions 31. cowshed and milking parlor preparing for milking

32. milking
9. Raw milk hygiene, law regulations 33. veterinary requirements for raw milk 34. dealings with milk after milking
10. Hygiene in milk farms 35. law regulations 36. veterinary requirements for animals 37. veterinary requirements for milk farms
11. Technological processes in dairy production 38. centrifugation 39. homogenization 40. thermal treatment 41. thermization 42. pasteurization 43. sterilization 44. UHT,
12. Drinking milk production 45. collecting and grading of raw milk 46. raw milk storing 47. operations applied on milk packaging, storing 48. health (veterinary) mark on dairy products
13. System HACCP in dairy business 49. prerequisites of system implementing 50. hazard analysis 51. CCP, 52. monitoring, 53. correction actions
14. Veterinary supervision on milk processing 54. law regulations 55. veterinary requirements for milk companies
15. HACCP system verification 56. cleaning and disinfection of milking machines 57. cleaning and disinfection of technological lines

Titles of classes:

1. Evaluation raw milk quality in cowshed and dairy plant - milk sampling for quality analyses - organoleptic evaluation of raw milk - evaluation of density - evaluation of potential milk acidity - evaluation of active milk acidity
2. Milk fat - evaluation of fat content in milk by technical - butyrometric method - evaluation of fatless solid - evaluation of fat content in milk by reference method - evaluation of fat content in dairy products
3. Determination of milk adulteration - water down - fat removal - neutralization - addition of hydrogen peroxide

<ul style="list-style-type: none"> - milk addition of other animal species - cryoscopic number
<p>4. Milk proteins.</p> <ul style="list-style-type: none"> - evaluation of protein content - evaluation of casein in milk of different animal species - determination of calcium addition to milk
<p>5. Thermal processes applied to milk</p> <ul style="list-style-type: none"> - evaluation of pasteurization effectiveness - evaluation of homogenization effectiveness - test on phosphatase, - test on peroxidase - determination of amylase
<p>6. Evaluation of raw milk usefulness for collecting and processing</p> <ul style="list-style-type: none"> - quality demands - evaluation of number of somatic cells in milk - instrumental methods - evaluation of number of somatic cells in milk by microscopic method according to Polish Norm
<p>7. Milk reception in dairy plant</p> <ul style="list-style-type: none"> - antimicrobial substances in milk - determination antimicrobial substances in milk by microbiological methods - determination antimicrobial substances in milk by enzymatic methods
<p>8. Evaluation of hygiene quality of milk part 1.</p> <ul style="list-style-type: none"> - bacteriostatic features of milk - microbiological evaluation of milk - sampling of milk for microbiological testing - determination of total viable count by plate method - determination of total viable count by Petrifilm test
<p>9. Evaluation of hygiene quality of milk part 2.</p> <ul style="list-style-type: none"> - factors influencing microflora development (temperature, acidity, oxygen) - dynamics of microflora development in milk - evaluation of results of previous classes tests - evaluation of microbial quality of milk - fermentation test
<p>10. Evaluation of organoleptic quality of dairy products</p> <ul style="list-style-type: none"> - evaluation quality of cheese according Polish Norm - evaluation quality of cottage cheese according Polish Norm - evaluation quality of milk drinks according Polish Norm - evaluation quality of butter according Polish Norm
<p>11. GMP and GHP in dairy plant</p> <ul style="list-style-type: none"> - zones in dairy plant - plant environment - passage locker rooms and sluices - structural demands - technological lines
<p>12. Hygiene in dairy plant (Classes in dairy plant)</p> <ul style="list-style-type: none"> - cleaning and disinfection in plant - CIP - COP - verification of cleaning and disinfection effectiveness - staff personal hygiene
<p>13. Production of milk and dairy products part 1. (Classes in dairy plant)</p> <ul style="list-style-type: none"> - technological processes in dairy production

<ul style="list-style-type: none"> - milk processing (cleaning, homogenization, deodorizing, pasteurization, sterilization) - production of dairy products (cottage cheese, butter, yogurt, butter milk, cream) - powder products (whole milk, proteins concentrates, ultrafiltrates, reversed osmosis) - dairy products packaging - dairy products storing
14. Production of milk and dairy products part 1. (Classes in dairy plant) - veterinary supervision on milk production and processing - dairy plant
15. HACCP in dairy plant. - critical control points - monitoring CCP - verification of HACCP - documentation

Allocation of ECTS for the course/module

Course title: Milk hygiene

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	45+1	2
Student's own work	20	1
Total hours/ECTS of student's workload	66	3

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **: 24
3. Clinical classes **: 6
4. Auditorium / seminar **: 6
5. Internship classes **: 6
6. Practice **: 6
7. Others with the teacher: 1

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Parasit1 MWW-AJ>Parasit2
Course Title	Parasitology and invasiology I (S) Parasitology and invasiology II(S)
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME

Profile	ACADEMIC		
Type of course	OBLIGATORY/ELECTIVE		
Semester of study	6 and 7		
ECTS / including contact hours	4/2.5		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 45		
	CLASSES - LAB. GROUP: 60		
	CLASSES - CLIN. GROUP: 0		
	CLASSES - AUD. GROUP: 0		
Teacher responsible for the course	Jolanta Piekarska		
Language of instruction	ENGLISH*		
Prerequisites	Biology, Clinical and Laboratory Diagnostics, Pathophysiology and Pathology, Pharmacology		
Short description of the course (max. 500 characters)	The aim of the course is to acquaint students with identification of different species of parasites. Student learns the basic concepts and terms in the field of parasitology, life cycles of parasites and zoological systematics. Student acquires knowledge concerning symptoms and pathological changes of parasitic diseases that occur in various species of animals. The course covers bases of epidemiology, clinical and laboratory diagnostics, control and preventive measurements of parasitic diseases.		
Content of the course unit (detailed description)	The characteristics of parasites of domestic and wild animals, their morphology, biology, life cycle and epizootic and epidemiologic role. Interaction between hosts and parasites, various laboratory methods used for the diagnosis of parasitic diseases, antiparasitic drugs, prevention and control.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	Exam - test	Wet_ WO_03
2	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	Exam - test	Wet_ WO_04

3	presents the biology of infectious factors that cause diseases transmitted between animals, as well as anthroozoonoses, taking into account the mechanisms of disease transmission and defense mechanisms of the macroorganism;	Exam - test	Wet_ WO_05
<i>Skills</i>			
1	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Practical exam	Wet_ UO_02
2	plans the diagnostic procedure;	Practical exam	Wet_ UO_03
3	chooses and applies the appropriate treatment;	Practical exam	Wet_ USK_13
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	observation of the student	Wet_ KS_01
2	deepens his/her knowledge and improves skills;	observation of the student	Wet_ KS_07
3	cooperates with representatives of other professions in the scope of public health protection;	observation of the student	Wet_ KS_10
<p>Literature vb</p> <p>- compulsory</p> <p>1. Taylor MA, Coop RL, Wall RL. Veterinary Parasitology. Blackwell Publishing, 4rd edition 2017 (strongly suggested)</p> <p>- complementary/optional</p> <p>2. Dwight D. Bowman. Parasitology for Veterinarians 9th Edition WB Sanders 2008.</p> <p>3. Mehlhorn H. Encyclopedic Reference of Parasitology (Diseases, Treatment, Therapy). Springer-Verlag Berlin Heidelberg, New York 2001.</p> <p>4. Charles M. Hendrix, Ed Robinson. Diagnostic Parasitology for Veterinary Technicians, Third edition, Mosby</p>			
Total grade components		<p>Parasitology I: 50% rating from classes I + 50% rating from lectures I (eg. attendance, test knowledge)</p> <p>Parasitology II: 50% rating from classes II + 50% rating from lectures II (eg. attendance, test knowledge).</p> <p>Final assessment: 50% credit II + 50% exam</p> <p>The scope of the exam: classes I + classesII + lectures I + lectures II</p>	

Comments:	
-----------	--

List of subjects and exercises for the course/module

Titles of lectures	No of hours
Definition and types of parasitism. Host – parasite relationships. Ways of infection, life cycle of parasites. Morphological, physiological and behavioral adaptation to the parasitic lifestyle.	2
Characteristics of Sarcomastigophora - protozoan that parasites in the blood and tissues.. Human and animal trypanosomiasis, ways of infection, clinical signs, pathology, epidemiology, treatment and control. Leishmaniasis of humans and animals.	2
Characteristics of Sarcomastigophora -protozoan that parasite in the digestive and reproductive tracts of domestic and wild animals (Giardia spp., Trichomonas spp., Histomonas spp., Entamoeba spp.)	2
Diseases caused by protozoa (type Apicomplexa) of gastrointestinal tract and other tissues. (Cryptosporidium sp, Eimeria spp., Isospora spp., Sarcocystis sp). Coccidiosis: -ways of infection, pathogenesis diagnosis, prevention, therapy.	2
Toxoplasmosis of humans and animals. Neospora caninum - morphology, life cycle, the course of the infection in dogs and cattle. The infection of Sarcocystis sp. and Balantidium coli	2
Haemosporidiosis - caused by the Apicomplexa protozoans (Babesia spp., Theileria spp., Plasmodium spp.)	2
Biology and pathogenicity of trematodes. General characteristics, biology, the role of tegument, larval forms, routes of infection. Pathology and immunobiology of infection caused by Fasciolidae, Dicrocoelidae and Paramphistomatidae.	2
Parasitic diseases of animals and humans caused by trematodes of the families Opisthorchidae, Schistosomatidae, Diplostomatidae and Prosthogonimidae.	2
Tapeworms infection . General characteristics of Cestoda; biology, larval forms, the role of tegument in biology and pathogenicity. Diphyllobothriasis, fish tapeworms.	2
Pathology, immunobiology and epidemiology of infections caused by tapeworms of the Taeniidae family in intermediate and definitive hosts. The zoonotic significance of Taenidae.family.	2
The Nematodes - morphology and biology . - Characteristics of eggs and larval forms. Diseases caused by nematodes of Ascaridoidea & Anisakidae (Ascaris suum, Parascaris equorum, Neoascaris vitulorum, Toxocara canis. Toxocarosis- zoonotic potential - Other nematodes of the Anisakidae family. Parasitic nematodes of poultry. Pathogenesis of infection caused by pinworms (Oxyuroidea in equids).	2
Nematodes, which parasite in the respiratory tract of ruminants, poultry, and carnivores. Dictyocaulosis of cattle and horses, protostrongylosis of ruminants, metastrongylosis of pigs, angiostrongylosis of dogs syngamosis of poultry. (Pathogenesis, prevention of	2

infection with Syngamidae, Metastrongylidae & Protostrongylidae.	
The strongyles infections of horses ruminants and pigs. The prevalence, pathogenesis and preventive measurements against large strongyles (<i>Strongylus vulgaris</i> , <i>S. equinus</i> , <i>S. edentatus</i>) and small (- subfamilies Cyathostominae) infections. <i>Chabertia</i> sp infection of sheep. oesophagostomosis of sheep, cattle and pigs.	2
Characteristics of Strongyloidea & Ancylostomatoidaea. The incidence of infection (<i>Strongyloides</i> spp) in farm animals. The prevalence of hookworm (family Ancylostomatidae) in carnivores - epidemiology, the phenomenon of dormant larvae, ways of infection. The hookworm zoonotic importance (cutaneous larva migrans) <i>Bunostomum</i> spp infections of cattle and sheep.	2
The gastrointestinal nematodes (Trichostrongylidae) infections in ruminants, horses, poultry, rabbit, hares. The prevalence and significance of <i>Ostertagia ostertagi</i> , <i>Haemonchus contortus</i> , <i>Trichostrongylus</i> sp, <i>Nematodirus</i> sp infection in ruminants. The phenomena observed in the life cycle (self cure, spring rise).	2
Epidemiology, pathology and clinical course of <i>Trichinella</i> spp. infections in animals and humans. The prevalence, pathology and immunobiology of Trichuroidea family (<i>Trichuris</i> sp, <i>Capillaria</i> sp) infection in birds.	2
Diseases caused by nematodes of families Spiruroidea; (<i>Parafilaria</i> sp, <i>Onchocerca</i> sp, <i>Dirofilaria immitis</i> and <i>D. repens</i>) and Filarioidea (<i>Spirocerca</i> sp, <i>Habronema</i> sp. <i>Draschia</i> sp, <i>Thelazia</i> sp., <i>Gongylonema</i> sp)	2
Parasitic Arthropods - : general characteristics, biology, larval forms, role in the transmission of infectious diseases. Characteristics of Ixodidae and diseases transmitted by them. Local and systemic symptoms observed in the subsequent stages of the infection. Economic loss arising directly from the infection of ticks. Ticks as a vector of viral, bacterial and protozoan diseases.	2
Infection of ticks - Argasidae. Acaroses in birds. Pathology caused by mites infection in birds. Zoonotic importance of birds mites	2
Scabies of ungulates and carnivores. The infection caused by <i>Demodex</i> spp. and <i>Cheyletiella</i> spp.	2
Infestations of parasitic Diptera: of the families Tabanidae, Hippoboscidae, Simuliidae, Culicidae. The inflammatory and necrotic lesions of skin in animals affected by flies' larvae (<i>Lucilla</i> sp., <i>Calliphora</i> sp.). Gasterophilosis in horses: prevalence, clinical signs, prophylactic action. The prevalence of <i>Oestrus ovis</i> infections. Hypodermosis in cattle.	2
The lice infections in birds and mammals. Fleas invasion of poultry and carnivores. The importance of the flea vector diseases. Allergens of fleas.	2
Immunology of parasitic invasion. Prevention and treatment of parasitic diseases.	1

Titles of classes	No of hours
--------------------------	--------------------

<p>CLASS #1 Kingdom: <i>Protozoa</i></p> <p>Phylum: <i>Euglenozoa</i></p> <p>Class: Kinetoplasta</p> <p>Order: <i>Trypanosomatida</i></p> <p>Family: <i>Trypanosomatidae</i></p> <p style="padding-left: 40px;"><i>Trypanosoma equiperdum</i> , <i>Trypanosoma brucei</i> , <i>Trypanosoma gambiense</i> , <i>Trypanosoma rhodesiense</i></p> <p style="padding-left: 40px;"><i>Trypanosoma evansi</i> , <i>Trypanosoma cruzi</i> , <i>Leishmania infantum</i></p>	2
<p>Class #2</p> <p>Phylum: Parabasalia</p> <p>Order: Trichomonadida</p> <p>Family: Trichomonadidae</p> <p><i>Tritrichomonas foetus</i>, <i>Trichomonas vaginalis</i></p> <p>Phylum: Fornicata</p> <p>Order: Giardiida</p> <p>Family: Giardiidae</p> <p><i>Giardia duodenalis</i></p>	2
<p>Class #3</p> <p>Phylum: Amebozoa</p> <p>Order: Amoebida</p> <p>Family: Entamoebidae</p> <p style="padding-left: 40px;"><i>Entamoeba histolytica</i> , <i>Entamoeba coli</i></p> <p>Family: <i>Acantamoebidae</i></p> <p style="padding-left: 40px;"><i>Acanthamoeba castellani</i></p> <p>Family: <i>Vahlkampfiidae</i></p> <p style="padding-left: 40px;"><i>Naegleria fowleri</i></p>	2
<p>Class #4</p> <p>Phylum: Apicomplexa</p> <p>Order: Eucoccidiorida</p> <p>Family: Eimeriidae</p>	2

<p>Eimeria tenella, Eimeria stiedai, Cystoisospora felis, Cystoisospora canis, Isospora suis</p> <p>Family: Cryptosporidiidae</p> <p>Cryptosporidium parvum</p>	
<p>Class #5</p> <p>Family: Sarcocystidae</p> <p>Sarcocystis miescheriana , Sarcocystis suihomins ,Sarcocystis porcifelis,Sarcocystis arieticanis ,Sarcocystis gigantea ,Sarcocystis tenella,Sarcocystis cruzi ,Sarcocystis hirsuta ,Sarcocystis hominis , Toxoplasma gondii</p>	2
<p>Class #6</p> <p>Order: Haemospororida</p> <p>Family: Plasmodiidae</p> <p><i>Plasmodium vivax ,Plasmodium falciparum,Plasmodium malariae, Plasmodium gallinaceum</i></p> <p>Order: <i>Piroplasmorida</i></p> <p>Family: <i>Babesiidae</i></p> <p><i>Babesia divergens, Babesia canis</i></p> <p>Phylum: <i>Ciliophora</i></p> <p>Order: <i>Trichostomatorida</i></p> <p>Family: <i>Balantidiidae</i></p> <p><i>Balantidium coli</i></p> <p>Family: <i>Pycnotrichidae</i></p> <p><i>Buxtonella sulcata</i></p>	2
<p>Class #7</p> <p>Test about protozoa</p>	2
<p>Class #8</p> <p>Phylum: Plathelminthes - flatworms</p> <p>Class: Trematoda</p> <p>Subclass: Digenea</p> <p>Order: Plagiorchida</p> <p>Family: Dicrocoeliidae</p>	2

<p>Dicrocoelium dendriticum, Family: Paragonimidae Paragonimus westermani Family: Prosthogonimidae Prosthogonimus pellucidus Order: Opisthorchida Family: Opisthorchiidae Opisthorchis felineus ,Clonorchis sinensis</p>	
<p>Class #9 Order: Echinostomida Family: Fasciolidae Fasciola hepatica,Fasciolopsis buski Family: Paramphistomidae Paramphistomum cervi</p>	2
<p>Class #10 Order: Echinostomida Family: Echinostomatidae Echinostoma revolutum,Echinochasmus perfoliatus Order: Strigeidida Family: Diplostomatidae Alaria alata Family: Schistosomatidae Schistosoma manson,Schistosoma japonicum,Schistosoma haematobium</p>	2
<p>Class #11 Class: Cestoda Order: Caryophyllidea Family: Caryophyllaeidae Caryophyllaeus laticeps Order: Pseudophyllida Family: Diphyllbothriidae</p>	2

<p>Diphyllobothrium latum</p> <p>Order: Cyclophyllida</p> <p>Family: Mesocestoididae</p> <p>Mesocestoides lineatus</p> <p>Family: Hymenolepididae</p> <p>Hymenolepis nana,, Drepanidotaenia lanceolata</p> <p>Family: Davaineidae</p> <p>Raillietina cesticillus</p>	
<p>Class #12</p> <p>Class: Cestodea</p> <p>Order: Cyclophyllidea</p> <p>Family: Taeniidae</p> <p>Taenia solium ,Taenia saginata,Taenia pisiformis,Taenia hydatigena,Taenia (Hydatigera) taeniaeformis ,Echinococcus granulosus, Echinococcus multilocularis</p>	2
<p>Class #13</p> <p>Family: Dipylidae</p> <p>Dipylidium caninum</p> <p>Family: Anoplocephalidae</p> <p>Anoplocephala magna, Anoplocephala perfoliate, Paranoplocephala mamillana, Moniezia expansa,Moniezia benedeni,Cittotaenia denticulata</p>	2
<p>Class #14</p> <p>Test about trematodes and cestodes</p>	2
<p>Class #15</p> <p>Completing overdue classes.</p>	2
<p>Class #16</p> <p>Phylum: Nematelminthes</p> <p>Class: Nematoda</p> <p>Family: Ascarididae</p> <p>Ascaris suum, Parascaris equorum,Toxocara canis,Toxocara cati,Toxascaris leonina</p> <p>Family: Ascarididae</p>	2

<p>Ascaridia galli</p> <p>Family: Heterakidae</p> <p>Heterakis gallinarum</p> <p>Family: Oxyuridae</p> <p>Enterobius vermicularis, Oxyuris equi, Passalurus ambiguus, Skrjabinema ovis</p>	
<p>Class #17</p> <p>Order: Strongylida</p> <p>Family: Metastrongylidae</p> <p> Metastrongylus elongatus</p> <p>Family: Dictyocaulidae</p> <p> Dictyocaulus filaria, Dictyocaulus viviparus</p> <p>Order: Protostrongylidae</p> <p> Protostrongylus spp.</p> <p>Family: Syngamidae</p> <p> Syngamus trachea</p>	2
<p>Class #18</p> <p>Order: Rhabditida</p> <p>Family: Strongyloididae</p> <p> Strongyloides ransomi</p> <p>Order: Spirurida</p> <p>Family: Filaridae</p> <p> Dirofilaria immitis, Dirofilaria repens</p> <p>Order: Strongylida</p> <p>Family: Ancylostomatidae</p> <p> Uncinaria stenocephala, Bunostomum trigonocephalum</p>	2
<p>Class #19</p> <p>Order: Strongylida</p> <p>Family: Strongylidae</p> <p>Subfamily: Strongylinae</p> <p> Strongylus equinus, Strongylus edentates, Strongylus vulgaris</p>	2

<p>Subfamily: Chabertiinae</p> <p>Chabertia ovina</p> <p>Subfamily: Oesophagostominae</p> <p>Oesophagostomum radiatum, Oesophagostomum dentatum.</p>	
<p>Class #20</p> <p>Family: Trichostrongylidae</p> <p>Haemonchus contortus, Ostertagia ostertagi</p> <p>Family: Molineidae</p> <p>Nematodirus filicollis</p>	2
<p>Class #21</p> <p>Order: Enoplida</p> <p>Family: Trichinellidae</p> <p>Trichinella spiralis</p> <p>Family: Trichuridae</p> <p>Trichuris suis</p> <p>Capillaria spp</p>	2
<p>Class #22</p> <p>Test: Nematoda</p>	2
<p>Class #23</p> <p>Phylum: Arthropoda</p> <p>Class: Arachnida</p> <p>Subclass: Acaria</p> <p>Family: Ixodidae</p> <p>Ixodes Ricinus, Hyalomma spp., Dermacentor reticulatus</p> <p>Family: Argasidae</p> <p>Argas reflexus</p>	2
<p>Class #24</p> <p>Order: Gamasida</p> <p>Family: Dermanyssidae</p>	2

<p>Dermanyssus gallinae</p> <p>Family: Varroidae</p> <p>Varroa destructor</p> <p>Order: Actinedida</p> <p>Family: Tarsonemidae</p> <p>Acarapis woodi</p> <p>Family: Myobidae</p> <p>Myobia muscoli</p> <p>Family: Cheyletiellidae</p> <p>Cheyletiella blakei ,Cheyletiella yasguri</p>	
<p>Class #25</p> <p>Order: Actinedida</p> <p>Family: Demodicidae</p> <p>Demodex canis</p> <p>Order: Acaridida</p> <p>Family: Sarcoptidae</p> <p>Sarcoptes scabiei, Notoedres cati</p> <p>Family: Knemidocoptidae</p> <p>Knemidocoptes mutans</p> <p>Family: Psoroptidae</p> <p>Psoroptes communis v. ovis, Chorioptes equi,Otodectes cynotis</p>	2
<p>Class #26</p> <p>Class: Insecta</p> <p>Order: Diptera</p> <p>Family: Ceratopogonidae</p> <p>Culicoides spp.</p> <p>Family: Simuliidae</p> <p>Simulium spp.</p> <p>Family: Phlebotomidae</p> <p>Phlebotomus spp.</p>	2

<p>Family: Culicidae Culex spp., Anopheles spp., Aedes spp.</p> <p>Family: Tabanidae Tabanus spp.</p> <p>Family: Muscidae Stomoxys calcitrans</p> <p>Family: Glossinidae Glossina palpalis</p> <p>Family: Calliphoridae Lucila serricata</p>	
<p>Class #27</p> <p>Order: Diptera</p> <p>Family: Oestridae Hypoderma bovis Oestrus ovis Gasterophilus intestinalis</p> <p>Family: Hippoboscidae Melophagus ovinus</p> <p>Order: Hemiptera</p> <p>Family: Cimicidae Cimex lectularius</p>	2
<p>Class #28</p> <p>Order: Anoplura</p> <p>Family: Pediculidae Pediculus humanus Phtirus pubis</p> <p>Family: Haematopinidae Haematopinus suis</p> <p>Family: Linognathidae Linognathus setosus</p>	2

Order: Amblycera Menopon gallinae Family: Philopteridae Columbicola colombe Family: Trichodectidae Bovicola bovis Order: Siphonaptera Family: Pulicidae Pulex irritans Ctenocephalides canis Xenopsylla cheopis	
Class #29 Test : Arthropoda	2
Class #30 Completing overdue classes. Credit	2

Allocation of ECTS for the course/module

Course title: **Parasitology and invasiology I/II (S)**

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	187	4,5
Student's own work	80	3,5
Total hours/ECTS of student's workload	267	8

Hours:

1. Lectures:45
2. Laboratory :60
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Pathomo1 MWW-AJ>Pathomo2		
Course Title	Pathomorphology I Pathomorphology II		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY/ ELECTIVE		
Semester of study	Yr III/ sem. 5 Yr III/sem. 6		
ECTS / including contact hours	13		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 90		
	CLASSES - LAB. GROUP: 90		
	CLASSES - CLIN. GROUP:		
	CLASSES - AUD. GROUP:		
Teacher responsible for the course	Dr Rafał Ciaputa		
Language of instruction	ENGLISH*		
Prerequisites	anatomy, histology, cell biology, biochemistry, physiology and pathophysiology		
Short description of the course (max. 500 characters)	The aim of the course is to provide students with knowledge about anatomopathomorphological changes at the cellular and general organ level. In addition, it presents sectional techniques and recognition of pathomorphological changes in selected infectious diseases of pets.		
Content of the course unit (detailed description)	The aim of the course is to provide students with basic knowledge of regressive changes, circulatory disorders, inflammatory pathology, progressive changes, pathomorphology of cancer and diseases of particular organs and systems of the body as well as domestic animal infectious diseases. Subject shows the autopsy techniques, rules for the collection and protection of material for histopathological, microbiological and serological tests, and also indicates the possibility of the use of knowledge in the diagnosis of diseases, including infectious diseases.		
Learning outcomes (max. 3)			
<i>Nr</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the</i>

<i>No.</i>			<i>learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, to the entire animal population;	Completion of the course pathomorphology I, Exam (written, practical),	Wet_WO_01
2	knows to an extensive degree, describes in detail and explains the development, structure, functioning, behaviours and physiological mechanisms of animals in normal conditions, as well as the mechanisms of disorders in pathological conditions;	Completion of the course pathomorphology I, Exam (written, practical),	Wet_WO_02
3	specifies the principles of conducting clinical examination, in accordance with the plan of clinical examination, analysis of clinical symptoms and anatomopathological changes;	Completion of the course pathomorphology I, Exam (written, practical),	Wet_WO_06
<i>Skills</i>			
1	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Execution autopsy animal. Evaluation of histopathological preparations. Writing the pathomorphologist's opinion.	Wet_UO_02
2	issues veterinary medical opinion and certificate;	Execution autopsy animal. Evaluation of histopathological preparations. Writing the pathomorphologist's opinion.	Wet_UO_07
3	uses Latin medical nomenclature to the extent necessary to understand and describe medical activities, as well as state of animal health, diseases, pathological changes and conditions;	Execution autopsy animal. Evaluation of histopathological preparations. Writing the pathomorphologist's opinion.	Wet_UO_08
<i>Social competences</i>			
1	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity;	Execution autopsy animal. Evaluation of histopathological preparations. Writing the pathomorphologist's opinion.	Wet_KS_05

2	deepens his/her knowledge and improves skills;	Execution autopsy animal. Evaluation of histopathological preparations. Writing the pathomorphologist's opinion.	Wet_KS_07
3	communicates with the co-workers and shares knowledge;	Execution autopsy animal. Evaluation of histopathological preparations. Writing the pathomorphologist's opinion.	Wet_KS_08
Literature (max. 8, including Youtube presentations, etc.) “Pathologic basis of veterinary disease.” M. Donald McGavin, James F. Zachary, Mosby Elsevier, 2012. “Veterinary pathology” T. C. Jones, R. D. Hunt, N. W. King			
Total grade components		<i>exam grade 80%, laboratory grade 20%</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

Cell structure, cell injury, cloudy swelling, cell death, types of necrosis, apoptosis.

Hypertrophy, hyperplasia, atrophy, metaplasia, intracellular and tissue accumulation.

Vascular disorders.

Inflammation.

Acute exudative inflammation.

Chronic inflammation.

Neoplasia and tumor spread.

Pathology of alimentary system.

Pathology of respiratory system.

Pathology of cardiovascular system.

Pathology of urinary system.

Pathology of endocrine system.
Pathology of lymphatic system.
Pathology of nervous system.
Pathology of skeletal muscles.
Pathology of bone and joints.
Pathology of skin.
Skin neoplasms.
Pathology of female reproductive system.
Pathology of mammary gland.
Male reproductive system.
Pathology of eye.
Morphology of swine diseases.
Morphology of cattle diseases.
Morphology of sheep and goat diseases.
Morphology of dogs and cats diseases.

Titles of classes:

Cell injury: acute cloudy swelling of liver, cloudy swelling of kidney, fat (Balser's) necrosis, Zenker's necrosis of muscles.

Intracellular accumulation: fatty liver (hepatic lipidosis), kidney lipidosis, glycogen deposition in the liver, intracellular inclusion bodies.

Extracellular accumulation: spleen amyloidosis, gout of the kidney, cholesterol clefts, metastatic calcification of the kidney, dystrophic calcification of the kidney.

Pigment changes: pulmonary anthracosis, anthracosis of the lymph node, pulmonary melanosis, lung haemosiderosis, icterus.

Vascular disorders I: congestion of the liver, pulmonary oedema, oedema of stomach wall, hemorrhagic focus of the liver.

Vascular disorders II: thrombosis of the stomach wall vessels, early stage of myocardial infarction, infarction in the kidney, infarct sequestration.

Inflammation I: bronchopneumonia, fibrinous pneumonia, purulent pneumonia, purulent hepatitis.

Inflammation II: acute interstitial myositis, chronic interstitial nephritis, lymphocytic encephalitis, granulation tissue.

Inflammation III: tuberculosis, botryomycosis, aspergillosis, actinomycosis

Neoplasms I: soft fibroma, lipoma, osteochondroma, leiomyoma, papilloma.

Neoplasms II: haemangioma, fibrosarcoma, lymphoma of the kidney, lymphoma of the myocardium, malignant melanoma .

Neoplasms III: basal cell carcinoma, keratizing squamous cell carcinoma, mammary adenocarcinoma, mixed tumor of mammary gland.

Parasitic diseases: lung helminthiasis, sarcosporidiosis, trichinellosis, coccidiosis.

Principles of cytological diagnosis: lipoma, mast cell tumor, adenocarcinoma, lymphoma, purulent inflammation.

Make up for the absence and final test of histopathology knowledge.

Introduction, PM room and PM examination tools, PM technique.

PM technique and PM examination report.

PM examination of current cases x 2

Presentation and discussion of former cases and PM examination of current cases x 10

Final credit for a class.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	184	8
Student's own work	110	5
Total hours/ECTS of student's workload	294	13

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Pathop1 MWW-AJ>Patho2
Course Title	Pathophysiology I, II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ ELECTIVE
Semester of study	4- 5
ECTS / including contact hours	3/1,5 6/3
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 60
	CLASSES - LAB. GROUP: 45
	CLASSES - CLIN. GROUP:
	CLASSES - AUD. GROUP:
Teacher responsible for the course	Dr Pliszczak-Król Aleksandra
Language of instruction	ENGLISH*
Prerequisites	<i>Completion of the courses in anatomy, histology, biochemistry, cell biology, physiology, microbiology and immunology.</i>
Short description of the course (max. 500 characters)	<i>The aim of the course is to provide students with basic knowledge of the pathogenesis of diseases.</i>
Content of the course unit (detailed description)	<p><i>The subject presents:</i></p> <ul style="list-style-type: none"> ➤ <i>the concepts of: health and disease, homeostasis and disease, pathogenesis, sanogenesis,</i> ➤ <i>adaptative mechanisms in the course of the disease.</i> <ul style="list-style-type: none"> ➤ <i>mechanisms of inflammatory processes and mechanisms activated in fever, shock and stress.</i> ➤ <i>the reaction of the body to harmful factors,</i> ➤ <i>metabolic disorders as result of homeostatic imbalance,</i> ➤ <i>the role of vitamins and microelements imbalance in regulation of metabolism,</i> <ul style="list-style-type: none"> ➤ <i>disorders of endocrine glands function,</i> ➤ <i>disorders of water and electrolyte equilibrium,</i>

		<ul style="list-style-type: none"> ➤ acid-base balance disorders, ➤ pathophysiology of body organs and systems, etiopathogenesis of tumors. 	
Learning outcomes (max. 3)			
Nr No.	Subject-specific	Assessment method	Symbol of the learning effect for the field of study
<i>Knowledge</i>			
1	knows to an extensive degree, describes in detail and explains the development, structure, functioning, behaviours and physiological mechanisms of animals in normal conditions, as well as the mechanisms of disorders in pathological conditions;	Oral+written+test	Wet_WO_02
2	knows to an extensive degree and understands the principles of water and electrolyte metabolism, acid-base balance of animal organism, as well as the mechanism of system homeostasis;	Oral+written+test	Wet_WSP_05
3	explains the correlation between factors that disturb the balance of biological processes of the animal body and physiological and pathophysiological changes;	Oral+written+test	Wet_WSP_11
4	describes and interprets the pathophysiological changes occurring in cells, tissues, organs and systems of animals, as well as biological mechanisms, including immunological mechanisms, and therapeutic possibilities that allow recovery;	Oral+written+test	Wet_WSP_12
<i>Skills</i>			
1	describes changes in functioning of the organism in the situation of homeostasis disorders;	Oral+written+test	Wet_USP_04
2	is able to listen and provide answers with the use of understandable language, appropriate to the given situation;	Oral+written+test	Wet_USP_13
<i>Social competences</i>			
1	deepens his/her knowledge and improves skills;	Oral+written+test	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional			
1. McGawin M.D., Zachary J.F.: Pathologic basis of veterinary disease , Wyd.: MOSBY Elsevier, 2007,			
2. Cheville N. F.: Introduction to veterinary pathology , Wyd.: Blackwell Publishing, 2006,			
3. Dunlop R.H., Malbert Ch.H.: Veterinary Pathophysiology , Wyd.: Blackwell Publishing, 2004,			
4. Porth C. M.: Essentials of pathophysiology , Wyd.:			

5. Lippincot Williams & Wilkins, 2004, Thrall M.A. et al.: Veterinary hematology and clinical biochemistry , Wyd.: Blackwell Publishing, 2006.	
6. www.eclinpath.com	
Total grade components: grade obtained at classes (60%) + grade obtained at lectures (40%)	<i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i>
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

Detailed description of lectures with indicated hours (description In 5-7 lines)	
Subjects	No of hours
1. Pathophysiology as the background of medical sciences	2
2. Nosology – knowledge about the disease in general. Concepts of health and disease	2
3. Pathogenesis, sanogenesis. The disease development (<i>evolutio morbi</i>). Etiology of the disease	2
4. The role of exogenous factors in etiopathogenesis of the diseases	4
5. The role of endogenous factors in etiopathogenesis of the diseases	4
6. Ageing and death	2
7. Disturbances of body thermoregulation	3
8. The fever as a process of adaptation	2
9. Disorders of the metabolic processes	4
10. The role of mineral elements in maintenance of allostasis and disease etiology	4
11. The role of vitamin imbalance in disregulated body function	6
12. Mechanisms of the primary and secondary disorders of the endocrine glands function	10
13. Stress and adaptation	5
14. Etiopathogenesis of the water-mineral balance disorders	2
15. Etiopathogenesis of the acid-base balance disorders	2
16. Pathophysiology of the circulatory system	2
17. Pathophysiology of the respiratory system	2
18. Disturbances of consciousness. Pathophysiology of pain	2

Titles of classes:

Detailed description of classes with indicated hours (description In 5-7 lines)	
Subjects	No of hours (CL, L, A)
1. Functional disturbances in the “microcirculation”	3
2. Disturbances in the peripheral circulatory system	3
3. Pathophysiology of hemostasis – clotting and fibrinolysis disorders	3
4. Inflammatory process	3
5. Pathophysiology of the plasma proteins	3
6. Disorders of white blood cells	3
7. The dynamics of changes and evaluation of WBC in the course of different diseases	3
8. The white blood cells reactivity and its practical evaluation	3
9. Disorders of red blood cells part I	3
10. Disorders of red blood cells part II. Fundamentals of haematological diagnostics	3
11. Etiopathogenesis of neoplasms	3
12. Hypersensitivity as a changed reactivity of the immunological system	3
13. Stress and adaptation – the disturbances	3
14. Disorders of pancreas function	3
15. Test	3

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	60	4,5
Student's own work	45	4,5
Total hours/ECTS of student's workload	105	9

Hours:

1. Lectures: 60
2. Laboratory / project / language classes / sports classes **: 45
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Prev1
Course Title	PREVENTIVE VETERINARY MEDICINE I
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	year V /sem. 9
ECTS / including contact hours	2
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES : 15
	CLASSES - LAB. GROUP:30
	CLASSES - CLIN. GROUP:0
	CLASSES - AUD. GROUP:0
Teacher responsible for the course	TADEUSZ STEFANIAK
Language of instruction	ENGLISH*
Prerequisites	Animal Breeding; Technologies in Animal Production; Animal Nutrition; Physiology; Biochemistry; Microbiology; Immunology; Ethology, Welfare and Animal Protection; Animal Hygiene; Diseases of Farm Animals.
Short description of the course (max. 500 characters)	Preparation of students to work in large farms of livestock animals. During lectures, classes and tasks directed to solve real farm problems, students are prepared to play a role of modern farm veterinarian focused on the herd health protection. Introduction in screening field diagnostic methods useful in practice. Methods of detection the causes and prevention of diseases and mortality within the herd. Familiarization with methods of immunity checking in young farm animals and solving their most important health problems of the rearing period.
Content of the course unit (detailed description)	Determination of rules of nowadays co-operation between farm veterinarian and owner and staff of large livestock farms. Rules in selection the representative group of animals and parameters used in monitoring of the herd health. Description of the possibilities of laboratory diagnostics , including acute-phase proteins in herd health monitoring and pathology detection. Characterization of passive transfer in cattle, pigs, horses, goat and sheep, causes of failure, and methods of prevention and checking. Diarrhoea in young farm animals as one of most important problems in large farms, rules in improving.
Learning outcomes (max. 3)	

<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, to the entire animal population;	Passing 2 written tests and solving 2 tasks	Wet_WO_01
2	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;		Wet_WO_04
3	knows to an extensive degree the standards, principles and conditions of animal production technology and maintaining the hygiene of technological process;		Wet_WO_11
<i>Skills</i>			
1	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Passing 2 written tests and solving 2 tasks	Wet_UO_02
2	plans the diagnostic procedure;		Wet_UO_03
3	monitors health of the herd, as well as undertakes action in the case of a disease that is subject to the obligation of disease eradication or its registration		Wet_UO_04
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Passing 2 written tests and solving 2 tasks	Wet_KS_01
2	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity;		Wet_KS_05
3	is ready for reliable self-assessment, formulating constructive criticism in the scope of veterinary practice, accepting criticism of presented solutions, reacting to such criticism in a clear and material manner, also with the use of arguments referring to the available scientific achievements in the discipline;		Wet_KS_06
Literature (max. 8, including Youtube presentations, etc.) - compulsory : Herd Health Food Animal Production Medicine 3 rd ed., ed. Radostits, 2001, Large Animal Internal Medicine 5 th ed. Editors: Bradford Smith, Imprint: Mosby, 2014 - complementary/optional Eduwet materials, individual review articles indicated by teachers			
Total grade components		Notes of 2. Written tests 80%, notes of tasks and individual activity 20%	

Comments:	
-----------	--

List of subjects and exercises for the course/module

Titles of lectures:

No.	Lectures
1	The idea of herd health care. Actual trends in dairy farms. Evolution of veterinary tasks in present livestock animals' keeping farms. Relations advising veterinarian - owner. Expectations of producers against farm veterinarian. How to convince the breeders for herd health protection. Tasks of preventive veterinarian. Factors affecting the herd.
2	Herd health care (cont.). Basic requirements of farm veterinarian necessary to start the herd care. Most important principles of monitoring the herd health. Why and how do the laboratory monitoring? Proposal of monthly reports of monitoring of diseases/threats in dairy farm. Periodicity in herd health monitoring. Desired features of documentation system.
3	Acute phase proteins (APPs) in veterinary diagnostics. Their utilization in herd health monitoring. The manner of the reaction to inflammatory stimuli. Selected functions of APPs in course of the inflammation. Features of haptoglobin and fibrinogen and their application in veterinary practice (examples).
4	Newborn care (calves). Monitoring of the parturition. procedures of newborn calf care. Hygiene regime of newborn calves boxes. Access to drinking water until first day of life. Bioasecuration in delivery-stall and at rearing the calves. Dynamics of blood serum immunoglobulins in calves with failure of passive transfer (FPT) during first month of life. Economical consequences of FPT.
5	Manners of the transfer of passive immunity from mother to the offspring. Problems in large farm systems. Consequences of the failure of passive transfer. Short- and long-term consequences of neonatal pathology.
6	Newborn care (piglets). Stillborn piglets – causes and features. Losses of piglets caused by neonatal asphyxia. Methods of piglets' vitality score. Intrauterine infection. development of the immunity in piglets.
7	Calculation of costs of pathology , losses and profitability in swine farm
8	Preparation of rules for swine farm prophylactic programmes
9	Newborn care (lambs and goat kids). Optimizing the periparturient survival of lambs/goat kids. Hypothermia treatment in neonates. The most common causes of lamb/goat kids mortality. “Downer kid syndrome” , „watery mouth” in lambs. Congenital muscle dystrophia (white muscle disease). Respiratory Distress Syndrome. Congenital copper deficiency in lambs.
10	Methods of newborn calves keeping. The evaluation of adequacy of the passive transfer in calves. Advantages and disadvantages of different methods of colostrum immunity evaluation. Introduction of the programmes of colostrum immunity in the farms of different management and size.
11	Economical profits from supplemental rearing piglets at wet nurses. Calculation of immunoprophylactic programme based on selected example in whole production cycle. Advantages and disadvantages of different systems of pig keeping. Factors affecting pigs health and productivity.
12	
13	Problems with herd immunity status. Principles of immunoprophylactics in the herd. The influence of nutrition. The protection of innate immunity mechanisms. Modulating the specific immunity. Programme of herd immunity status evaluation. Risk factors in different production groups of dairy herd.

14	Homeostasis of alimentary tract and its disturbances. Digestion and absorption in different segments of digestive tract of healthy, diarrheic and convalescent calves after oral fluid therapy. Strategies of prevention of the alimentary tract infections. Risk factors of the diarrhoea in barn and calfbarn. Principles of immunoprophylactic programmes management in large farms of ruminants. Prophylactic application of allo- and xenogenic immunoglobulins. Economical aspects of diarrhoea in the farm.
15	Advantages and disadvantages of different systems of cattle keeping. Characterization of the farm. Targets of yield and the occurrence of diseases in dairy farms. Advantages and disadvantages of tethered and loose systems of dairy cows keeping. Factors influencing the yield and the health of dairy cows. The methods of the detection of threats in the farm.

Titles of classes:

Block I. TASKS OF FARM VETERINARIAN IN HERD HEALTH MONITORING	
1	Differences between classical veterinarian and preventive veterinarian. Dependences in the herd between A-human, B-nutrition, C-environment. Individual patient and collective patient-herd. Target and selection of laboratory examinations.
2	Acute phase proteins (APPs) – the utilization in veterinary diagnostics. Determination of fibrinogen according to Millar et al. Application of other serum proteins in the evaluation of herd health.
3	Determination of haptoglobin according to Spooner. Application of APPs in the disease monitoring. Evaluation of cases.
4	Selection of farm representative group. Results of laboratory examinations – their sorting and methods of analysis. Performing the metabolic profiles in farms. Methods of presenting the results (table system, diagrams). Elaboration by students of the results of representative group examination (part I). Preparation of tasks for next class.
5	Elaboration by students of the results of representative group examination (part II). Interpretation of the results of representative group for the herd.
Block II. IMMUNITY OF FARM ANIMALS	
6	Immunity of the neonate. Division of mammals according to way of transfer the maternal immunity to the progeny. Methods of checking the colostral immunity in farm animal neonates. Division of immunity factors of the colostrum: humoral specific; humoral innate; cellular specific; cellular innate.
7	Field tests of checking the colostral immunity in farm animals' neonates. Foals. Determination of serum immunoglobulins using Glutaraldehyde Coagulation Test (GCT). Interpretation of the results. Treatment of foals with failure of passive transfer (FPT) and partial failure of passive transfer (PFPT). Calculating the plasma/serum volume for interventive application in foals.
8	Calves. Determination of immunological value of the colostrum. Methods of colostrum preservation and management of „colostrum bank”. Effectiveness of the colostral immunity transfer. Effectiveness of the transfer of passive immunity. Zinc Sulphate Turbidity Test (ZSTT). Cooperation of calf immune mechanisms with colostral immunity. Differences in the content of Ig in the colostrum and milk – practical aspects. The influence of timing and colostrum Ig concentration on the efficiency of Ig absorption.
9	Sodium Sulphite Turbidity Test (SSTT). The evaluation of the results for individual calf and for the farm; Index of total Ig at 3-4 th week of life. Calculation of the Index for different farms, their interpretation and planning of improving strategies according to farm specificity. Associations between colostral immunity and the future of heifer-calves.
10	Problems of lambs' and goat kids' immunity in large herds. Transfer of colostral immunity in sheep and goat, factors affecting the transfer associated with the dam, human and the newborn. FPT in lambs and goat kids. Criteria of evaluation the colostrum and the newborn serum Ig in lambs and goat kids. “Colostrum bank” and the application of cow colostrum, indications. Risk of hemolytic anemia.
11	Problems of piglets' immunity in large herds. Differences of Ig content in the colostrum and milk –practical importance. Factors affecting the effectiveness of passive immunity transfer (associated with the dam, human and the newborn). The influence of low and high antigenic stimulation on

	the rearing effects of piglets. Prevention of excessive antigenic stimulation in swine.
12	Elaboration of management programmes of first day care of calves and piglets in relation to farm management. Case diagnosis. Tasks of type case-oriented education.
Block III. LOSSES IN YOUNG STOCK REARING – CAUSED BY ALIMENTARY TRACT PATHOLOGY	
13	Non-infectious and infectious causes of diarrhoea. Disturbances of intestinal homeostasis.
14	Dehydration: types, differential signs. Estimated and field methods of calculation of water and electrolyte losses for the individual and group of animals. Calculation of water and electrolyte deficit. Evaluation of intensity of acidosis based on clinical signs.
15	Comparison of selected commercial rehydrating preparates – calculation of electrolyte content. Principles of rehydration, choice of ways of rehydration within the herd. Planning the volume and composition of rehydrating fluids in the treatment of large groups of calves and piglets.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests	46	1,5
Student's own work	10	0,5
Total hours/ECTS of student's workload	56	2

Hours:56

1. Lectures:15
2. Laboratory / ~~project / language classes / sports classes~~ **:30
3. Clinical classes **:0
4. Auditorium / seminar **:0
5. Internship classes **:0
6. Practice **:0
7. Others with the teacher:1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Prev2
Course Title	Preventive veterinary medicine II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	year V /sem. 10
ECTS / including contact hours	3
Form of instruction (lectures, classes, seminar, other) -Number of teaching	LECTURES 15
	CLASSES - LAB. GROUP:26

hours	CLASSES - CLIN. GROUP:4
	CLASSES - AUD. GROUP:0
Teacher responsible for the course	TADEUSZ STEFANIAK
Language of instruction	ENGLISH*
Prerequisites	Animal Breeding; Technologies in Animal Production; Animal Nutrition; Physiology; Biochemistry; Microbiology; Immunology; Ethology, Welfare and Animal Protection; Animal Hygiene; Diseases of Farm Animals.
Short description of the course (max. 500 characters)	Tasks and methods of veterinary procedures in nowadays farms of livestock animals. Conditions and methods in work of farm veterinarian , rules in co-operation with the owner. Methods of recognition of the causes and prevention of morbidity and mortality in large farms, caused by digestive tract and respiratory tract diseases. The most important metabolic problems of dairy cattle in large farms: Fat Ciow Syndrome, Downer Cow Syndrome, Subacute Rumen Acidosis, mineral disturbances – prevention and improving procedures for the farm.
Content of the course unit (detailed description)	<p>Tasks of farm veterinarian in herd health protection in large farms of livestock animals. The utilization of laboratory diagnostics in the detection and diagnosis of metabolic disturbances and mineral failures in dairy cattle.</p> <p>The utilization of farm data for the detection of endangerments , rules in procedures in the protection of youngstock against gastrointestinal and respiratory tract pathology. Rules of farm veterinarian work in large swine farms.</p>

Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
	knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, to the entire animal population;	Passing 3 written tests, 3 tasks and final exam	Wet_WO_01
	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;		Wet_WO_04
	knows to an extensive degree the standards, principles and conditions of animal production technology and maintaining the hygiene of technological process;		Wet_WO_11
<i>Skills</i>			

analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Passing 3 written tests, 3 tasks and final exam	Wet_UO_02
plans the diagnostic procedure;		Wet_UO_03
monitors health of the herd, as well as undertakes action in the case of a disease that is subject to the obligation of disease eradication or its registration		Wet_UO_04
<i>Social competences</i>		
exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Passing 3 written tests, 3 tasks and final exam	Wet_KS_01
formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity;		Wet_KS_05
is ready for reliable self-assessment, formulating constructive criticism in the scope of veterinary practice, accepting criticism of presented solutions, reacting to such criticism in a clear and material manner, also with the use of arguments referring to the available scientific achievements in the discipline;		Wet_KS_06
Literature (max. 8, including Youtube presentations, etc.) - compulsory : Herd Health Food Animal Production Medicine 3 rd ed., ed. Radostits, 2001, Large Animal Internal Medicine 5 th ed. Editors: Bradford Smith, Imprint: Mosby, 2014 - complementary/optional Eduwet materials, individual review articles indicated by teachers		
Literature (max. 8, including Youtube presentations, etc.) - compulsory : Herd Health Food Animal Production Medicine 3 rd ed., ed. Radostits, 2001, Large Animal Internal Medicine 5 th ed. Editors: Bradford Smith, Imprint: Mosby, 2014 - complementary/optional Eduwet materials, individual review articles indicated by teachers		
Total grade components	Notes of 3 written tests 30%, note of 9th semester Vet.Prev.Med.1 30%, final exam 30%, tasks and individual activity 10%	
Comments:		

List of subjects and exercises for the course/module

Titles of lectures:

No.	Lectures
1	Herd immunity checking programme. Risk factors affecting basic production groups of dairy and beef cattle. Factors affecting productivity and health of dairy cows. Methods to detect the herd threats.
2	Advantages and disadvantages of various systems of cattle keeping. Production groups of dairy cattle. Characterization of the farm. Targets for yield and for the occurrence of diseases in the herd
3	Hypomagnesemia, hypocalcemia, hypokalemia, hypophosphatemia. Dietary cation-anion balance. Strategies of milk fever prevention.
4	Preparation of assumptions for creation of prophylactic programmes for swine farms.
5	Advantages and disadvantages of various systems of cattle keeping. Advantages and

	disadvantages of tethered and loose systems of cow keeping. Principles of dairy herd health care. Risk factors for the metabolic disturbances in the transition period in dairy cows. Monitoring of the health of reproduction group in transition period.
6	Principles of dairy herd health care. The barrier for herd diseases. Targets of the occurrence of clinical production diseases. Estimated importance of factors influencing the dairy herd profitability. Mixer feeders – types, destination, terms of use from the veterinarian point of view. The most common diseases and routine procedures between 1-8 week of lactation. Fat Cow Syndrome (FCS). Mixing wagons – types, destination, rules of use – veterinarians point of view.
7	Connections between cow obesity and the severity of inflammatory response. Diseases accompanying the FCS. Dependences between feeding the dairy cattle and pathology of the gastrointestinal tract. Abomasum pathology and prevention in dairy cows. Factors predisposing to left abomasum translocation.
8	Downer cow syndrome (DCS). Diseases that may cause DCS. Prognosis. Procedures in the treatment of DCS.
9	FCS prevention, principles of treatment, and what to do in endangered farm. Keeping the dairy cow from dry period of the peak of lactation. Costs of pathology in dairy farms. Direct and indirect costs. The dependence of costs from the severity of disease.
10	Aseptic laminitis in dairy cows. Dependences between feeding and rumen acidosis, bacterial diseases and appearance of laminitis. Limitations of the diet that prevent laminitis. System of lameness evaluation in walking cows. Problem of subacute rumen acidosis in dairy and beef cattle. Risk factors of lameness in dairy cattle, feeding failures as the predisposing factor. System of cow comfort evaluation in the bed. Risk factors associated with technology.
11	Hypomagnesemia, hypocalcemia, hypokalemia, hypophatemia. Dietary cation-anion balance. Strategies of milk fever prevention (cont.).
12	Preparation of assumptions for creation of prophylactic programmes for swine farms (cont.).
13	Consequences of intrauterine infection. Evaluation of respiratory tract threats in calves. Infectious agents that cause weak calf syndrome. Consequences of chorioamnionitis. Central nervous system injury. Interpretation of precolostral serum immunoglobulin concentration in calves.
14	Losses in youngstock caused by respiratory tract pathology. Immaturity of lungs; surfactant; respiratory distress syndrome (RDS). Species specific predispositions for lung function disturbances. Environmental risk factors for lung diseases (at the pre-and postnatal), prevention. Non-infectious risk factors.
15	<i>Histophilus somni</i> Syndrome. Economic importance. Principles of respiratory tract diseases immunoprophylactics on the herd level. Immunoprophylactic programmes for beef and dairy cattle.

Titles of classes:

Block III. LOSSES IN YOUNGSTOCK – CAUSES ASSOCIATED WITH GASTROINTESTINAL TRACT (CONT.)	
1	Comparison of commercial rehydrating preparations, calculation of electrolyte concentration. Principles of rehydration, choice of ways of rehydration, rehydration methods in the herd. Planning the volume and content of rehydrating fluids used for treatment of large groups of calves and piglets. Analysis of the case of diarrhoea outbreak in large dairy farm.
2	Analysis of the case of diarrhoea outbreak in large dairy farm. (cont.). Full bellied scour. Estimation of milk coagulation time. Picture of this feature in the herd, dependence of cows' feeding. Factors affecting the calcium availability and milk coagulation time. Current and long term prevention. Secondary role of infectious agents. General principles of diarrhea prevention. Infectious causes of diarrhea, immunoprophylaxis, herd

	strategy, GALT.
Block IV. LOSSES IN OFFSPRINGS AND MATERNAL HERD CAUSED BY INAPPROPRIATE FEEDING	
3	Fat cow syndrome. Management-related and nutrition-related risk factors. Threat prognosis: zootechnical herd evaluation, clinical herd evaluation, (cows and calves). Analysis of milking utility reports, part 1.
4	Analysis of milking utility reports, part 2. Pathogenesis of FCS. Anamnesis, laboratory and postmortem investigation, liver biopsy. Problem evaluation in the herd.
5	Body condition score by Mulvany. Principles of cow examination. Principles of herd evaluation, utilization of the results in herd health monitoring and foreseeing the problems. Complexed evaluation of good and weak features of dairy farm.
6	Technopathies – identification and the evaluation of their intensity within the herd. Calculation of the rate of cows that exhibit problems and their classification. The evaluation of comfort of cows on beds, evaluation of beds' quality. Evaluation of lameness in walking cows; principles of application this method in the herd and the evaluation of documentation in herd health monitoring.
7	Economical evaluation of prophylactic programmes in large farm. Calculation of the costs of immunoprophylactic programme. Balance of profits and losses for the veterinarian and the owner. Infectious risk factors.
Block V. LOSSES IN YOUNGSTOCK – CAUSES ASSOCIATED WITH RESPIRATORY TRACT PATHOLOGY	
8	Swine pleuropneumonia. Weak Calf Syndrome (WCS). Evaluation of the vitality in newborns using different scales. Determination of themes to be prepared self by student.
9	Identification of risk factors for respiratory tract infections in the herd (analysis of clinical case in dairy farm)
10	Identification of risk factors for respiratory tract infections in the herd (analysis of clinical case in dairy farm) cont.
11	Recognizing the herd problems by students – review of movies/pictures. Quiz for respiratory problems in youngstock.

Allocation of ECTS for the course/module

Course title: Veterinary Preventive Medicine II

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	46	2
Student's own work	20	1
Total hours/ECTS of student's workload	66	3

Hours:66

1. Lectures:15
2. Laboratory / ~~project / language classes / sports classes~~ **:26
3. Clinical classes **:4
4. Auditorium / seminar **:0
5. Internship classes **:0
6. Practice **:0
7. Others with the teacher:1

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	SWW-AJ>Professional Ethics		
Course Title	Professional Ethics		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY/ELECTIVE		
Semester of study	2		
ECTS / including contact hours	1		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 15		
	CLASSES - LAB. GROUP: 0		
	CLASSES - CLIN. GROUP: 0		
	CLASSES - AUD. GROUP: 0		
Teacher responsible for the course	ROBERT KARCZMARCZYK		
Language of instruction	ENGLISH*		
Prerequisites	Humanistic subjects according to study curriculum		
Short description of the course (max. 500 characters)	The aim of the course is to make students sensitive about ethical part of the work and the profession. Students are taught about professional responsibility in veterinary practice and also in Veterinary Inspection. Structure of the veterinary self-governing organization is described, its role and particular aims. Influence is put also on the possibly mistakes in veterinary practice		
Content of the course unit (detailed description)	Student get knowledge about actual national and self-governing acts and rules about the profession (Code of Ethics, National and Regional Veterinary Council, National and Regional Veterinary Court, Veterinary Intercessor. The impact is put on the relation as Vet – to client, vet – to governing organizations, vet- to vet, and vet-to natural environment. Other issues are taught like self-governing organisations, profession of public trust, Code of Veterinary Profession Ethics, Code of Good Veterinary Practice, ethical versus medical procedures		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			

1	Student knows the rules of Professional Code of Ethics and Coog Veterinary Practice Code	Individual written assesment work	Wet_WSP_22
2	Assesses the veterinary procedure from ethical point of view	Individual written assesment work	Wet_WSP_22
3	Makes up the decision about animal health according to ethical guidlines	Individual written assesment work	Wet_WO_11
<i>Skills</i>			
1	Student can act professionally according to actual acts, medical procedure and professional ethic principles	Individual written assesment work	Wet_USP_16
2	Understands the vital role of animals in modern world	Individual written assesment work	Wet_USP_18
3	Can point out to the owner the proper way of conduct in the case of companion and farm animals	Individual written assesment work	Wet_USP_19
<i>Social competences</i>			
1	can assess the veterinary way of procedure from ethical perspective	Individual written assesment work	Wet_KS_03
2	Is able to perform in the area of veterinary profession in accordance with rules of Veterinary Code of Ethics	Individual written assesment work	Wet_KS_06
3	Is able to make a right choise in tough situations from medical and ethical point of view	Individual written assesment work	Wet_KS_11
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional 1. Code of Veterinary Professional Ethics (Poland) 2. Good Veterinary Practice Code 3. European Veterinary Code of Conduct			
Total grade components		<i>grade obtained at individual final written assessment work (100%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1 & 2. Professions of public trust , veterinary self-governing organizations

What is a profession of public trust?, Historical outline of self-governing organizations. Law basis of activity. Role of the professions of public trust In the society.

3 & 4. Structures and goals of the veterinary self-governing organization

Structure: National General Assembly of Veterinary Surgeons, Regional Assembly of Veterinary Surgeons, National Council of Veterinary Surgeons, Regional Councils of Veterinary Surgeons,

Intercessor of professional Responsibility, National and Regional Veterinary Courts of Veterinary Surgeons, National and Regional Revision Commissions.

5 & 6. Code of Ethics of Veterinary Profession. Professional relationship vet to vet and vet to client (animal owner)

Principles of ethics based on the Code of Ethics of Veterinary Profession. Ethical issue In everyday practice. Cooperation with other vets, professional organizations and animal owners.

7 & 8. Professional responsibility of veterinary surgeons. Mistakes in veterinary practice.

Professional service with ethical, medical and law basis. Skills and competences. Professional mistake and medical and professional consequences.

9 & 10. Intercessor of Professional Responsibility. Professional Contr of Veterinary Surgeons

Clients demands and requirements and complaints. Professional procedures with client's complaints.

11 & 12. Good Veterinary Practice Code

European Code of Professional conduct. Federation of Veterinarians in Europe. EA EVE (European Establishment for Evaluation of Veterinary Education).

13 & 14. Business versus professional ethics.

Is it possible to coexistence? Area of common interest. Doubts. Free market dilemma in the Light of ethical codes.

15. Final assessment

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	15	0,8
Student's own work	10	0,2
Total hours/ECTS of student's workload	25	1

Hours:

1. Lectures: 15

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>PubHealth
Course Title	Public health protection in a state of disaster
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE

Semester of study	6		
ECTS / including contact hours	2/1		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES		
	CLASSES - LAB. GROUP:		
	CLASSES - CLIN. GROUP:		
	CLASSES - AUD. GROUP:		
Teacher responsible for the course	dr Pliszczak-Król Aleksandra		
Language of instruction	ENGLISH*		
Prerequisites	Completion of the courses in biophysics, biochemistry, cell biology, physiology, pathophysiology, microbiology and immunology.		
Short description of the course (max. 500 characters)	Influence of biologic factors on human and animal health. Agricultural bioterrorism, threats to the food industry.		
Content of the course unit (detailed description)	<p>The influence of ionizing radiation on biological material. Behaviour of radioisotopes in the environment. The ways of contamination and radionuclides distribution in organism. Metabolism of selected radionuclides. Tasks of veterinary services in radiation protection of Poland and Europe. Dosimetry and evaluation of fodders and animal products contamination. Decontamination and methods for of external and internal pollutions elimination.</p> <p>Application of biological agents in the terrorist attacks – their properties, history of the use and methods of dissemination. Influence of biological agents on people and animals. Agricultural terrorism, threats for the food industry. Diagnostics of biological agents used as terrorist weapon.</p>		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	explains the correlation between factors that disturb the balance of biological processes of the animal body and physiological and pathophysiological changes;		Wet_WSP_11
<i>Skills</i>			
1	is able to use the knowledge of the laws of physics in order to explain the impact of external factors (temperature,		Wet_USP_01

	pressure, electromagnetic field, ionizing radiation) on the animal body;		
2	describes changes in functioning of the organism in the situation of homeostasis disorders;		Wet_USP_04
<i>Social competences</i>			
1	understands the need of continuing education, in order to ensure continuous professional development;		Wet_USP_21
Literature (max. 8, including Youtube presentations, etc.) - compulsory 58. Fog and Alibek, Bioterrorism and infectious agents . Springer Science, New York, 2005 59. Biological disasters of animal origin. The role and preparedness of veterinary and public health services . Scientific and technological review., vol..25, OIE, 2006 60. Jarret D. G. Medical management of radiological casualties . 1 st Edition, Military Medical Operation Office Armed Forces Radiobiology Research Institute, Bethesda, Maryland, 1999., http://www.afri.usuhs.mil - complementary/optional			
Total grade components <i>grade obtained at classes 100%</i>		<i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of classes:

Subjects	No of hours (CL, L, A)
1. The radioactivity phenomenon: characteristics of ionizing radiation. The sources of ionizing radiation in the environment. The natural background of ionizing radiation. The artificial background of ionizing radiation. The tasks and role of veterinary services in the organization system of radiation protection.	2
2. Dosimetry of ionizing radiation: ➤ the radiation rate, ➤ the radionuclides activity, ➤ the exposed dose, ➤ the absorbed dose, ➤ the limit dose. Practical calculations and use of radioactivity units.	2
3. Radiation detectors and measurement equipment. Determination of artificial beta global activity (set: computer P-21, radiosonde SSU-	2

70).	
4. The influence of ionizing radiation on biological material: The hormetic effect of ionizing radiation, Factors influencing the effect of ionizing radiation on organism.	2
5. The pathogenic activity of ionizing radiation: etiopathogenesis of acute syndrome. The stochastic effects of radiation.	2
6. Contamination of animals with radionuclides: ➤ ways of contamination, ➤ radionuclides distribution in organism – critical organs. ➤ metabolism of selected radionuclides Radioactive contamination of fodders and animal products. Decontamination: means and ways of elimination of external and internal animals' contamination. Procedures performed in cases of radiation contamination. Arrangement of animal decontamination centres.	2
7. Bioterrorism: definition and types of bioterrorism. The history of the bioterrorism in Poland and worldwide. The classification of biological agents and requirements for an “ideal” bioterrorist agent. Transmission of biological agents. Epidemiological features of mass illness.	2
8. The subjects concerning bacterial and viral agents will be discussed in the following order: properties of pathogens conditioning their potential use by terrorists, former attempts of the infectious agents application as biological weapon - history of research, ways of using of the particular pathogens as biological weapon, impact of pathogenic agents on people and animals, possibilities of counteracting the effects of bioterrorist attacks. Viruses belonging to the A group (according to Center of Disease Control – CDC): smallpox, viral haemorrhagic fevers (Marburg, Ebola, Lassa, Junin, Machupo, Sabia).	2
9. Viruses belonging to the B group (according to CDC): Venezuelan Encephalitis. Viruses belonging to the C group: Nipah, Hanta, Yellow Fever virus.	2
10. Bacteria belonging to the A group (according to CDC): Anthrax (<i>Bacillus anthracis</i>), Plague (<i>Yersinia pestis</i>), Tularemia (<i>Francisella tularensis</i>).	2
11. Bacteria belonging to the B group (according to CDC): <i>Coxiella burnetti</i> , <i>Salmonella</i> sp., <i>E. coli</i> O157 H7, <i>Shigella dysenteriae</i> , <i>Vibrio cholerae</i> , <i>Brucella</i> sp., <i>Burkholderia mallei</i> .	2
12. Agricultural bioterrorism. Threats of bioterrorist attack on the agricultural sector. Possible attack agents.	

Threats for the food industry. Counteracting and fighting the effects of terrorist actions. Genetically modified food as a potential biological weapon. Toxins of biological origin as biological weapon. Bacterial (botulin, enterotoxin B of <i>S. aureus</i> , ϵ toxin of <i>C. perfringens</i>) and plant (ricin) toxins.	2
13. Recognition of bioterrorist attack. Epidemiological signs of hidden bioterrorist attack. Diagnostics of agents used in bioterrorist attack. Modern diagnostic methods. Biosafety levels in microbiological laboratories.	2
14. The readiness plans in case of eruption of the infectious disease: crisis plan, intervention plan. The list of diseases for which the readiness plans are prepared. The aim of readiness plan development. Crisis response unit - people in charge and coordinators. Procedures and instructions, documentation.	2
15. Test	2

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	10	1
Student's own work	20	1
Total hours/ECTS of student's workload	30	2

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:30
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Slaughter1 MWW-AJ>Slaughter2 MWW-AJ>Slaughter3		
Course Title	Slaughter animals and meat hygiene I, II, III		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY		
Semester of study	7 winter, 8 summer, 9 winter		
ECTS / including contact hours	8 (4,5)		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES : 30 hours		
	CLASSES - LAB. GROUP: 65 hours		
	CLASSES - CLIN. GROUP: 20		
	CLASSES - AUD. GROUP: 0		
Teacher responsible for the course	Aleksandra Tabiś		
Language of instruction	ENGLISH*		
Prerequisites	normal anatomy, physiology, biochemistry, veterinary bacteriology and virology, parasitology, epidemiology, infectious diseases, pathological anatomy, food law, hygiene of slaughter animal and meat.		
Short description of the course (max. 500 characters)	The goal of the course is to learn the student food safety hazards that occur in the process of slaughtering animals, rules governing the veterinary supervision of obtaining meat from slaughter and game animals, changes in meat induced by disease processes that affect the quality and evaluation of meat, post-mortem laboratory meat inspection.		
Content of the course unit (detailed description)	The welfare requirements for animals welfare during transport and slaughter, stunning and slaughtering processes, meat inspection techniques, post-mortem evaluation and labeling and marking rules, chemical and microbiological laboratory changes occurring in meat after slaughter, treatment of side products, storage and transport of meat, safety management systems in meat production.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	presents in detail the principles of examination of the slaughter animals, meat and other animal products;	Tests, oral examination, visit at the	Wet_ WO_09

		slaughterhouses practical exam	
2	explains in detail the principles of consumer health protection, as well as the principles of appropriate supervision over the production of foodstuffs of animal origin;	Tests, oral examination, practical exam	Wet_ WO_10
3	identifies and describes in detail the principles of management and utilisation of animal by-products and waste associated with animal production;	Tests, oral examination, practical exam	Wet_ WO_08
<i>Skills</i>			
1	performs pre- and post-mortem inspection of slaughter animals and examination of meat, as well as other products of animal origin;	Tests, oral examination	Wet_ UO_05
2	performs activities that are associated with the veterinary supervision, including trade in animals, as well as sanitary and veterinary conditions of animal gathering locations and processing products of animal origin	Tests, oral examination,	Wet_ UO_06
3	knows and describes the principles of functioning of the Veterinary Inspection, also in the aspect of public health;	Tests, oral examination	Wet_ WSK_16
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Tests	Wet_ KS_01
2	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	Tests	Wet_ KS_02
3	deepens his/her knowledge and improves skills;	Tests, oral examination	Wet_ KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory Gracey's Meat Hygiene, Eleventh Edition, 2015 John Wiley & Sons, Ltd Wilson's Practical Meat Inspection. William G. Wilson: Meat hygiene. David S. Collins Game meat hygiene in focus. Microbiology, epidemiology, risk analysis and quality assurance edited by: P. Paulsen, A. Bauer, M. Vodnansky, R. Winkelmayer and F.J.M. Smulders - complementary/optional MEAT INSPECTION AND CONTROL IN THE SLAUGHTERHOUSE, 2014 JOHN WILEY & SONS, LTD THE SCIENCE OF ANIMAL GROWTH AND MEAT TECHNOLOGY, STEVEN M. LONERGAN, DAVID G. TOPEL AND DENNIS N. MARPLE, 2019			
Total grade components		<i>Students must obtain credit for the subject "Hygiene of slaughter"</i>	

	<i>animals and meat I" and the subject "Hygiene of slaughter animals and meat II", Hygiene of slaughter animals and meat III ". The final grade consists of the grade of the exercises: 40% and the grade of the exam: 60%.</i>
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

Sem. 7.
1. Food hygiene - definition, concept, content, scope. The legal basis: Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety
2. Protect the health of the consumer, commodity risks slaughter microbiological factors, parazytologicznymi, chemicals. The risk analysis.
3. Food chain: feed hygiene, slaughtering, cutting, processing, distribution, transport of animals, transport of meat. Plumbing Package: EU Regulation 852, 853, 854 and 882 in 2004.
4. Monitoring, control, audit, monitoring. Role and tasks of IW. The Act of 29 January 2004 on Veterinary Inspection,
5. Slaughterhouse - definition, design, structure, functions, requirements and structure of the plant production of meat and meat products. Species specificity, equipment, technological lines
6. GMP / GHP / HACCP in meat processing plants - concepts, objectives of, well, rules. Chapter zones for clean and dirty. Principles of movement between zones, hygiene staff.
7. Animals for slaughter. Rotation, identification and marking of animals. Act of 2 April 2004 on the identification and registration of animals
8. Animal welfare, ante-mortem inspection, slaughter .. Council Regulation (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97 .
9. Meat - definitions. The slaughter of animals for slaughter - definition, types, methods. Technology slaughter of animals for slaughter. Regulation (EC) No 853/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin
10. Slaughter of pigs. Stunning, exsanguinations, scalding, odszcecinianie, evisceration, post-mortem inspection of meat samples for laboratory tests.
11. Slaughter stunning, exsanguination, skinning, evisceration, the division of the carcass, meat post-mortem inspection, sampling for laboratory tests.
12. Ubój horses. Stunning, exsanguination, skinning, evisceration, the division of the carcass, meat post-mortem inspection, sampling for laboratory tests.
13. The slaughter of poultry, rabbits, game animals farmed
14. Venison, definition, conduct a fishery, veterinary examination, evaluation. Proceedings in the fishery, collection game, the base game, pathological changes,
15. Rating meat after slaughter, veterinary seal character patterns, methods, and rules on labeling. Handling the meat after slaughter. Cooling, cutting, distribution,
Sem. 8.

1. Side articles slaughter. Regulation of the European Parliament and Council Regulation (EC) No 1069/2009 of 21 October 2009 laying down health rules concerning animal by-products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Regulation on animal by-products)
2. Trading conditions in meat refrigeration chain. The concept of cold chain. Temperature ranges. Monitoring of refrigerated transport.
3. Veterinary documentation, information on the food chain, books ante-mortem inspection books, records samples, laboratory records, the main instructions veterinarian.
4. Theories of food poisoning. Distribution and characterization of the most important from the standpoint of evaluation of meat microorganisms present in the meat
5. Meat - the construction, chemical composition, maturation of meat. Processes occurring after the slaughter of animals, the impact on meat quality.
6. Meat quality, stress myopathies: PSE, DFD. Preventing changes, the mechanism changes, the use of meat as amended.
7. Undesirable physical and chemical changes occurring in the meat
8. Cons meat, slaughter procedure. Watery, thinness, emaciation, penetrating acid digestion, jaundice.
9. Rating meat in the presence of infectious diseases part. First
10. Ocena meat in the presence of infectious diseases part. Second
11. Score meat in the presence of parasitic diseases
12. Laboratory testing of meat, monitoring, research directions, laboratories, accreditation
13. Method of preserving meat, curing, drying, pasteurization, sterilization, drying, modified atmosphere packaging, vacuum packaging, paskalizacja
14. The differential diagnosis of lesions in the post-mortem inspection, the impact on the assessment of the meat. Changes in internal organs.
15. The differential diagnosis of lesions in the post-mortem inspection, the impact on the assessment of the meat. Rating meat with selected diseases.

Titles of classes:

Sem. 8.
1. HACCP – system of food safety of animal origin. Part 1. - management of safety and quality of food of animal origin - idea of HACCP - prerequisites of system implementing - 7 principals - basic concepts - structure of documentation
2. HACCP – system of food safety of animal origin. Part 2. - principles for the drafting of a system - description of the product - block diagram - analysis of hazards and CCP assessment - monitoring system - loop quality - system verification
3. Cleaning and disinfection - goals of washing and disinfection - washing agents - disinfectants - washing and disinfecting techniques

- effectiveness of cleaning and disinfection
4. Control of the general conditions of production hygiene. - law basis Decision 2001/471 EC - sampling methods for microbiological testing - rules for the collection of samples for microbiological testing - analysis of results - decisions
5. The task of the veterinary supervision of food establishments - law basis: Instruction GLW no GIWhig 500-7/07 - microbiological testing conducted at the premises - rules and methods of sampling to test - results of analysis and evaluation
6. Microbiological quantitative testing - MPN - total viable counts - rules for calculating results
7. The study of food in the direction of <i>Listeria monocytogenes</i> - food in jeopardy - law basis: Regulation 1441/2007 - microbiological mediums - methodology for microbiological testing of food
8. Study of food in the direction of Enterobacteriaceae part 1. - food in jeopardy - systematics - law basis Regulation 1441/2007 - mediums - methodology for the microbiological testing of food - spreading
8. Study of food in the direction of Enterobacteriaceae part 2 - analyses of incubated tests - interpretation of results - treats for consumers
10. Study of food in the direction of pathogenic Streptococci part 1. - food in jeopardy - systematics - law basis: Regulation 1441/2007 - mediums - methodology for the microbiological testing of food - spreading
11. The study of food in the direction of pathogenic Streptococci part 2 - analyses of incubated tests - interpretation of results - treats for consumers
12. The study of food in the direction of pathogenic Staphylococci. Part 1 - food in jeopardy - systematics - law basis: Regulation 1441/2007 - mediums - methodology for the microbiological testing of food - spreading
13. The study of food in the direction of pathogenic Staphylococci. Part 2 - analyses of incubated tests - interpretation of results

- treats for consumers
14 The study of food in the direction of pathogenic bacteria. - food in jeopardy - systematics - law basis: Regulation 1441/2007 - mediums - methodology for the microbiological testing of food - spreading
15. The study of food in the direction of pathogenic bacteria. cz. 2. - analyses of incubated tests - interpretation of results - treats for consumers
Sem. 8.
1. Meat hygiene - food law basis – regulation 178/2002 - definitions - food safety - food chain
2. Dealings with slaughter animals - law basis – regulation 853/2004 i 1/2005 - animal welfare during collection, transport, preslaughter rest and slaughter - preslaughter examination - slaughter hygiene
3. Meat examination for trichinae - law basis – regulation 2075/2005 - meat sampling for examination for trichinae - digestive method of examination for trichinae - compressor method of examination for trichinae - dealing with meat - meat evaluation
4. Post mortem inspection of meat (pork and beef) - law basis – regulation 854/2004 - post mortem inspection of beef - post mortem inspection of pork - post mortem inspection of horse meat - post mortem inspection of small ruminants - post mortem inspection of poultry
5. Hygiene in slaughter house and meat plant - personal hygiene in meat plant - work and protective cloths in slaughter house - cleaning and disinfection in meat plant - verification of cleaning and disinfection - work stand environment of veterinary inspector and slaughter worker - Occupational Health and Safety in slaughter house
6. Structure of meat plant fulfilling HACCP requirements (Classes in meat plant) - meat plant environment - internal organization of meat plant - pig slaughter technology line - cattle slaughter technology line - protection of meat plant against rodents - protection of meat plant against flies and insects

<ul style="list-style-type: none"> - other technological line - dirty and clean parts of plant
<p>7. Transport of slaughter animals and ante mortem examination (Classes in meat plant)</p> <ul style="list-style-type: none"> - condition of download animals from means of transport and rest - ante mortem examination and veterinary decisions - animals marking and identification - veterinary documentation - means of transport hygiene
<p>8. Post mortem inspection of pork (Classes in meat plant)</p> <ul style="list-style-type: none"> - inspection of placks - inspection of carcasses - detailed inspection - examination for trichinae - veterinary documentation
<p>9. Post mortem inspection of beef (Classes in meat plant)</p> <ul style="list-style-type: none"> - inspection of heads - inspection of placks - inspection of carcasses - detailed inspection - sampling for examination for BSE - veterinary documentation
<p>10. Dealings with meat after slaughter (Classes in meat plant)</p> <ul style="list-style-type: none"> - evaluation - marking - food quality marks - meat cutting on elements - veterinary documentation - category 1 material - category 2 material - category 3 material - SRM
<p>Sem. 9.</p>
<p>1. Determination of chemical components of meat: fat, proteins, water</p> <ul style="list-style-type: none"> - determination of protein content in meat according Kjeldahl method. - determination of fat content in meat according Soxlet method.
<p>2. Meat ripening determination of meat spoilage indicators</p> <ul style="list-style-type: none"> - after slaughter chemical transformations of carbohydrates occurring in meat - after slaughter chemical transformations of nucleotides occurring in meat - after slaughter chemical transformations of proteins occurring in meat - meat quality deviation – stress myopathy - determination of ammonia in meat according Folina method
<p>3. Meat decay</p> <ul style="list-style-type: none"> - reasons of meat decay - factors, rate and steps of meat decay - harmful factors for human health in spoiled meat
<p>4. Test for students (Classes in meat plant)</p> <ul style="list-style-type: none"> - post mortem inspection of meat – checking manual
<p>5. Determination of factors of fat decay</p> <ul style="list-style-type: none"> - features of animal fats - hydrolytic and oxidative putrefaction of fat inhibitors and stimulants - determination of acidity number of fat - determination of peroxides content in fat (Lea number). - determination of epihydrinic aldehyde (Kreis test)

6. Meat quality deviation: smell, consistency, color. Dealings with meat expressing quality deviation
- reasons of meat smell and color deviations
 - influence on meat safety
 - icterus – lipochromatosis differentiation - tests:
 - Martin,
 - alkohol-ether,
 - Van den Bergh,
 - Retzlaff
 - Thornton

Allocation of ECTS for the course/module

Course title: Course title: Slaughter animals and meat hygiene I, II, III

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	(56+46+26) 115	4,5
Student's own work	10+10+40	3,5
Total hours/ECTS of student's workload	(66+56+66) 188	8

Hours:

1. Lectures: 30
2. Laboratory / project / language classes / sports classes **: 65
3. Clinical classes **: 20
4. Auditorium / seminar **: 20
5. Internship classes **: 20
6. Practice **: 20
7. Others with the teacher: 20

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-NJ>PraktykaKl
Course Title	SUMMER PRACTICAL TRAINING: ANIMAL CLINIC I
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	8
ECTS / including contact hours	8
Form of instruction (lectures, classes, seminar, other) -Number of teaching	LECTURES: 0
	CLASSES - LAB. GROUP: 0

hours		CLASSES - CLIN. GROUP: 160	
		CLASSES - AUD. GROUP: 0	
Teacher responsible for the course		Marcin Jankowski	
Language of instruction		ENGLISH*	
Prerequisites		Animal anatomy, Biochemistry, Histology and embryology, Veterinary microbiology, Animal physiology, Clinical and laboratory diagnostic, Veterinary pharmacology, Veterinary immunology, Pathophysiology, Veterinary dietetics, Parasitology and invasiology, Pathomorphology, General surgery anaesthesiology, Imaging diagnostic, Diseases of dogs and cats, Diseases of horses, Farm animal disease	
Short description of the course (max. 500 characters)		Introduction to the specificity of work in a veterinary clinic. Performing a clinical examination and veterinary procedures in patients of a veterinary clinic.	
Content of the course unit (detailed description)		Introduction to the principles of the work in a veterinary clinic and the principles of occupational health and safety. Expanding skills related to filling in veterinary documentation, conducting history and clinical examination including: examination of heart rate, breaths and body temperature, assessment of mucous membranes, lymph node examination, improvement of abdominal palpation technique, auscultation and percussion of the chest, refinement of subcutaneous, intramuscular and intravenous injections, performing procedures such as catheterization, punctures, collecting material for laboratory tests, improving patient care for stationary treatment.	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	describes the causes and symptoms of anatomopathological changes, principles of treatment and prophylaxis in individual disease entities	credit (oral)	Wet_WSK_03
2	knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure	credit (oral)	Wet_WSK_04
3	presents the principles of conducting clinical examination and monitoring animal health	credit (oral)	Wet_WSK_05
<i>Skills</i>			
1	conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment	credit (oral)	Wet_USK_02
2	performs a full clinical examination of the animal	credit (oral)	Wet_USK_03

3	collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests	credit (oral)	Wet_USK_06
<i>Social competences</i>			
1	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions	credit (oral)	Wet_KS_02
2	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity	credit (oral)	Wet_KS_05
3	deepens his/her knowledge and improves skills	credit (oral)	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - R. W. Nelson, C. Couto: „Small Animal Internal Medicine”, 2013, Mosby - T. W. Fossum: „Small Animal Surgery”, 2018, Mosby - M. V. R. Kustritz: „Clinical Canine and Feline Reproduction”, 2009, Wiley-Blackwell - C. E. Green: „Infectious diseases of dog and cat”, 2011, Saunders - O. Ditz, B. Huskamp: „Praktyka kliniczna-konie”, 2008, Galaktyka, 2008 - Z. Gliński, K. Kostro: „Choroby zakaźne zwierząt z zarysem epidemiologii zwierząt i zoonoz”, 2003, PWRiL - T. J. Divers, S. F. Peek: „Rebhu’s Diseases of Dairy Cattle”, 2007, Saunders - A. H. Andrews: „Bovine medicine: diseases and husbandary of cattle”, 2004, Blacwell			
Total grade components		<i>grade obtained at classes 100%</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures: -

Titles of classes:

1. Introduction to the specificity and organization of work in the clinic, and applicable health and safety regulations. The student becomes familiar with distribution facilities (emergency room, hospital, operating room, X-ray, etc.) and the system of admitting patients.
2. Introduction to the drugs used in the practice and the way records and dispensing of medicines. Introduction to diets and dietary supplements used in a veterinary clinic.
3. Introduction to the computer program used in the practice.
4. Analysis of the cases registered in the file system of a computer-types of diseases, diagnostic methods, therapeutic methods.
5. Familiarize yourself with the program of prevention of infectious diseases and prevention systems with and combat parasitic diseases in animals treated with the practice. Familiarizing yourself with the medical interview.

6. Improving history, basic clinical examination, performing additional diagnostic methods (imaging techniques, cytological assessment, laboratory tests of blood, urine and other body fluids), collecting material for additional tests.
7. Improving the techniques restraining of the animal and performing basic veterinary procedures, eg injection, establishing access to a vein, catheterization and care treatments (eg: shortening of the claws, cleaning the perianal sinuses, cleaning the ears, etc.).
8. Introduction to the surgical procedures or their improvement: protocols and techniques of anesthesia, techniques of surgical procedures (assisting in the procedures).

Allocation of ECTS for the course/module

Course title: Summer practical training: animal clinic I

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	163	2
Student's own work	100	6
Total hours/ECTS of student's workload	263	8

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **: 160
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>PracC110
Course Title	SUMMER PRACTICAL TRAINING: ANIMAL CLINIC II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	10
ECTS / including contact hours	8
Form of instruction (lectures, classes, seminar, other) -Number of teaching	LECTURES: 0
	CLASSES - LAB. GROUP: 0

hours		CLASSES - CLIN. GROUP: 160	
		CLASSES - AUD. GROUP: 0	
Teacher responsible for the course		Kamila Glińska-Suchocka	
Language of instruction		ENGLISH*	
Prerequisites		Animal anatomy, Biochemistry, Histology and embryology, Veterinary microbiology, Animal physiology, Clinical and laboratory diagnostic, Veterinary pharmacology, Veterinary immunology, Pathophysiology, Veterinary dietetics, Parasitology and invasiology, Pathomorphology, General surgery anaesthesiology, Imaging diagnostic, Diseases of dogs and cats, Diseases of horses, Farm animal disease	
Short description of the course (max. 500 characters)		Introduction to the specificity of work in a veterinary clinic. Performing a clinical examination and veterinary procedures in patients of a veterinary clinic.	
Content of the course unit (detailed description)		Introduction to the principles of the work in a veterinary clinic and the principles of occupational health and safety. Expanding skills related to filling in veterinary documentation, conducting history and clinical examination including: examination of heart rate, breaths and body temperature, assessment of mucous membranes, lymph node examination, improvement of abdominal palpation technique, auscultation and percussion of the chest, refinement of subcutaneous, intramuscular and intravenous injections, performing procedures such as catheterization, punctures, collecting material for laboratory tests, improving patient care for stationary treatment.	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	describes the causes and symptoms of anatomopathological changes, principles of treatment and prophylaxis in individual disease entities	credit (oral)	Wet_WSK_03
2	knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure	credit (oral)	Wet_WSK_04
3	presents the principles of conducting clinical examination and monitoring animal health	credit (oral)	Wet_WSK_05
<i>Skills</i>			
1	conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment	credit (oral)	Wet_USK_02
2	performs a full clinical examination of the animal	credit (oral)	Wet_USK_03

3	collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests	credit (oral)	Wet_USK_06
<i>Social competences</i>			
1	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions	credit (oral)	Wet_KS_02
2	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity	credit (oral)	Wet_KS_05
3	deepens his/her knowledge and improves skills	credit (oral)	Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - R. W. Nelson, C. Couto: „Small Animal Internal Medicine”, 2013, Mosby - T. W. Fossum: „Small Animal Surgery”, 2018, Mosby - M. V. R. Kustritz: „Clinical Canine and Feline Reproduction”, 2009, Wiley-Blackwell - C. E. Green: „Infectious diseases of dog and cat”, 2011, Saunders - O. Ditz, B. Huskamp: „Praktyka kliniczna-konie”, 2008, Galaktyka, 2008 - Z. Gliński, K. Kostro: „Choroby zakaźne zwierząt z zarysem epidemiologii zwierząt i zoonoz”, 2003, PWRiL - T. J. Divers, S. F. Peek: „Rebhu’s Diseases of Dairy Cattle”, 2007, Saunders - A. H. Andrews: „Bovine medicine: diseases and husbandry of cattle”, 2004, Blacwell			
Total grade components		<i>grade obtained at classes 100%</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures: -

Titles of classes:

1. Introduction to the specificity and organization of work in the clinic, and applicable health and safety regulations. The student becomes familiar with distribution facilities (emergency room, hospital, operating room, X-ray, etc.) and the system of admitting patients.
2. Introduction to the drugs used in the practice and the way records and dispensing of medicines. Introduction to diets and dietary supplements used in a veterinary clinic.
3. Introduction to the computer program used in the practice.
4. Analysis of the cases registered in the file system of a computer-types of diseases, diagnostic methods, therapeutic methods.
5. Familiarize yourself with the program of prevention of infectious diseases and prevention systems with and combat parasitic diseases in animals treated with the practice. Familiarizing yourself with the medical interview.

6. Improving history, basic clinical examination, performing additional diagnostic methods (imaging techniques, cytological assessment, laboratory tests of blood, urine and other body fluids), collecting material for additional tests.
7. Improving the techniques restraining of the animal and performing basic veterinary procedures, eg injection, establishing access to a vein, catheterization and care treatments (eg: shortening of the claws, cleaning the perianal sinuses, cleaning the ears, etc.).
8. Introduction to the surgical procedures or their improvement: protocols and techniques of anesthesia, techniques of surgical procedures (assisting in the procedures).

Allocation of ECTS for the course/module

Course title: Summer practical training: animal clinic II

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	163	2
Student's own work	100	6
Total hours/ECTS of student's workload	263	8

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **: 160
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Farmpractice
Course Title	Summer practical training: Farm practice
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ ELECTIVE
Semester of study	4
ECTS / including contact	4 ECTS/with teacher 1

hours			
Form of instruction (lectures, classes, seminar, other) - Number of teaching hours	LECTURES		
	CLASSES - LAB. GROUP:		
	CLASSES - CLIN. GROUP:		
	CLASSES - AUD. GROUP:		
Teacher responsible for the course	Julia Miller		
Language of instruction	ENGLISH*		
Prerequisites	Knowledge from following subjects is required: Animal breeding, Animal nutrition and feed quality, Technologies in animal production, Animal hygiene, Ethology and animal welfare.		
Short description of the course (max. 500 characters)	The aim of the farm practice is to become familiar with the specificity of high production herds/ breeding herds/breeding stables. During routine tasks the student is learning how the farm is organized depending on animal species and production. The aim is to learn the principles of animal production and feeding routine. The student should learn basic procedures carried out on animals depending on group and production specificity.		
Content of the course unit (detailed description)	<p>Becoming familiar with zones and production sectors on the farm, as well as work organization and with the rules of filling the records and different kind of records. Learning how to estimate and express production level and its results and how to analyse production on the farm. Getting familiar with the organization of feeding (food components, sources of food and rules for storing) and the influence of physiological state and production level on the technology of feeding. Preparation of food components and feed ration depending on production group. Getting familiar with restrain methods and moving animals from group to group depending on the group and animal keeping system.</p> <p>Getting familiar with responsibility on each position concerning working with animals. Getting familiar with basic operations carried out on animals by farm workers and farm veterinarian. Getting familiar with technical aspect of boxes/pen preparation depending on animal age; cleaning procedures and way of dung and feces storing.</p>		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	characterises breeds within animal species, as well as principles of animal raising and husbandry;	Oral examination	Wet_WSK_11
2	presents the principles of animal nutrition, taking into account the differences in species and age, as well as the principles of planning and analysing the food doses;	Oral examination	Wet_WSK_13
<i>Skills</i>			

1	uses the collected information associated with the health and welfare of animals, and in selected cases also with productivity of the herd.	Oral examination	Wet_USK_21
<i>Social competences</i>			
1	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	Based on the opinion from farm	Wet_KS_02
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional http://www.calfnotes.com/ https://elearningpigs.com/en/ Principles of cattle production. C.J.C. Philips, CABI Publishing 2001. RUMINANT PHYSIOLOGY. Digestion, Metabolism, Growth and Reproduction. P.B. Cronjé. CABI Publishing 2000. Trade magazines.			
Total grade components		<p><i>Attendance at the internship and completing the internship diary (based on the activities performed and events viewed) 20%.</i></p> <p><i>Presentation of a positive certificate-opinion on the course of the 20% practice.</i></p> <p><i>Final oral examination- 60%.</i></p>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:-

Titles of classes:-

1. Getting familiar with specificity, work organization, and safety procedures on the farm. Student is learning about zones and production sectors on the farm, as well work organization.
2. Getting familiar with rules of filling the records and different kind of records.
3. Getting familiar with production level and its results. Analysis of production on the farm.
4. Getting familiar with organization of feeding (food components, sources of food and rules for storing). Learning the food components and technology of feeding depending on the physiological state and production level.
5. Preparation of food components and feed ration depending on production group.
6. Getting familiar with restrain methods and moving animals from group to group depending on the group and animal keeping system.
7. Getting familiar with responsibility on each position concerning working with animals.
8. Getting familiar with basic operations carried out on animals by farm workers and farm veterinarian.
9. Getting familiar with technical aspect of boxes/pen preparation depending on animal age; cleaning procedures and way of dung and feces storing.

Allocation of ECTS for the course/module

Course title: Summer practical training: Farm practice

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	2	1
Student's own work	60	3
Total hours/ECTS of student's workload	142	4

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>PracticSI10
Course Title	Summer practical training: Food processing plant II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	10
ECTS / including contact hours	4 (1)
Form of instruction (other)	Practice 80 hours / student
Teacher responsible for the course	Aleksandra Tabiś
Language of instruction	ENGLISH*
Prerequisites	Meat Hygiene and slaughter animals I, II, III, Food processing
Short description of the course (max. 500 characters)	The aim of the practices in meat processing plants is to make students familiar with the technology of meat or other animal products processing, methods of packaging, storage and distribution of finished product, as well as with the

	principles of implementation of systems of food quality management (like GMP / GHP, HACCP). During this practice student gets knowledge about the role of veterinary inspection in meat processing plants		
Content of the course unit (detailed description)	The student becomes familiar with the procedures for acceptance and storage of raw materials, technology of meat processing, storage and distribution of finished product. Student gets knowledge about sampling of product and raw material for laboratory tests, and about testing methods. Student learns about quality systems implemented in the plant, especially about HACCP system. He/she gets knowledge about identification of food safety hazards that occur in the plant, about monitoring of Critical Control Points. Student becomes familiar with instructions and procedures which are implemented in food plant and with all GMP / GHP rules.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	characterises the control systems in accordance with HACCP (<i>Hazard Analysis and Critical Control Points</i>) procedures;	Oral examination	Wet_WSK_18
2	knows and interprets the conditions of hygiene and technology of animal production;	Oral examination	Wet_WSK_20
3	knows to an extensive degree, interprets and observes the principles of food law.	Oral examination	Wet_WSK_21
<i>Skills</i>			
1	assesses the quality of products of animal origin;	Oral examination	Wet_USK_23
2	is able to estimate the risk of occurrence of chemical and biological hazards in food of animal origin;	Oral examination	Wet_USK_24
3	assesses the fulfilment of requirements of the slaughter animals protection, taking into account the various methods of slaughter.	Oral examination	Wet_USK_25
<i>Social competences</i>			
1	is ready for reliable self-assessment, formulating constructive criticism in the scope of veterinary practice, accepting criticism of presented solutions, reacting to such criticism in a clear and material manner, also with the use of arguments referring to the available scientific achievements in the discipline;	Oral examination	Wet_KS_06
2	deepens his/her knowledge and improves skills;	Oral examination	Wet_KS_07

3	communicates with the co-workers and shares knowledge;	Oral examination	Wet_ KS_08
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional			
Total grade components		<i>Oral examination based on the knowledge acquired during internships and based on the opinion of the internship supervisor and the internship diary</i>	
Comments:			

List of subjects and exercises for the course/module

Titles

1.	The organizational structure of the pant.
2.	Health and safety regulations in force at the pant.
3.	Tasks veterinary sanitary supervision over processed food.
4.	Formal legal proceedings related to the adoption of raw materials and auxiliary materials.
5.	Technology of production and storage of food in the pant.
6.	Formal legal proceedings related to the issue or sae of the products.
7.	Principles of food sampling for laboratory tests.
8.	Principles of cleaning and disinfection of premises, pant and machinery and transport food.
9.	Rues wastewater treatment pant.
10.	Sanitary Requirements for the location and construction of the pant and facilities and lines.
11.	Quality management systems in the pant (GMP / GHP, HACCP, ISO 9001, ISO 22000).
12.	Principles of sanitary-veterinary documentation.
13.	The current sanitary and veterinary regulations.

Allocation of ECTS for the course/module

Course title: Summer practical training: Food processing plant II

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	Practice: 80h exam: 2h	1
Student's own work	60h	3
Total hours/ECTS of student's workload	142h	4

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>PracticSI8		
Course Title	Summer practical training: Abattoir I		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY		
Semester of study	After 8 semester		
ECTS / including contact hours	4		
Form of instruction (other)	80 h		
Teacher responsible for the course	Aleksandra Tabiś		
Language of instruction	ENGLISH*		
Prerequisites	Sanitary food law, Meat hygiene and slaughter animals I and II,		
Short description of the course (max. 500 characters)	The purpose of the practice in slaughterhouses for cattle, pigs or horses is to teach students with the technology of slaughtering animals, post-slaughter meat processing, organizational structure of the plant and the technique of pre-and post-mortem inspection, as well as keeping veterinary documentation		
Content of the course unit (detailed description)	Students confront the known definitions used in the meat industry and the applicable laws governing sanitary veterinary surveillance in plants processing food of animal origin. Topics include issues relating to the practice of hygiene and infrastructure and the nature of processing laboratory course includes practical exercises (eg, laboratory testing of milk, meat, fish, etc.). The practice in processing plants is to make students familiar with the technology of processing, methods of packaging, storage and distribution of finished product, as well as the principles for the development of food quality systems, self-conducted in facilities and documentation activities in the field of GMP / GHP, HACCP and training.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	presents the principles of consumer health protection, which are ensured by appropriate supervision over the production of foodstuffs of animal origin;	Oral examination	Wet_WSK_17
2	characterises the control systems in accordance with HACCP (<i>Hazard Analysis and Critical Control Points</i>)	Oral examination	Wet_WSK_18

	procedures;		
3	knows to an extensive degree the procedures of pre- and post-mortem inspection;	Oral examination	Wet_WSK_19
<i>Skills</i>			
1	is able to perform pre- and post-mortem inspection;	Practical examination	Wet_USK_22
2	assesses the quality of products of animal origin;	Practical examination	Wet_USK_23
3	is able to estimate the risk of occurrence of chemical and biological hazards in food of animal origin;	Practical examination	Wet_USK_24
<i>Social competences</i>			
1	is ready to act in the conditions of uncertainty and stress;	Oral examination	Wet_KS_09
2	cooperates with representatives of other professions in the scope of public health protection;	Oral examination	Wet_KS_10
3			
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional			
Total grade components		<i>The oral exam and credit based on the opinion of the internship supervisor at the slaughterhouse and the internship diary</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of classes:

1. The organizational structure of the slaughterhouse.
2. Health and safety regulations in force at the slaughterhouse.
3. Tasks veterinary sanitary supervision over the purchase and transport of animals for slaughter.
4. Tasks sanitary veterinary surveillance in slaughterhouses slaughter animals.
5. Formal legal proceedings related to the adoption of slaughter animals to the slaughterhouse.
6. Ante-mortem technique.
7. Proceedings of the animals after the ante-mortem technique.
8. Methods of stunning and slaughter of animals for slaughter.
9. Deadweight technological processing of animal carcasses.
10. Organization and post-mortem meat inspection technique.
11. Principles of meat samples for laboratory tests.
12. Trichinoscopic methods.
13. Sanitary evaluation and labeling of meat from animals slaughtered.
14. Handling the meat and unfit for consumption.

15. Animal by-products
16. Principles of cleaning and disinfection of premises, machinery and equipment and transportation of animals and meat.
17. Principles of sewage treatment in slaughterhouses.
18. Sanitary Requirements for the location and construction of slaughterhouses and facilities and lines.
19. Principles of sanitary-veterinary records in a slaughterhouse.
20. The current sanitary and veterinary regulations.

Allocation of ECTS for the course/module

Course title: Summer practical training: Abattoir I

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	80 h of practice 2h exam	1
Student's own work	40 h	3
Total hours/ECTS of student's workload	142 h	4

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Surgery
Course Title	Surgery and anaesthesiology
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	6
ECTS / including contact hours	4/2
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 15
	CLASSES - LAB. GROUP: 16
	CLASSES - CLIN. GROUP: 14
	CLASSES - AUD. GROUP:
Teacher responsible for the course	Zdzisław Kielbowicz
Language of instruction	ENGLISH*
Prerequisites	Animal anatomy and physiology
Short description of the course (max. 500 characters)	Students acquire basic knowledge of emergency aid to animals after a traffic accident, surgical preparation of

	wounds and their treatment. Perform intravenous cannulation and intubation with tracheotubus. Will be prepared to perform basic surgical procedures such as suturing wounds, stopping bleeding, removing a small tumor, dislocation, and performing the dressing fixing the broken limb. Perform local and intravenous anaesthesia for short surgical procedures. At the basic level will perform a mechanical breath with Ambu bag, fluid management and be able to connect the infusion set and a pulse oximeter to measure blood oxygenation and pulse rate		
Content of the course unit (detailed description)	<p>Lectures: Surgery, surgical cleanliness. Traumatology-trauma, wounds and their treatment. External and internal injuries - bleeding, hematoma, contusion, concussion, and their treatment. Specific inflammation of bacterial and fungal etiology. Surgical musculoskeletal disorders. Hernias and cancers. Preparation of animals to the anesthesia and surgical procedures. Induction anesthesia, the essence and indications. General infusion and general inhalation anesthesia. Local anesthesia. Complications of anesthesia. Resuscitation and cardiopulmonary resuscitation CPR. Supervision algorithms of the animals in anesthesia and during postoperative period.</p> <p>Classes: Animal handling: students are acquainted with rules at the clinic and surgery room together with principles of safe work with animals. Asepsis and antisepsis in surgery. Surgical Instruments. Desmurgy: wound dressings, compression and restraining dressings. Test I. Anesthesiology – horses, cattle and small ruminants, pigs, small animals. Test II.</p> <p>Practical classes: in ambulatory and operating rooms for large and small animals and in laboratory and radiology lab: Active preparing of animals by the students for surgery (clipping, shaving, intramuscular injections, connecting of infusion set under medical supervision). Assisting in small surgical procedures. Active student participation in anaesthetic procedures under medical supervision (intubation, vein catheterization), monitoring of the patient (pulse oximetry, capnometry, EKG, mucous membrane colour, pulse, respiration, blood pressure, CRT) and completed the protocol of anesthesia</p>		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the	Credit (test)	Wet_WO_01

	organ, animal, to the entire animal population;		
2	knows to an extensive degree, describes in detail and explains the development, structure, functioning, behaviours and physiological mechanisms of animals in normal conditions, as well as the mechanisms of disorders in pathological conditions;	Credit (test)	Wet_WO_02
3			
<i>Skills</i>			
1	conducts clinical examination of the animal in accordance with the principles of medical art;	Credit (test)	Wet_UO_01
2	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	Credit (test)	Wet_UO_02
3	plans the diagnostic procedure	Credit (test)	Wet_UO_03
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;		Wet_KS_01
2	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;		Wet_KS_02
3	deepens his/her knowledge and improves skills;		Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) T.W. Fossum – Small animals surgery. Elsevier Urban&Partner Wrocław 2009 Anesthesia for the Pet Practitioner, Revised 3rd Edition by Banfield Pet Hospital			
Total grade components		<i>80% - rating obtained from tests (material from classes and lectures) and 20% rating from practical activity during classes (practical skills, oral answer)</i>	
Comments:			

List of subjects and exercises for the course/module

1. Surgery, surgical cleanliness.

Infrastructure of surgical clinic with ambulatory, facilities where animals are prepared for surgery and anaesthesia. Today's requirements for the structure and operating room equipment, preparation of surgical field, surgical instruments, hand washing and preparation of the surgical team for surgery. Rules of aseptic and antiseptic conduct in the operating theatre

2. Traumatology- trauma, wounds and their treatment.

Sharp and blunt trauma in veterinary medicine - abrasion, tear, wound. Wound breakdown due to their etiology and ways of healing by- primary adhesion, granulation, and the under the scab (sanatio per primam et per secundam et sub crustacea intentionem). Principles of wound treatment - excision of primary and secondary. Ways to suture wounds using absorbable and non-absorbable materials for sewing. Autogenous grafts of skin.

3. External and internal injuries - bleeding, haematoma, contusion, concussion, and their treatment

The modalities of conservative and surgical treatment in arterial and venous haemorrhage. Rules of preparing dressing in haemorrhage in various parts of the body in animals. Methods of treating haematomas. The use of physiotherapy techniques in the treatment of bruises after a traffic accident. Post-traumatic concussion - diagnosis and therapy. The pathology of frostbite and burns in animals and their treatment

4. Specific inflammation of bacterial and fungal etiology.

Principles of surgical treatment of abscess and empyema. Paracenteza and optimal incision and evacuation of pus. Modern antiseptics and drains used for irrigation and run off purulent exudate. Pyaemia and phlegmon in animals and their treatment. The occurrence of actinomycosis in animals and methods of diagnosis and surgical treatment. Iatrogenic complications after castration in the form of sander - conservative and surgical treatment

5. Surgical musculoskeletal disorders

Consequences of twisting in the joints and methods for their treatment of physiotherapy and medication. The most common dislocation in animals, diagnostics, methods of conservative treatment for dislocation and the use of surgical methods. Fractures of long and flat bones, and vertebrae in small and large animal. Divisions of bone fractures in different categories of eligibility. Methods and basic principles of conservative and surgical treatment of fractures

6. Hernias and cancers.

General definition of hernias and their types. Division of hernia due to their causes. Symptoms, consequences and diagnosis of hernias. Complications at various hernias caused by lack of surgical intervention. The methods of surgery in the treatment of hernias and pseudohernias. Occurrence of tumors in animals. Cancers of soft tissue and bone. Principles of surgical removal of cancerous tumors

7. Preparation of animals to the anaesthesia and surgical procedures.

Development and progress in veterinary surgery. The most important inventions in the field of anaesthesia in large and small animals . The introduction of the principles of antisepsis and asepsis in medicine. Preparation of animals to the anaesthesia and surgery. Indications for pharmacological immobilization of the animal. Tranquilizers used for pharmacological sedation: fenotiazyn derivatives, alpha-2 agonists, benzodiazepines, and derivatives of butyrofenon. Analgesic treatment in patients during and after surgery with the use of opioids and nonsteroidal anti-inflammatory drugs

8. Induction anaesthesia, the essence and indications.

Definition of basic sleep and characteristics of drugs inducing this state. Hypnotics from Hypnotica group. Venous cannulation technique. Drugs causing miorelaxation having central and peripheral action. Laying large animals by using mechanical and pharmacological methods.

9. Maintenance of surgery tolerance - general infusion anaesthesia .

Totally intravenous anaesthesia - TIVA. Characteristics of barbiturates short and medium long-acting. Advantages and dangers of barbiturates in anaesthesia of large and small animals . Dissociative anaesthesia with ketamine hydrochloride in combination with other hypnotic drugs. Infusion anaesthesia with propofol for treatment of animals with increased risk of anaesthesia. The use of fentanyl in a painful surgical operations.

10. Maintenance of surgery tolerance - general inhalation anaesthesia .

Rules of intubation with tracheotubus and possible complications resulting from obstruction of the upper respiratory tract. The use of oral facial masks. Characteristics of drugs for inhalation anaesthesia. The most commonly used anaesthetic systems for anaesthesia of large and small animals. Procedures ad hoc or planned tracheotomy or tracheostomy

11. Local anaesthesia.

The most commonly used analgesics for surface anaesthesia of the mucous membranes. Methods of infiltration anaesthesia. Perineural anaesthesia in large and small animals . Regional anaesthesia.

12. Complications of anaesthesia.

Complications of local and general anaesthesia. CNS respiratory failure. Obstructive respiratory insufficiency. Restrictive respiratory failure. IPPV artificial respiration

13. Complications of cardiac anaesthesia.

Causes of complications related to cardiovascular failure. Cardiovascular depression resulting in hypoglycemia and oligovolemia the rise of a shock. Therapeutic modalities for bradycardia and tachycardia. Algorithm for cardiac and respiratory arrest

14. Resuscitation and cardiopulmonary resuscitation CPR

The use of mechanical-assisted breathing. Heart massage -directly and indirectly. Fluid management in the hipo and oligovolemia caused by anaesthesia and the cardiovascular system failure. Vasopresors as drugs that improve blood circulation. Positive inotropic drugs that increase capacity ejection.

15. Supervision algorithms of the animals in anaesthesia and during postoperative period.

Principles of non-invasive and invasive monitoring techniques . Ethical aspects of resuscitation and euthanasia of animals. Oversight of the nervous and cardiopulmonary system by an anaesthesiologist. Monitoring the anesthetized patient with capnometer and pulse oximeter. Measurement of blood pressure, central venous pressure and gas analysis based on performance evaluation of the patient during anaesthesia

Titles of classes:

1. Handling of animals.

Rules of conduct and safety working with large and small animals . Methods of restraining large and small animals with the use of mechanical and pharmacological methods. The use of instruments and cables to stabilize the head and limbs. The use of mechanical devices to repress the cattle and horses. Ambulatory and the operating theatre - the principle of mobility, equipment and supplies, medicines

2. Asepsis and antisepsis in surgery.

Getting familiar with the construction and operation of autoclave and ethylene oxide sterilizer. Practical Application of the principles of asepsis and antisepsis in the operating room. Getting know the most commonly used disinfectants. The rules for hand washing and dressing the surgical clothing and methods of wearing gloves. Anaesthetic preparation of the patient for operation and preparation of the operating field. Preparing the operating room and support staff to carry out surgery

3. Surgical Instruments

A set of basic tools to carry out operations on soft tissues. Demonstration of administration and use of instruments during surgery. Special tools used in thoracic surgery, urology, aural, ophthalmic,. Instruments for orthopedic surgery and demonstration of osteosynthesis implants. Demonstration of electric knife, operation sucker, pulse oximeter and the general principles for using the apparatus for inhalation anaesthesia .

4. Desmurgia

Approaches to the establishment wound dressings under the band. Applying a soft gauze dressings and gel. Compression bandages used for haemostasis and compression used in orthopedic surgery of large animals. Approaches to the establishment of restraining bandages, plaster and synthetic plastics bonding after contact with air or water. Making cooling and warming compresses after injuries in orthopedic diseases

5. final test

6. Anaesthesiology - horses.

Demonstration of apparatus, tools and medicines to comply with local anaesthesia. Epidural anaesthesia. Diagnostic anaesthesia of finger joints in horses. Perineural anaesthesia of horses head. Perineural analgesia of limbs in horses

7. Anaesthesiology - cattle and small ruminants, pigs.

Local anaesthesia of head of cattle, sheep and goats. Local anaesthesia of fingers in cattle, sheep and goats. Infiltration anaesthesia of the abdomen in cattle, sheep, goats and pigs. Paravertebral anaesthesia in cattle. Anaesthesia epiduralis, perineum and groin (segmental anaesthesia epiduralis).

8. Anaesthesiology - small animals.

Local anaesthesia of a cat and a dog's head. Local anaesthesia of limbs. Epidural anaesthesia and brachial plexus. Inhalation anaesthetics and types of anaesthetic apparatus and methods of inhalation anaesthesia. Practical training in the field of resuscitation and resuscitation with cardiopulmonary insufficiency

9. final test

10,11,12,13,14,15. Clinical exercises in clinics ambulatory and operating rooms for large and small animals and in laboratory and radiology lab (digital radiography, ultrasound, endoscopy).

Active participation and cooperation of students under the supervision of a veterinarian in diagnostic procedures of patients. Active preparing of animals by the students for surgery (clipping, shaving, intramuscular injections, cannulation of vein and connecting of infusion set under medical supervision).

Active student participation in anaesthetic procedures under medical supervision and monitoring of the patient (pulse oxymetri, capnometria, EKG, intubation , fluid management, control the level of general anaesthesia, mucous membrane colour, pulse, respiration, blood oxygenation, blood pressure, capillary filling time and completed the protocol of anaesthesia, use of recording equipment

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	Lectures: 15 Laboratory / project / language classes / sports classes **: 16 Clinical classes **: 14 Others with the teacher: 1	2
Student's own work	50	2
Total hours/ECTS of student's workload	96	4

Hours:

1. Lectures:
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>TechProd
Course Title	Technologies in animal production

Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	4
ECTS / including contact hours	2/1,5
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15
	CLASSES - LAB. GROUP: 15
	CLASSES - CLIN. GROUP: -
	CLASSES - AUD. GROUP: -
Teacher responsible for the course	Anna Rzaša
Language of instruction	ENGLISH
Prerequisites	Before taking part in „Technology in animal production” a student should be after courses: Animal breeding, Animal nutrition, Animal hygiene, Ethology, Breeding practice
Short description of the course (max. 500 characters)	The aim of the study is presentation of large scale animal production specificity. Characteristic of different species industry farms; how to estimate different technologies used at farms and some modernization resolutions there. Presentation of animal production organization in different objects. Stock structure and timetable.
Content of the course unit (detailed description)	Animal production meaning and course of action. Characteristic of industry farms. Organisation of animal production. Detailed technologies in pigs production: organisation of production sectors: farrowings- farrow pens, piglets rearing, nursery, fattenings, reproduction. Detailed technologies in cattle production: stall and freestall barns, with and without bedding materials, calf and heifers maintenance, mechanical milking. Mating and farrowing/calving schedule in farms with pigs or cattle. Production schedule at pigs and cattle farms. Ecological trends and organization of animal production. Technical and technological news in large scale farms.

Learning outcomes (max. 3)

<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>

<i>Knowledge</i>			
1	Explain large scale animal production specificity and describe different maintenance and animals' nutrition systems	Written tests and assessment of oral presentations	Wet_WO_02 Wet_WO_07 Wet_WO_08 Wet_WO_11
2	Point the current trends in animals maintenance		
3	Propose and plan new modernize solutions in farm buildings		
<i>Skills</i>			
1	Plan animals' production in different farms	Written tests and assessment of oral presentations	Wet_UO_04
2	Plan cattle and pigs farms depending on different technologies and work schedule in different production sectors		
3	Integrate the knowledge from different disciplines		
<i>Social competences</i>			
1	Cooperate with stockman	Ongoing assessment of executing commands and individual work	Wet_KS_04 Wet_KS_07 Wet_KS_10
2	Evaluate economical effects technologies used at farm		
Literature (max. 8, including Youtube presentations, etc.) The same recommended at : Animal Breeding course, Zoohigene Gordon I.: Reproductive technologies in farm animals. CABI publishing 2004 websites where subject-related content is presented			
Total grade components		Basis on the final note is taking part in lectures and classes (it is allowed to have 1 absence at a lecture and 1 at a class) and the weighted arithmetic mean calculated from notes obtained from: prepared and presented report (value-3), written test (value 5) and the note must be positive, and additional notes for short test (value 2).	
Comments:			

Titles of lectures:

- 1,2,3. Animal production meaning and course of action. Characteristic of industry farms. Management of farm production (object-animals/ inputs, moving/ dejecta/outputs/ final product). Production sectors at farm.
- 4,5,6. Detailed technologies in animal production (farrowing/calving area)
- 7,8. Detailed technologies in animal production (weaners and fatteners, calves and heifers maintenance)
- 9,10. Detailed technologies in animal production (reproduction sector at pig farms))
- 11,12. Detailed technologies in dairy cattle farms Part I (cowsheds with tie stalls, loose and open barns, bedded and unbedded barns).
- 13,14. Detailed technologies in dairy cattle farms Part II (milking parlours).
15. Review of advanced technologies.

Titles of classes:

- 1,2. Mating and farrowing/calving schedule in farms with pigs or cattle.
Calculation of predicted/planned farm productivity, timetable for occupation of farrowing/calving pens with different farrowing/calving frequency during the year.
- 3,4. Giving up subjects for self preparation. Production schedule at cattle farm (turnover).
- 5,6. Production schedule at pigs farm (turnover).
- 7,8. Written test.
- 9,10. Presentation of own conception of cattle farm working basis on own materials and teachers' assumptions.
- 11,12 Presentation of own conception of pig farm working basis on own materials and teachers' assumptions.
- 13,14. Written test.
15. Repetytory.

Allocation of ECTS for the course/module

Course title: Technologies in animal production

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	32	1,5
Student's own work	10	0,5
Total hours/ECTS of student's workload	42	2

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **: 15
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

Załącznik 2.5

Sylabus przedmiotu/modułu kształcenia

Code	MWW-AJ>AdmLAW		
Course titel	Veterinary admimistration and law		
Subject area/Field of the study	Veterinary		
Study cycle	full		
Profile	General		
Type of course	<u>compulsory</u>		
Semester of study	10 (V year)		
ECTS / including contact hours	2 (0/2)		
Form of instruction (lectures, classes, seminar, other)	Classes: 30 (0/30)		
-Number of teaching hours			
Teacher responsible for the course	Krzysztof Rypuła		
Language of instruction	English		
Prerequisites	Anatomy, Biology, Statistic, Vet. Bacteriology, Vet. Virology, Veterinary epidemiology, Infectious diseases of dogs and cats, Infectious diseases of farm animals, Infectious diseases of horses, Food hygiene, Farmakology		
Short description of the course (max. 500 characters)	The aim of the course is to acquaint students with the terminology used in the veterinary administration and legal (administrative) tools used in administrative proceedings involving the official investigation in the procedures against spread of infectious diseases in populations.		
Content of the course unit (detailed description)	Students learn the principles and models of the formation of the administrative proceedings in the veterinary structure in veterinary Inspection, learn the rules of conduct against epidemic problems, the legal administration basis for an administrative decision.		
Learning outcomes			
<i>No.</i>	<i>Learning outcomes</i>	<i>Method</i>	<i>No of learning outcome in standard</i>
Knowledge			
1	presents the biology of infectious factors that cause diseases transmitted between animals, as well as anthroozoonoses, taking into account the mechanisms of disease transmission and defense mechanisms of the macroorganism	test, oral answer	Wet_ WO_05
2	identifies and describes in detail the principles of management and utilisation of animal by-products and waste associated with animal production	test, oral answer	Wet_ WO_08
3	presents the basic IT and biostatistic methods used in veterinary medicine.	test, oral answer	Wet_ WO_13

Sills			
1	effectively communicates with employees of control bodies and offices, as well as central and local government administration	test, oral answer	Wet_UZU_04
2	monitors health of the herd, as well as undertakes action in the case of a disease that is subject to the obligation of disease eradication or its registration;	test, oral answer	Wet_UO_04
3	performs activities that are associated with the veterinary supervision, including trade in animals, as well as sanitary and veterinary conditions of animal gathering locations and processing products of animal origin;	test, oral answer	Wet_UO_06
4	performs an epizootic investigation in order to determine the period of time, during which a contagious disease may have developed on the farm before suspecting or establishing its occurrence, place of origin of the source of the animal contagious disease, along with determination of other farms and the pathways of movement of people, animals and objects that could cause the spread of an infectious disease to or from the farm;	test, oral answer	Wet_USK_17
Competences			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	test, oral answer	Wet_KS_01
2	cooperates with representatives of other professions in the scope of public health protection	test, oral answer	Wet_KS_10
Literature (max. 8 positions)		Veterinary law, EU regulations, National regulations, Administrative proceeding code, Civil code.	
Credit		Final grade is the average of 2 notes received:	

	- During classes (average of all tests, oral answers) (33.3%) - 1st test (66.6%)
Remarks	The groups - max. 20 persons.

Detailed description of classes with indicated hours

Subjects of classes:

1. Veterinary law and history. Rules of the subject. Division of the law. (division into the work groups of students)	2L
2. Sources of the European and Polish law. The use of the administrative proceeding in veterinary law.	2L
3. Administrative proceeding in the veterinary administration in control of infectious diseases. Existing legislation on the control of infectious animal diseases. Glossary legislative framework for the control of infectious animal diseases. Control and notification infectious diseases, notification of the zoonotic agents.	2L
4. Administration law. I Country organs. Veterinary Inspection organs, Autonomy organs. Law regulation of the veterinary physician occupation.	2L
5. Administrative proceeding in the veterinary administration in control of infectious diseases.	2L
6. Screening of infectious diseases in Poland. Screening of zoonoses. Elimination of infectious diseases according to the UE plans and contingency plans.	2L
7. Sources of the European and Polish law. The use of the administrative proceeding in veterinary law.	2L
8. Pharmaceutical law and rules of proceeding with animal by-products and derived products not intended human consumption.	2L
9. The preparation of the decision and ordinances of district veterinary officer.	2L
10. Test	2L

ECTS for the course

Subject:

Activity	No of hours in activity
	obligatory
Hours of classes with the teacher (classes, consultations, credit, exam)	30
Preparation for classes	30
Study report / project / presentation / report / herbarium / mock	-
Preparation for exam	-
Total hours (total student workload)	60
ECTS points	
It contains	
Work with teacher	
Student work	

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Dietetics
Course Title	Veterinary dietetics
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	8
ECTS / including contact hours	2/1
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15
	CLASSES - LAB. GROUP: 15
	CLASSES - CLIN. GROUP: not applicable
	CLASSES - AUD. GROUP: not applicable
Teacher responsible for the course	Agnieszka Kurosad
Language of instruction	ENGLISH*
Prerequisites	Anatomy, Biochemistry, Physiology, Pathophysiology, Animal nutrition and feed science, Clinical and laboratory diagnostics
Short description of the course (max. 500 characters)	The course aims to present the dietary management of specific disease with an explanation of their etiopathogenesis and development mechanisms.
Content of the course unit (detailed description)	The aim of teaching the subject is to provide students with basic knowledge about dietary procedures in specific disease and knowledge of veterinary diets and dietary supplements applied adequately to the disease entity being

		treated. The subject is also intended to present dietary diagnostic tools and their application.	
Learning outcomes (max. 3)			
Nr No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	credit (test)	Wet_WO_03
2	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	credit (test)	Wet_WO_04
3	presents the principles of animal nutrition, taking into account the differences in species and age, as well as the principles of planning and analysing the food doses;	credit (test)	Wet_WSK_13
<i>Skills</i>			
1	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;		Wet_UO_02
2	plans the diagnostic procedure;		Wet_UO_03
3	assesses the nutritional status of the animal and provides advice in this scope;		Wet_USK_05
<i>Social competences</i>			
1	uses the objective sources of information;		Wet_KS_04
2	deepens his/her knowledge and improves skills;		Wet_KS_07
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional:			
<ol style="list-style-type: none"> 1. FEDIAF Nutritional Guidelines for Complete and Complementary Pet Food for Cats and Dogs. www.fediaf.org 2. Hand. M.S. et al.: Small Animal Nutrition, 4th ed. Mark Morris Institute. Topeka. Kansas. 2000 3. Pibot P. et al.: Encyclopedia of Canine Clinical Nutrition. Aniwa SAS, Royal Canin. Paris. France. 2006 4. Pibot P. et al.: Encyclopedia of Feline Clinical Nutrition. Aniwa SAS, Royal Canin. Paris. France. 2008 5. Case L. et al.: Canine and Feline Nutrition. Mosby Elsevier. USA. 2011 6. Nutritional Research Council of the National Academies: Nutrient Requirements of Dogs and Cats. 			

The National Academic Press. Washington D.C. 2006	
Total grade components	<i>the total grade is the average of the ratings obtained</i>
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

1. Diet, concept and types of diets
2. Diet in diseases of growing animals
3. Diet in cancer
4. Diet in skin diseases
5. Lipid disorders, diet
6. Diet in diseases of the gastrointestinal tract: oral cavity, stomach diseases
7. Diet in diseases of the gastrointestinal tract: SIBO, enteropathies, IBD
8. Diet in diseases of the gastrointestinal tract: large intestine
9. Diet in liver diseases
10. Diet in osteoarticular diseases (problems of large growing dogs, older dogs, sports dogs)
11. Diet in endocrine diseases: diabetes, hypothyroidism, hyperadrenocorticism
12. Diet in heart disease: DCM, HCM, taurine
13. Diet in the aspect of production - production of dry and moist diets
14. Legislation, legal norms (PL) in the aspect of food and diets
15. Legislation of EU legal norms in the aspect of food and diets

Titles of classes:

1. Diet - types of diets (commercial, home-made), label evaluation
2. Calculation of energy demand, determining the food dose for sick animals
3. Diet in metabolic diseases: diabetes, obesity, body condition scale, glycemic index, glycemic load
4. Enteral and parenteral nutrition, convalescent diets
5. Diet in diseases of the kidneys and lower urinary tract
6. Adverse reactions to food, hypoallergenic, elimination diets, diet with an unusual source of protein, mono-protein
7. Passing classes - test

Allocation of ECTS for the course/module

Course title: Veterinary dietetics

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	31	1
Student's own work	20	1
Total hours/ECTS of student's workload	51	2

Hours:

1. Lectures:15
2. Laboratory / project / language classes / sports classes **:15
3. Clinical classes **::
4. Auditorium / seminar **::
5. Internship classes **::
6. Practice **::
7. Others with the teacher:1

* choose the right one

** if applicable

Załącznik 2.5

Sylabus przedmiotu/modułu kształcenia

Code	MWW-AJ>Epidemiology		
Course titel	Veterinary Epidemiology		
Subject area/Field of the study	Veterinary		
Study cycle	full		
Profile	General		
Type of course	<u>compulsory</u>		
Semester of study	5 (III year)		
ECTS / including contact hours	2 (0/2)		
Form of instruction (lectures, classes, seminar, other)	Classes: 30 (0/30)		
-Number of teaching hours			
Teacher responsible for the course	Krzysztof Rypuła		
Language of instruction	English		
Prerequisites	Anatomy, Biology, Histology, Statistic, Vet. Bacteriology, Vet. Virology		
Short description of the course (max. 500 characters)	The subjects contains: rules and epidemiological models of outbreak and spreading of infectious diseases. The rules of epidemiological investigation and the standard of immunoprofilaxis, treatment and diagnostic in infection diseases of animals.		
Content of the course unit (detailed description)	Students learn the rules and epidemiological models of outbreak and spreading of infectious diseases. Students learn the rules of epidemiological investigation, phenomenon of immunity in infectious diseases, the standard of immunoprofilaxis, treatment and diagnostic in infection diseases of animals.		
Learning outcomes			
<i>No.</i>	Learning outcomes	<i>Method</i>	No of learning outcome in standard
Knowledge			
1	presents the biology of infectious factors that cause diseases transmitted	test,	Wet_ WO_05

	between animals, as well as anthroozoonoses, taking into account the mechanisms of disease transmission and defense mechanisms of the macroorganism	oral answer	
2	identifies and describes in detail the principles of management and utilisation of animal by-products and waste associated with animal production	test, oral answer	Wet_WO_08
3	presents the basic IT and biostatistic methods used in veterinary medicine.	test, oral answer	Wet_WO_13
Sills			
1	uses his/her professional skills to improve the quality of veterinary care, animal welfare, as well as public health;	test, oral answer	Wet_USP_19
2	collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests;	test, oral answer	Wet_USK_06
3	performs an epizootic investigation in order to determine the period of time, during which a contagious disease may have developed on the farm before suspecting or establishing its occurrence, place of origin of the source of the animal contagious disease, along with determination of other farms and the pathways of movement of people, animals and objects that could cause the spread of an infectious disease to or from the farm;	test, oral answer	Wet_USK_17
Competences			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	test, oral answer	Wet_KS_01
2	cooperates with representatives of other professions in the scope of public health protection	test, oral answer	Wet_KS_10
Literature (max. 8 positions)		1. Kita J., Kaba J. (2009). Podstawy Epidemiologii weterynaryjnej. Ed. 1 SGGW, Warszawa 2. Smith R.D. (2005). Veterinary Clinical Epidemiology. Ed. 3 CRC Press, London	

	<p>3. Thrusfield M. (2018). Veterinary Epidemiology. Ed. 5 Blackwell Science</p> <p>4. Anderson R., Kumaran K., Somerville M. (2016). Public Health and Epidemiology at a Glance. Ed. 2 Willey-Blackwell.</p>
Credit	<p>Final grade is the average of 3 notes received:</p> <ul style="list-style-type: none"> - During classes (average of all tests, oral answers) (33.3%) - 1st test (33.3%) - 2nd test (33.3%)
Remarks	The groups - max. 20 presons.

Detailed description of classes with indicated hours

Subjects of classes:

<p>Development of veterinary epidemiology. factors to give preferential treatment to giving rise to infectious diseases</p> <p>Veterinary epidemiology and epizootology. History of eizootiology/epidemiology in Poland. Contemporary dangers of infectious diseases. Conditions for development diseases: organism, etiological factor, Environmental factors, interactions between environmental factors, basic definitions and terms: germ, infectious and its kinds, source of infectious, infectious diseases diffusion – different ways – in environmental, in population and in organism.</p>	2L
<p>Occurrence of infectious diseases in population</p> <p>Diffusion of infectious diseases in a population. Epizootic potential, development of infectious primary factors: germ + exposition + disposition, secondary factors. Types of pests. Basis measurement of morbidity and mortality</p>	2L
<p>Occurrence of infectious diseases in population and method in epidemiology analyzis</p> <p>Analysis of health state. Measures, which can describe presence and evolution of diseases in population. Analysis of survival.</p>	2L
<p>Conduct in focus infectious disease – diagnostic, laboratory methods. Part 1</p> <p>Methods of collection of diagnostic materials to laboratory analysis. sampling of diagnostic methods. Recognizing infectious diseases – direct methods to recognize infectious diseases.</p>	2L
<p>Conduct in focus infectious disease – diagnostic, laboratory methods. Part 2</p> <p>Recognizing infectious diseases – indirect methods to recognize infectious diseases.</p>	2L
<p>Methods and instruments using to epidemical analysis</p> <p>Collecting and processing figures- profile of population. Measure of central tendency, measure of dispersion, confidence interval. Computer program WinEpi.</p>	2L
<p>Surveys and clinical studies</p> <p>The exercise includes: the statistical basis of sample selection, the types and means of selecting the sample to be sampled, the selection of the sample for the determination of morbidity and prevalence in the population. Types and characteristics of clinical trials.</p>	2L
Test no 1	2L

Epidemiologic investigation – elements Rules of conducting of epidemiologic investigation. Kinds of diagnostic materials. Transport of diagnostic materials according to kind of infectious material. Methods recognition of infectious diseases	2L
Treatment of infectious disease outbreak. Part 1 The exercise includes: the concept and types of bio-insurance and the management of the infected herd / farm. Elimination of the outbreak, humanitarian killing of infected and suspected animals, cleansing, disinfection of deratization, methods of checking the effectiveness of disinfection, and disinfestation.	2L
Proceedings in the focus of infectious disease and the environment - the focus of the farm. Preventive measures in the farm, herd and region Part 2 The exercise includes: herd management with epizootic threat. Types of vaccines, principles of their use depending on the epizootic situation. Types of sera, gammaglobulins and their routes of administration and use in the course of infectious diseases of domestic and farm animals.	2L
Health care of animals and rules of infectious diseases control Programs of health care of animals (cattle, pigs, sheeps, goats) in farm. Programs of health care of animals in country. Tagging of animals. Legislative acts by health care of animals. Ethics Commission – possibility to using animals in diagnostic of infectious diseases..	2L
Computer programs to infectious diseases control. Computer programs using in UE (ANIMO, TRACES) and in the country (ZChZZ, SPIWET, CELAB).	2L
Test No 2	2L
Credit for the exercises	2L

ECTS for the course

Subject:

Activity	No of hours in activity	
	obligatory	-
Hours of classes with the teacher (classes, consultations, credit, exam)	30	-
Preparation for classes	30	-
Study report / project / presentation / report / herbarium / mock	-	-
Preparation for exam	-	-
Total hours (total student workload)	60	-
ECTS points		
It contains		
Work with teacher		
Student work		

Course description - SYLLABUS

Code	MWW-AJ>Economics		
Course Title	Veterinary Economics		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY/ELECTIVE		
Semester of study	1		
ECTS / including contact hours	1		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 0		
	CLASSES - LAB. GROUP: 0		
	CLASSES - CLIN. GROUP: 0		
	CLASSES - AUD. GROUP: 15		
Teacher responsible for the course	ROBERT KARZMARCZYK		
Language of instruction	ENGLISH*		
Prerequisites	<i>none</i>		
Short description of the course (max. 500 characters)	The aim of the course is to get the students known about general economy rules and precisely veterinary market. Students know economical mechanisms of macro- and microeconomy. They know the free market system in Poland EU and world range.		
Content of the course unit (detailed description)	Students know how to assess the bussines environmet for their own company. They are prepared to start they own bussines or to work as a employee in private company or in state veterinary service. They also know the junctions between the level of society standard living and service market profitability. Students know methods of estimation of the market on the county, voivodship and country level.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	Can assess profitability of veterinary practice	Written group work	Wet_WO_07
2	Describes the rules of xpenditure planning and cost reduction		Wet_WO_11

3	Can estimate different types of service and product available in veterinary practice in the free market		Wet_WO_13
<i>Skills</i>			
1	Measures the growth of local veterinary market		Wet_UO_10
2	Check potential demand and supply on the market		Wet_UO_9
3	Plans and turns into action economical activities in the veterinary practice		Wet_UO_10
<i>Social competences</i>			
1	Estimates the animal health status in the area of individual companion animals and herd		Wet_KS-04
2	Is able to make up the decision based on veterinary and economical data and circumstances		Wet_KS-08
3	Communicates with the client informing about the veterinary and economical basis of decision made		Wet_KS-05
Literature (max. 8, including Youtube presentations, etc.) - compulsory - complementary/optional Economics”, Soman “Core economics”, Stone “Veterinary practice management. A practical guide”, M. Shilcock, Saunders 2005 “Managing Veterinary Practice”, Caroline Jevring-Back, Saunders Elsevier 2007			
Total grade components		<i>e.g. grade obtained at classes (20%) + written group work (80%)</i>	
Comments: Final grade based on written group work. Critical condition to write the final written group work is to fulfill all classes. Absences must be passed in individual way given by the teacher.			

List of subjects and exercises for the course/module

Titles of lectures: none

Titles of classes:

1 i 2. MARKET

Definition, role, function, veterinary service market area, competitors, surroundings,

3 i 4. MACROEKONOMY

- national income, Gross national income, national product, market balance, national budget, national authorities interaction with the free market

5 i 6. MICROEKONOMY

Income and property, demand and supply rule, curie, demand and supply of veterinary service

7 i 8. Economic account

- profit and profitability, veterinary service evaluation and calculation, planning, investment In vet bussines,

9 i 10. COST of veterinary practice and service

- fixe, variable, direct indirect costs, cost analysis, cost minimazing methods

11 i 12. Vet servis economics

- disease In economical aspects, cost of health and cost of therapy In Animals production and In pet area, prophylaxis in economical aspects

13 i 14. Private practice

- categories of veterinary practices, Staff competences licencing

15, Assessment – written

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	15	0,7
Student's own work	10	0,3
Total hours/ECTS of student's workload	25	1

Hours:

4. Auditorium / seminar **: 15

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>History
Course Title	VETERINARY HISTORY AND DEONTOLOGY
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	1
ECTS / including contact hours	1 / contact hours 0,9
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 15
	CLASSES - LAB. GROUP: 0
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	Chrószcz Aleksander
Language of instruction	ENGLISH*

Prerequisites		not applicable	
Short description of the course (max. 500 characters)		The course aims to present students with information concerning veterinary history, its development and achievements from Antiquity until today as well as instilling passion and pride for their future profession. Students also obtain essential information on professional ethics as well as rights and obligations of veterinary surgeon in contemporary professional and social life.	
Content of the course unit (detailed description)		Veterinary medicine in Roman and Greek mythology. Symbols of veterinary medicine. History of medicine and veterinary in Ancient Times, Medieval, Renaissance and Modernity. Animal slaughter and slaughter houses in history. The development of modern veterinary education. Crucial inventions and discoveries in medicine and veterinary medicine of the 19 th and 20 th century. Scientific and professional veterinary organizations in Poland, veterinary journals. Deontology of veterinary medicine.	
Learning outcomes (max. 3)			
Nr No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows and understands the Polish and Latin medical nomenclature	written exam	Wet_WSP_20
2	knows and understands the veterinary physician's code of ethics	written exam	Wet_WSP_22
3	presents the functioning of institutions associated with veterinary activities and the social role of a veterinary physician	written exam	Wet_WZU_02
<i>Skills</i>			
1	interprets the responsibility of veterinary physician in regard to the animal, its owner, society, as well as the natural environment		Wet_USP_16
2	assesses the economic and social conditions, in which the profession of veterinary physician is performed		Wet_USP_18
3	understands the need of continuing education, in order to ensure continuous professional development		Wet_USP_21
<i>Social competences</i>			
1	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions		Wet_KS_02
2	is ready for reliable self-assessment, formulating constructive criticism in the scope of veterinary practice,		Wet_KS_06

	accepting criticism of presented solutions, reacting to such criticism in a clear and material manner, also with the use of arguments referring to the available scientific achievements in the discipline		
3	gets involved in the activities of professional and local government organisations		Wet_KS_11
Literature (max. 8, including Youtube presentations, etc.) - compulsory 1. Dunlop R., H., Williams D., J.: Veterinary Medicine. An Illustrated History. Mosby Year Book, Inc. 1996 - complementary/optional 1. Driesch von A: Geschichte der Tiermedizin. Schattauer 2002			
Total grade components		<i>grade obtained at partial exams (60%) + attendance obtained at lectures (40%)</i>	
Comments:		not applicable	

List of subjects and exercises for the course/module

Titles of lectures:

1. Myths (Greek and Roman mythology) in veterinary and medicine context
2. Animal domestication – basic terms and time boundary. Animal care beginning
3. Veterinary medicine in Ancient Times I (Egypt, Mesopotamia)
4. Veterinary medicine in Ancient Times II (Greece). Health and disease theories
5. Veterinary medicine in Ancient Times III (Cartago and Rome)
6. Veterinary medicine in Medieval (Byzantine Empire, Islamic Empire, Western Europe)
7. Partial exam I
8. Renaissance and animal care
9. Animal slaughter and slaughter houses
10. The development of veterinary education in Europe and in Poland, modern conterminous and epidemic zoonosis neutralization.
11. Crucial inventions and discoveries in medicine and veterinary of 19th and 20th century
12. Scientific and professional veterinary organizations in Poland, veterinary journals, veterinary symbols and insignias
13. Veterinary deontology
14. Partial exam II
15. Partial exam (retake) I i II

Titles of classes: not applicable

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	16	0,9
Student's own work	2	0,1
Total hours/ECTS of student's workload	18	1

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **:
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Immunology
Course Title	Veterinary Immunology
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	4
ECTS / including contact hours	3/2
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES
	CLASSES - LAB. GROUP:
	CLASSES - CLIN. GROUP:
	CLASSES - AUD. GROUP:
Teacher responsible for the course	Anna Chelmońska-Soyta
Language of instruction	ENGLISH*
Prerequisites	
Short description of the course (max. 500 characters)	The aim of the course is to achieve by the students the basic knowledge on the role of integrative role of defense mechanisms, the rules governing of self-non-self recognition, the principles of migration, communication

		and co-operation of immune cells. Subject presents the basic clinical disorders resulting from dysregulation of defense mechanisms (immune and inflammatory nature of tissue repair, types of hypersensitivity, and also the ways of immune-modulation in the prevention of infectious diseases in individual patient and in the herd.	
Content of the course unit (detailed description)		The structure of the immune system, features of specific and non-specific immunity, immunological recognition, cellular and molecular basis of immune reactions, induction, central and effector phase of immune response, mechanisms of microbial killing and elimination of antigens, maturation of immune cells, mechanisms of central and peripheral immune tolerance, immunological basis of inflammatory reaction, the importance of MHC antigens in health and disease, blood group antigens - mechanisms of immunological recognition, types of hypersensitivity, basics of active and passive immunization, basic tests and techniques used in immunological tests (immunoprecipitation, immunoenzymatic, immunofluorescence, agglutination, isolation techniques of lymphocyte and granulocyte characteristics, advanced immunophenotyping techniques - flow cytometry), the use of immunological methods in scientific research and analysis clinical cases	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	<i>knows in depth and explains the mechanisms of specific and non-specific immunity, including mechanisms of anti-infectious and anti-parasitic immunity</i>	Two tests of MCQs or open questions (partial exams) Written and oral final exam	Wet_WSP_02
2	<i>describes in detail some pathological phenomena caused by dysfunction of the immune system</i>	Two tests of MCQs or open questions (partial exams) Written and oral final exam	Wet_WSP_12
3	<i>knows in depth and describes the immunological mechanisms underlying anti-infective prophylaxis in animals</i>	Two tests of MCQs or open questions (partial exams) Written and oral final exam	Wet_WSP_13

<i>Skills</i>			
1	<i>uses specialized terminology describing immunological phenomena</i>	Two tests of MCQs or open questions (partial exams) Written and oral final exam	Wet_ USP_13
2	<i>explains the principles, interprets and performs simple immunoassays including the use of basic laboratory equipment</i>	Activity assessment during classes , Two tests of MCQs or open questions (partial exams) Written and oral final exam	Wet_ UO_02
3	<i>determines the suitability of diagnostic immunoassays for certain clinical situations.</i>	Activity assessment during classes Two tests of MCQs or open questions (partial exams) Written and oral final exam	Wet_ UO_03
<i>Social competences</i>			
1	works in small teams ,	Activity assessment during classes	Wet_ KS_08
2	shows a responsibility for decisions made towards people, animals and the natural environment primarily in the context of understanding the advisability of vaccinations	Activity assessment during classes	Wet_ KS_01
3	uses reliable sources of scientific information in the field of immunology	Activity assessment during classes	Wet_ KS_04
<p>Literature (max. 8, including Youtube presentations, etc.)</p> <ul style="list-style-type: none"> - compulsory: Veterinary Immunology, I.Tizard,10e,ELSEVIER, 2018, pdf presentations of materials from lectures and classes - complementary/optional: Veterinary Immunology, principles and practice, DAY AND SCHULTZ, CRC PRESS,2014 Cellular and Molecular Immunology, Abbas, Lichtman, Pillai , (the d. ELSEVIER,2018 			
Total grade components		<p><i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i></p> <p>Average of two ratings from tests and activity during classes : 50%</p> <p>Exam score: 50%</p> <p>it is required to obtain at least 60% of all the points possible to get in both partial exams to pass the</p>	

	partial exams and to get the admission to the final exam. Partial exams are in form of multiple choice questions and open questions .Final exam : the first term in a written form of exam , retake in an oral form of exam
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

1. The structure of the immune system. Peripheral lymphatic organs, localization of Ag recognition. Lymphocyte circulation and migration.
2. Immunological recognition. Receptors of immune recognition. Main histocompatibility complex (MHC). Antigen presentation . T cell receptor (TCR structure and Ag recognition
3. Immunological recognition cont.- BCR. Development and differentiation of T and B lymphocytes.
4. Cytokines. Regulation of immune response. Inflammation.
5. Cellular cytotoxicity in immune reactions. Immune response in viral, bacterial and fungal infections.
6. Hypersensitivity reactions.
7. Innate immunity. Mucosal immunity.
8. Immunological basis of animal vaccination. Active and passive immunization.

Titles of classes:

1. Antigen (Ag) - antibody (Ab) reactions - Immunoprecipitation tests
2. Antigen (Ag) - antibody (Ab) reactions - Enzyme immunoassays (ELISA, Western blotting). Monoclonal antibodies.
3. Antigen (Ag) - antibody (Ab) reactions - Agglutination and hemolytic reaction. Blood group antigens.
4. Examination of granulocyte function.
5. Examination of lymphocyte function.
6. Advanced methods of immunophenotyping. Flow Cytometry.
7. Application of immunological tests in scientific research and clinical case analysis.
8. Experimental immunology. Animal models of immunological diseases

Allocation of ECTS for the course/module

Course title: Veterinary immunology

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	46	2
Student's own work	25	1
Total hours/ECTS of student's	71	3

workload		
----------	--	--

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **: -30
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher:

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Microbiol1 MWW-AJ>Microbiol2
Course Title	Veterinary microbiology I (MWW-AJ>Microbiol1) Veterinary microbiology II (MWW-AJ>Microbiol2)
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	Year II, semester 3 (Veterinary microbiology I) Year II, semester 4 (Veterinary microbiology II)
ECTS / including contact hours	Veterinary microbiology I : 5/3 Veterinary microbiology II: 5/2,5
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: Veterinary microbiology I: 30 Veterinary microbiology II : 30
	LABS: Veterinary microbiology I : 45 Veterinary microbiology II : 30
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 0
Teacher responsible for the course	JAROSŁAW KRÓL
Language of instruction	ENGLISH*
Prerequisites	Biology, biochemistry
Short description of the course (max. 500 characters)	The aim of the course is to provide students with basic knowledge on the biology of viruses, bacteria and fungi, classification of microorganisms, phenomena occurring in the microbial world and interactions between macro- and microorganisms. In addition the course gives the insight into elementary diagnostic methods used for the identification of pathogenic microorganisms as well as methods of the elimination of microorganisms from the environment (sterilization, disinfection) and techniques for the examination of bacterial susceptibility to antimicrobials.

Content of the course unit (detailed description)		The course is divided into 2 parts: 1/ Bacteriology & Mycology (40 h. lectures and 55 h. labs) and 2/ Virology (20 h. lectures and 20 h. labs). During the first part, the following issues are addressed: morphology of the bacterial and fungal cell, basic staining techniques (including the Gram method), bacterial and fungal culture, identification of microorganisms by means of biochemical and serologic tests, sterilization and disinfection, antimicrobial susceptibility test, classification of pathogenic microorganisms, interactions between micro- and macroorganisms, basic diagnostic methods employed for the identification of main groups of pathogenic bacteria (the genera <i>Staphylococcus</i> , <i>Streptococcus</i> , <i>Listeria</i> , <i>Erysipelothrix</i> , <i>Bacillus</i> , <i>Clostridium</i> , <i>Mycobacterium</i> , <i>Brucella</i> , <i>Pseudomonas</i> and the families <i>Enterobacteriaceae</i> and <i>Pasteurellaceae</i>), basic diagnostic methods used for clinical mycology (identification of the yeasts and dermatophytes). The second part of the course (Virology) is focused on biology and classification of the most important groups of pathogenic viruses (<i>Orthomyxoviridae</i> , <i>Paramyxoviridae</i> , <i>Herpesviridae</i> , <i>Rhabdoviridae</i> , <i>Arteriviridae</i> , <i>Parvoviridae</i> , <i>Picornaviridae</i>), as well as principal methods of virological diagnostics (direct detection of the virus by serological tests and the agglutination technique, virus isolation on embryonated chicken eggs and tissue cultures).	
Learning outcomes (max. 3)			
Nr No.	Subject-specific	Assessment method	Symbol of the learning effect for the field of study
<i>Knowledge</i> - after completion of the course, a student:			
1	explains the correlation between factors that disturb the balance of biological processes of the animal body and physiological and pathophysiological changes	Exam (written/oral)	Wet_WSP_11
2	knows to an extensive degree the biology of infectious factors that cause diseases transmitted between animals, as well as anthroozoonoses, taking into account the mechanisms of disease transmission and defense mechanisms of the organism	Exam (written/oral)	Wet_WSP_13
3	knows to an extensive degree and presents the basics of microbiological diagnostics	Exam (written/oral),	Wet_WSP_15
<i>Skills</i> - after completion of the course, a student:			
1	performs basic microbiological diagnostics	Exam (written/oral); practical test	Wet_USP_10
<i>Social competences</i> - after completion of the course, a student:			
1	deepens his/her knowledge and improves skills		Wet_KS_07

Literature (max. 8, including Youtube presentations, etc.)

- compulsory

- 1/ Markey B., Leonard F., Archambault M., Cullinane A., Maguire D. 2013. Clinical Veterinary Microbiology. Mosby Elsevier
- 2/ Songer J.G., Post K.W. 2005. Veterinary Microbiology: Bacterial and Fungal Agents of Animal Disease. Elsevier Saunders
- 3/ Hirsh D.C., MacLachlan N.J., Walker R.L. 2004. Veterinary Microbiology. Blackwell Publishing

- complementary/optional

- 1/ http://www.cuteri.eu/microbiologia/manuale_microbiologia_pratica.pdf
- 2/ <https://www.austincc.edu/microbugz/>
- 3/ OIE Manual of Standards for Diagnostic Tests and Vaccines (<https://www.oie.int/standard-setting/terrestrial-manual/access-online/>)

Total grade components	Veterinary microbiology I: grade obtained at classes (100%) Veterinary microbiology II: grade obtained at the bacteriology & mycology part (60%) + grade obtained at virology (40%); each of them consists of grades obtained at classes (40%) and at final exam (60%) (provided all the grades are at least sufficient [3.0])
Comments:	

List of subjects and exercises for the course/module

Titles of lectures:

Veterinary microbiology I:

1. Historical evolution of microbiology as a scientific discipline
2. Organization and structure of bacteria
3. Bacterial growth and metabolism
4. Bacterial genetics. Classification and nomenclature of bacteria
5. Interactions between microorganisms and higher animals. Virulence factors of pathogenic microorganisms
6. Main groups of pathogenic bacteria. Gram positive cocci (Staphylococcus, Streptococcus, Enterococcus)
7. Gram negative bacteria: Moraxella. Neisseria. The family Enterobacteriaceae (1)
8. Gram negative bacteria (cont'd): The family Enterobacteriaceae (2): Salmonella
9. Gram negative bacteria (cont'd): The family Enterobacteriaceae (3): Escherichia. Other Gram negative bacteria: Bordetella, Burkholderia
10. Gram negative bacteria (cont'd): The family Pasteurellaceae. Taylorella
11. Epidemiology of brucellosis
12. Gram negative bacteria (cont'd): Legionella, Bartonella, Francisella, ORT, Riemerella
13. Gram negative bacteria (cont'd): Aeromonas, Vibrio. Anaerobic rods (Dichelobacter, Fusobacterium, Bacteroides)
14. Gram positive aerobic rods: Corynebacterium, Rhodococcus, Trueperella, Actinomycetes, Nocardia, Dermatophilus
15. The genus Mycobacterium

Veterinary microbiology II:

1. Gram positive spore-forming rods. *Bacillus anthracis* – epidemiology and virulence factors. *Clostridium* - pathogenicity
2. Curved and spiral bacteria (*Campylobacter*, *Helicobacter*, *Brachyspira*, *Treponema*, *Borrelia*, *Leptospira*)
3. Bacteria without cell wall (*Mycoplasma*, *Ureaplasma*)
4. Obligate intracellular bacteria (*Coxiella burnetii*, Chlamydiales, Rickettsiales)
5. Development of virology as a scientific discipline. AIDS: history of AIDS research, origin of the disease, taxonomy, morphology and epidemiology of HIV, AIDS treatment and prevention
6. Virus taxonomy. Morphology of viruses. Size and shape of viruses. Bacteriophages
7. Virus replication. Stages of cell infection: virus receptors, virus penetration, early protein synthesis, eclipse stage and release of virus from the cell
8. Immunological mechanisms in viral infection. Types of viral infections, portal of entry of the virus, persistent viral infection, virus interference phenomenon. Immunoprophylaxis. Antivirus vaccines
9. Methods of virus cultivation. Laboratory animals. Embryonated eggs. Cell cultures. Techniques of virus isolation. Identification of viruses
10. The family Poxviridae. Taxonomy and morphology of pox viruses. Avian and mammalian pox. Orf. Myxomatosis
11. The families Asfarviridae and Flaviviridae. Taxonomy and morphology of the viruses. African and classical swine fever.
12. The family Adenoviridae. Taxonomy and morphology of the viruses. Rubarth disease. Human adenovirus 36 infection
13. The family Orthomyxoviridae. Taxonomy and morphology of the viruses. Influenza
14. Exotic, vector-borne, zoonotic viruses – the threat to Europe and Poland: West Nile Fever virus, Crimean–Kongo hemorrhagic fever virus and Rift Valley fever virus
15. The family Rhabdoviridae. Rabies – diagnostic methods

Titles of classes:

Veterinary microbiology I:

1. Safety in the microbiology laboratory. Laboratory equipment. Diagnostic methods used in bacteriology. Microscopic investigation. Preparing and staining of bacteriological slides
2. Microscopic investigation (cont'd). Gram stain method. Capsule staining (Burri's and Loeffler' methods). Examination of bacterial motility (hanging drop preparation)
3. Bacterial culture. Culture media – types and methods of their preparation. Ordinary media. Enriched media. Selective media. Methods of inoculation on solid liquid media
4. Bacterial culture (cont'd). Description of bacterial growth on liquid and solid media. Reading of culture media. Enumeration of bacteria. The viable plate count method
5. Bacterial culture (cont'd). Differential media. Biochemical examination of bacteria. Carbohydrate fermentation tests. Urease-, catalase-, indole-, H₂S-, and DN-ase tests. Miniaturized identification tests (the API system)
6. Influence of physical and chemical factors on microorganisms. Sterilization and disinfection. Evaluation of bactericidal activity of disinfectants through test inoculations
7. Evaluation of bactericidal activity of disinfectants (cont'd). Antimicrobial susceptibility testing. Serology. Definition of “antigen” and “antibody”
8. Reading of antimicrobial susceptibility plates. Serology (cont'd). Basic serological methods. Slide agglutination test. Tube agglutination test. Complement fixation test. Immunofluorescence assay. Antiglobulin (Coombs) test
9. EXAM IN GENERAL BACTERIOLOGY AND SEROLOGY (PARTIAL EXAM I) – practical and theoretical

10. Gram-positive spherical bacteria. The genera *Staphylococcus* and *Streptococcus*. Morphology, growth characteristics. Laboratory diagnostics
11. Gram-positive cylindrical bacteria. The genera: *Listeria*, *Lactobacillus*, *Erysipelothrix*. Morphology, and growth characteristics. Laboratory diagnostics
12. Gram-negative cylindrical bacteria. The genus: *Pseudomonas*. The genera *Pasteurella* and *Mannheimia*. Morphology, growth characteristics. Laboratory diagnostics
13. The family *Enterobacteriaceae* – laboratory diagnostics. The genera: *Escherichia*, *Salmonella*, *Proteus*
14. The family *Enterobacteriaceae* (cont'd). Reading of inoculated plates and biochemical tests. The genus *Brucella*. Modified Ziehl-Neelson method. Bacteriological and serological diagnosis of brucellosis
15. Completion of the winter semester. Receiving grades

Veterinary microbiology II:

1. Gram-positive spore-forming rods. The genus *Bacillus*. Laboratory diagnosis of anthrax. The genus *Clostridium*. Characteristics of Gram-positive anaerobic rods. Laboratory identification of infections caused by *Clostridia*
2. The genus *Mycobacterium*. *Mycobacterium tuberculosis* complex (MTC). Atypical mycobacteria. Laboratory diagnostics of tuberculosis. Microscopic investigation of mycobacteria – the Ziehl-Neelsen method
3. MYCOLOGY (1). The pathogenic fungi. Methods of mycological investigation. The dermatophytes – mycological investigation. The genera *Trichophyton* and *Microsporum*. The moulds. The genus *Aspergillus*
4. MYCOLOGY (2). The yeasts and yeast-like fungi. The genera *Candida*, *Cryptococcus*, *Geotrichum* and *Malassezia*. Laboratory diagnosis of yeasts infections. Macroscopic- and microscopic assessment of fungal cultures. The germ tube test
5. EXAM IN MEDICAL BACTERIOLOGY AND MYCOLOGY (PARTIAL EXAM II) – practical and theoretical
6. VIROLOGY. Safety precautions in virological laboratory. Biosafety levels. Aseptic techniques. Laboratory equipment (biosafety cabinets, CO₂ incubator, inverted microscopes)
7. Collection of samples from living and dead animals. Preparation of tissue suspensions for virus isolation
8. Methods of virus isolation. Experimental animals. Isolation of viruses in embryonated eggs
9. Collection of the virus harvest from embryonated chicken eggs. Hemagglutination assay. The family Paramyxoviridae (Newcastle disease virus, bovine parainfluenza-3 virus, canine distemper virus)
10. Cell culture techniques. Primary cell cultures. Continuous cell lines. Cytopathic effect (CPE) - microscopic observation. The family Herpesviridae (equine herpesviruses 1, 3 and 4; gallid herpesviruses 1 and 2)
11. Virus neutralisation test: application for the identification of virus and for quantification of antibodies. Immunofluorescence assay. The family Parvoviridae (feline panleukopenia virus, canine parvovirus, porcine parvovirus)
12. The family Arteriviridae. Equine viral arteritis – diagnostic techniques. Virus isolation in cell cultures. Virus neutralisation test – interpretation. Cytopathic effect caused by EAV – a microscopic observation. Porcine Reproduction and Respiratory Syndrome (PRRS) virus.
13. Hemagglutination inhibition assay. The family Picornaviridae. Virological and serological diagnostics of foot and mouth disease. Swine vesicular disease
14. EXAM IN VIROLOGY (PARTIAL EXAM III) – theoretical
15. Completion of the summer semester. Receiving grades

Allocation of ECTS for the course/module

Course title: **Veterinary microbiology I:**

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	76	3
Student's own work	50	2
Total hours/ECTS of student's workload	126	5

Course title: **Veterinary microbiology II:**

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	61	2,5
Student's own work	55	2,5
Total hours/ECTS of student's workload	116	5

Hours:

1. Lectures: 60
2. Labs: 75
3. Others with the teacher: 2 (tutorials)

Course description - SYLLABUS

Code	MWW-AJ>Pharma 1
Course Title	VETERINARY PHARMACOLOGY
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	5
ECTS / including contact hours	4/2.5
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 30 hours
	CLASSES - LAB. GROUP: 30 hours
	CLASSES - CLIN. GROUP: -
	CLASSES - AUD. GROUP: -
Teacher responsible for the course	Prof. Bożena Obmińska-Mrukowicz DVM.Ph.D

Language of instruction		ENGLISH*	
Prerequisites		anatomy, cell biology, biochemistry, physiology, immunology, pathophysiology, microbiology	
Short description of the course (max. 500 characters)		The aim of the course is to acquaint students with the issues of general pharmacology and the principal groups of drugs. During the course is presented the characteristic of the antibacterial, antifungal, antiparasitic and anticancer groups of drugs used in veterinary medicine: effects and mechanism of action (pharmacodynamics), disposition and fate of drugs in the body (pharmacokinetics), basic indications and contraindications to use particular groups of drugs in animals (foundations of pharmacotherapy), route of administration, adverse effect of drugs and pharmacodynamic and pharmacokinetic interactions of the agents. Students learn prescribe the all pharmaceutical forms of drugs used in animals. (veterinary prescriptions).	
Content of the course unit (detailed description)		Pharmacology sections. Basic definitions (concepts) and issues connected with drug acting. Non-cellular and cellular mechanisms of drug action. Fate of drugs in organism. Basic definitions of pharmacokinetic parameters. Pharmacodynamic and pharmacokinetic drug interactions. Insensibility and hypersensitivity in drug treated animal. Causal activity drugs: antibacterial agents, antifungal, antiparasitic agents (antiprotozoan drugs, antitrepatodal and anticestodal agents, antinematodal drugs, ectoparasiticides), anticancer agents.	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	describes in detail the application of antibacterial and antiparasitic chemotherapy;	written test	Wet_WSP_17
2	presents the mechanisms of drug resistance, including multi-drug resistance by microorganisms and cancer cells;	written test	Wet_WSP_18
3	knows to an extensive degree the procedures and elements necessary to issue a prescription for veterinary medicinal products;	written test	Wet_WSP_19
<i>Skills</i>			
1	is able to choose and apply rational empirical and targeted antibacterial chemotherapy, taking into account the target species of animals;	written test	Wet_USP_11
2	is able to choose and apply rational targeted antiparasitic chemotherapy, taking into account the target species of animals;	written test	Wet_USP_11
3	is able to prescribe and use veterinary medicinal products	written test	Wet_USK_10

	and medical materials, taking into account their safe storage and utilisation;		
<i>Social competences</i>			
1	uses the objective sources of information;	evaluation of the student activities during the classes	Wet_KS_04
2	deepens his/her knowledge and improves skills;	evaluation of the student activities during the classes	Wet_KS_07
3	critically analyses veterinary literature and draws conclusions on the basis of available literature;	evaluation of the student activities during the classes	Wet_UZU_02
Literature - compulsory - Riviere J.E. Papich M.G.: Veterinary Pharmacology and Therapeutics. 10 th ed. Wiley-Blackwell, 2017 - Giquere S., Prescott J.F., Baggot J.D., Walker R.D., Dowling P.M.: Antimicrobial Therapy in Veterinary Medicine, 5 th ed. Wiley- Blackwell Publishing, 2013 - complementary/optional - Plumb D.C. Plumb's Veterinary Drug Handbook 9 th Wiley-Blackwell, 2018 - Boothe D.M., Small Animal Clinical Pharmacology and Therapeutics, Saunders Comp., 2001. - Maddison J.E., Page S.W., Church D.B. Small Animal Clinical Pharmacology 2 nd ed., Saunders Elsevier, 2008 - Crowell-Davis S.L., Murry T. Veterinary Psychopharmacology. Blackwell Publishing, 2006			
Total grade components		grade obtained at classes (50%) + grade obtained at lectures (50%)	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Pharmacology sections. Basic definitions and issues connected with drug acting.
2. Drugs mechanism of action ⇒ non-cellular, cellular and molecular.
3. Adverse drug reactions and toxic activity of a drugs
4. Fate of drugs in organism. Basic definitions of pharmacokinetic parameters.

5. Pharmacodynamic and pharmacokinetic drugs interactions. Insensitivity and hypersensitivity of drugs in treated animal.
6. Antifungal drugs. → 4 hours
7. Antiprotozoal drugs.
8. Antitrematodal drugs and anticestodal agents
9. Antinematodal agents: classification of nematocide drugs ⇒ tetrahydropyrimidines, imidazothiazoles, heterocyclic and organophosphorus compounds, probenzimidazoles and benzimidazoles, endectocides.
10. Antinematodal agents: probenzimidazoles and benzimidazoles, endectocides.
11. Ectoparasiticides.
12. Written test about antiparasitic agents
13. Anticancer drugs →4 hours

Titles of classes:

1. Drug dosing, dosage types, route of administration.
2. Antiseptics and disinfectants. Nitrofuranes and nitroimidazoles.
3. Sulfonamides and potentiated sulfonamides
4. Quinolones and fluoroquinolones.
5. 5. Classification of antibiotics. β -lactam antibiotics – penicillins.
6. β -lactam antibiotics – cephalosporins, carbapenems and monobactams.
7. Aminoglycosides and aminocyclitols
8. Peptide antibiotics, glycopeptides and streptogramins.
9. Macrolides and lincosamides.
10. Tetracyclines and phenicols.
11. Principles of antimicrobial drug selection and use. Antimicrobial drug combination
12. Solid medicine forms: dosage and prescription writing.
13. Liquid medicine forms: dosage and prescription writing.
14. Other medicine forms: dosage and prescription writing.
15. Prescription test.

Each group of drugs presented on lectures (6-15 lecture in V semester) and classes (2-11 in V semester) will be presented in order:

1. Name of the drug group
2. International names of generic substances
3. Pharmacological effects

4. Mechanism of action
5. Pharmacokinetic properties including animal species
6. Indications to use including animal species
7. Contraindications and precautions, adverse effects of drugs
8. Drug interactions
9. Instructions for use (route of administration, dosage, frequency, target animal).

Allocation of ECTS for the course/module

Course title: Veterinary Pharmacology II

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	60 hours + 1 hours	2.5
Student's own work	30 hours	1.5
Total hours/ECTS of student's workload	91 hours	4.0

Hours:

1. Lectures: 30
2. Laboratory 30
3. Others with the teacher: 1

Course description - SYLLABUS

Code	MWW-AJ>Pharma 2
Course Title	VETERINARY PHARMACOLOGY II
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	6
ECTS / including contact hours	6/3
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: 15 hours
	CLASSES - LAB. GROUP: 45 hours
	CLASSES - CLIN. GROUP:
	CLASSES - AUD. GROUP:
Teacher responsible for the course	Prof.Bożena Obmińska-Mrukowicz DVM.Ph.D
Language of instruction	ENGLISH*
Prerequisites	anatomy, cell biology, biochemistry, physiology,

	immunology, pathophysiology, microbiology, veterinary pharmacology I		
Short description of the course (max. 500 characters)	The aim of the course is to acquaint students with the issues of general pharmacology and the principal groups of drugs. During the course is presented the characteristic of the principal groups of drugs (without causal grugs) used in veterinary medicine: effects and mechanism of action (pharmacodynamics), disposition and fate of drugs in the body (pharmacokinetics), basic indications and contraindications to use particular groups of drugs in animals (foundations of pharmacotherapy), route of administration, adverse effect of drugs and pharmacodynamic and pharmacokinetic interactions of the agents.		
Content of the course unit (detailed description)	Drugs acting on the autonomic nervous system (cholinergic and adrenergic pharmacology). Pharmacology of smooth muscle. Skeletal muscle relaxants. Drugs affecting animal behavior. Anticonvulsant agents. Group of agents which induce sedation. Opioid agonists and antagonists. Drugs used in premedication of companion and farm animals. Inhalation and injectable anesthetics. Immunotropic agents. Drugs used in animal endocrinopathies. Antihistamines drugs. Antiinflammatory drugs. Chondroprotective agents. Drugs acting on the cardiovascular system. Drug acting on blood and blood elements. Pharmacotherapy of shock. Diuretics. Drugs affecting gastrointestinal function. Drugs affecting the respiratory system. Drugs affecting reproduction.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	written test +oral exam	Wet_WO_04
2	knows to an extensive degree and understands the mechanisms of operation, activity in the system, side effects and mutual interactions of the groups of veterinary medicinal products used in target animal species;	written test +oral exam	Wet_WSP_16
3	knows to an extensive degree the procedures and elements necessary to issue a prescription for veterinary medicinal products;	written test + prescription test	Wet_WSP_19
<i>Skills</i>			
1	obtains and uses information on authorised veterinary medicinal products;	written test +oral exam	Wet_USK_09

2	is able to prescribe and use veterinary medicinal products and medical materials, taking into account their safe storage and utilisation;	written test +prescription test	Wet_USK_11
3	knows the methods of safe sedation, general and local anaesthesia, as well as assessment and relief of pain;	written test + written exam	Wet_USK_10
<i>Social competences</i>			
1	uses the objective sources of information;	evaluation of student activities during the classes	Wet_KS_04
2	deepens his/her knowledge and improves skills;	evaluation of student activities during the classes	Wet_KS_07
3	critically analyses veterinary literature and draws conclusions on the basis of available literature;	evaluation of student activities during the classes	Wet_UZU_02
Literature - compulsory - Riviere J.E. Papich M.G.: Veterinary Pharmacology and Therapeutics. 10 th ed. Wiley-Blackwell, 2017 - PlumbD.C. Plumb's Veterinary Drug Handbook 9 th Wiley-Blackwell, 2018 - complementary/optional - Boothe D.M., Small Animal Clinical Pharmacology and Therapeutics, Saunders Comp., 2001. - Maddison J.E., Page S.W., Church D.B. Small Animal Clinical Pharmacology 2 nd ed., Saunders Elsevier, 2008 -Crowell-Davis S.L., Murry T.Dantas L.M: Veterinary Psychopharmacology Wiley Blackwell, 2019			
Total grade components		grade obtained at classes (50%) + grade obtained at lectures (50%) Final assessment: 50% credit II + 50% exam The scope of the exam: exercise I and exercise II + lectures I + lectures II.	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Behavior modifying drugs →3 hours
2. Anticonvulsant agents → 2 hours

3. Immunosuppressive agents → 2 hours
4. Immunomodulatory drugs → 2 hours
5. Drugs used to control hyperadrenocorticism and hypoadrenocorticism → 2 hours
6. Antidiabetic agents and thyroid gland pharmacology → 2 hours
7. Chondroprotective drugs → 1 hour
8. Drugs used in veterinary ophthalmology → 1 hour

Titles of classes:

1. Pharmacology of cholinergic system.
2. Pharmacology of adrenergic system.
3. Pharmacology of smooth muscle. Skeletal muscle relaxants
4. Neuroleptics, ataractics (anti-anxiety), and hypnotic (sleep-inducing) drugs.
5. Opioid agonists and antagonists. Drugs used in the treatment of neuropathic pain. Local anaesthetics.
6. Premedication. Inhalation and injectable anesthetics. Analeptic agents.
7. Non-steroidal anti-inflammatory drugs (NSAIDs). Irritants (*irritantia*).
8. Steroidal anti-inflammatory drugs. Antihistamines drugs.
9. Drug acting on the cardiovascular system (positive inotropic drugs, antiarrhythmic agents, coronary blood vessels relaxants, drugs affecting renin –angiotensin –aldosterone system).
10. Drug acting on blood and blood elements. Fluidotherapy. Pharmacotherapy of shock.
11. Diuretics. Drugs affecting the respiratory system.
12. Drugs affecting gastrointestinal function.
13. Drugs affecting reproduction.
14. Rules governing of prescription writing - repetition.
15. Rules governing of prescription writing - repetition.

Allocation of ECTS for the course/module

Course title: Veterinary Pharmacology II

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests +	60 hours + 1 hour + 3 hours (exam: prescription test +	3

exam	theoretical oral exam)	
Student's own work	60 hours	3
Total hours/ECTS of student's workload	124 hours	6

Hours:

1. Lectures: 15
2. Laboratory: 45
3. Others with the teacher: 1+3 (prescription test + theoretical oral exam) = 4

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Phar
Course Title	Veterinary Pharmacy
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	5
ECTS / including contact hours	1 / 0,8
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES: -
	CLASSES - LAB. GROUP: 15
	CLASSES - CLIN. GROUP: -
	CLASSES - AUD. GROUP: -
Teacher responsible for the course	Magdalena Lis
Language of instruction	ENGLISH*
Prerequisites	chemistry, biochemistry
Short description of the course (max. 500 characters)	The aim of the course is to introduce students with legal aspects concerning supply and the use of veterinary medicines as well as the issue of registration of veterinary pharmaceuticals. Discussion on topics connected with establishment of withdrawal periods after the administration to food-producing animals of veterinary medicinal products. Discussion on dosage forms of drugs for veterinary use in various animal species and issues of medicated feed.
Content of the course unit (detailed description)	Pharmaceutical law. Legislation of veterinary medicinal products. Veterinary prescription. The issue of registration of veterinary pharmaceuticals. Topics connected with biological and pharmaceutical equivalence. Topics concerning supply of veterinary medicines. Withdrawal period, studies connected with determination of withdrawal period (NOAEL, ADI, MRL). Monitoring of drug adverse effects. Solid, semi-solid and liquid dosage forms of drugs

		for veterinary use in various animal species. Medicated feed, calculation of the content of active substances in medicated feed.	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	written colloquium	Wet_WO_04
2	describes legal standards associated with the activities of veterinary physicians;	written colloquium	Wet_WO_12
3	knows to an extensive degree the procedures and elements necessary to issue a prescription for veterinary medicinal products;	written colloquium	Wet_WSP_19
<i>Skills</i>			
1	prepares transparent case descriptions and keeps documentation, in accordance with regulations applicable in this scope, in the form understandable to the animal owner and legible to other veterinary physicians;	written colloquium	Wet_USP_14
2	interprets the responsibility of veterinary physician in regard to the animal, its owner, society, as well as the natural environment;	written colloquium, discussion	Wet_USP_16
3	is able to use the advice and help of specialised organisational units or persons in the scope of problem solving.	written colloquium, discussion	Wet_USP_23
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	situational-decision task, discussion	Wet_KS_01
2	uses the objective sources of information;	situational-decision task, discussion	Wet_KS_04
3	cooperates with representatives of other professions in the scope of public health protection;	situational-decision task, discussion	Wet_KS_10
Literature (max. 8, including Youtube presentations, etc.) - compulsory 1. Eudralex. 2. Directive 2004/28/EC of the European Parliament and of			

<p>the Council of 31 March 2004.</p> <p>3. COMMISSION REGULATION (EU) No 37/2010 of 22 December 2009.</p> <p>4. Law on prevention of drug addiction.</p> <p>5. Kayne S.B., Jepson M.H.: Veterinary Pharmacy, PhP London 2004.</p> <p>6. Hardee G.E., Baggot J.D.: Development and Formulation of Veterinary Dosage Forms, Marcel Dekker New York, 1998.</p> <p>- complementary/optional</p> <p>1. European Pharmacopoeia</p>	
Total grade components	<i>grade obtained at classes- 100%</i>
Comments:	

List of subjects and exercises for the course/module

Titles of lectures: -

Titles of classes:

1. Legal aspects concerning supply and the use of veterinary medicines in EU and Poland. Introduction into the issue of registration of veterinary pharmaceuticals in EU and Poland. Veterinary prescription.
2. Withdrawal period. NOAEL, ADI, MRL, Annex I, II, III, IV. Table 1 and 2. Bioequivalence. Bioavailability. Pharmaceutical equivalence. Pharmaceutical availability. Different pharmaceutical forms, inactive ingredients and their effects on bioavailability of active substance. Monitoring of drug adverse effects.
3. Solid drug forms for veterinary use (powders, granules, tablets, capsules, intraruminal devices, transdermal patches, implants, suppositories).
4. Semi-solid (ointments, pastes, gels, creams) and liquid (solutions, suspensions, emulsions) drug forms of veterinary medicinal products.
5. Manufacturing and administration to food producing animals of veterinary medicinal products. Premixes for medicated feeding stuffs for veterinary use. Calculation the amount of active substance in medicated feed.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	16	0,8
Student's own work	3	0,2

Total hours/ECTS of student's workload	19	1
--	----	---

Hours:

1. Laboratory classes: 15
2. Others with the teacher (consultation): 1

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Toxogy		
Course Title	VETERINARY TOXICOLOGY		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY/ELECTIVE		
Semester of study	8		
ECTS / including contact hours	3/2		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 30		
	CLASSES - LAB. GROUP: 30		
	CLASSES - CLIN. GROUP:		
	CLASSES - AUD. GROUP:		
Teacher responsible for the course	MARCIN ŚWITAŁA		
Language of instruction	ENGLISH		
Prerequisites	Biochemistry, pharmacology, clinical Diagnostics, patologic anatomy.		
Short description of the course (max. 500 characters)	The aim of the course is to acquaint students with the origin of poisons and toxic exposure, with the mechanisms of intoxications and with the biological fate of toxic compounds in the body. Students will be acquainted with the veterinary clinical toxicology with particular regard to the methods of proper poisoning diagnosis. Apart from symptoms and pathological lesions observed in poisonings, students will learn about analytical methods employed in toxicology. Students will also learn how to perform toxicological anamnesis and how to secure proper sampling material for laboratory investigations.		
Content of the course unit (detailed description)	General toxicology: poisons and the mechanisms of their action, toxicokinetics, toxicological diagnostics, veterinary treatment of animal poisoning cases. Specific issues: characterization of common poisons and review of the most common poisonings with particular regard to clinical symptoms, lesions, laboratory diagnostics and clinical treatment. Special attention will be given to compounds used in animal husbandry (feed additives), agriculture (pesticides, fertilizers), industrial contaminants (heavy metals), selected drugs, household products, as well as mycotoxins and poisonous plants.		
Learning outcomes (max. 3)			
Nr	Subject-specific	Assessment	Symbol of the

No.		method	learning effect for the field of study
<i>Knowledge</i>			
1	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	exam (written), credit (written)	Wet_WO_03
2	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	exam (written), credit (written)	Wet_WO_04
3	<i>specifies the principles of conducting clinical examination, in accordance with the plan of clinical examination, analysis of clinical symptoms and anatomopathological changes;</i>	exam (written), credit (written)	Wet_WO_06
<i>Skills</i>			
1	estimates the toxicological danger in specific technological groups of farm animals;	exam (written), credit (written)	Wet_USP_17
2	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	exam (written), credit (written)	Wet_UO_02
3	plans the diagnostic procedure;	exam (written), credit (written)	Wet_UO_03
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;		Wet_KS_01
2	uses the objective sources of information;		Wet_KS_04
3	is ready to act in the conditions of uncertainty and stress;		Wet_KS_09
Literature (max. 8, including Youtube presentations, etc.) - compulsory - Plumlee K.H, Clinical veterinary toxicology, ed. Mosby 2004 - complementary/optional - Gupta R.C., Veterinary Toxicology ed. Academy Press 2007 - Osweiler G.D. i in. Small Animal Toxicology ed Willey-Blackwell 2011			
Total grade components		grade obtained at classes (50%) + grade obtained at lectures (50%)	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

Subjects	No of hours
1. Toxicology- field of interest, characteristics of poisons, chemical and physical speciation in relation to exposure, classification of toxicity, exposure to poisons - quantitative and qualitative aspects, toxicological significance of the exposure route,	2

exposure - response relationship, risk and risk analysis, types of poisonings	
2. Basics of toxicokinetics, mechanisms of poisons action. Table salt (Sodium chloride) poisonings	2
3. Nitrate and nitrite poisonings, cyanide poisonings, carbon monoxide poisonings, hydrogen sulfide poisonings.	2
4. Urea and ammonia poisoning poisoning of phosphorus compounds. Fluorosis.	2
5. Lead compounds poisonings, mercury compounds poisonings, iron compounds poisonings.	2
6. Copper compounds poisonings, molybdenum compounds poisonings, zinc compounds poisonings.	2
7. Insecticide poisonings (organophosphates, carbamates, pyrethrin and pyrethroids, neonicotinoids) Molluscicide poisonings (metaldehyde).	2
8. Herbicide poisoning (dinitroalkylophenols, dipyridyl derivatives, phenoxy acid derivatives, derivatives of urea and thiourea) . Fungicides poisoning (carbamic acid derivatives).	2
9. Rodenticide poisonings (anticoagulant rodenticides, strychnine, bromethalin, \ cholecalciferol, zinc phosphine , alpha-naphtyl-thiourea)	2
10. Plants related toxicosis.	2
11. Mycotoxicoses (aflatoxins, ochratoxins, trichothecenes, fumonisins, zearalenone, ergot)	2
12. Botulinum toxin poisoning, blue-green algae poisoning, poisoning of invertebrates (wasps, hornets, bees, flies, caterpillars moths) and vertebrates venom (toads, snakes)	2
13. Poisoning of selected drugs (Ionophoric antibiotics, paracetamol, aspirina and other NSAIDs, amitraz, ivermectin, methylxanthines)	2
14. Poisoning by agents used in household (acids, alkalis, batteries, soap, detergents, enzymatic cleaners, deodorizers, ethanol, etylene glycol, phenol-based products)	2
15. Principles of poisoning treatment, antidotes and other drugs used in poisoning, decontamination on the skin and mucous membranes, in the digestive tract and blood after absorption, symptomatic and supportive treatment. Principles of cooperation with the owner of the animal.	2

Titles of classes:

Subjects	No of hours
1. Preliminary steps in case of farm animal poisonings. Taking a complete toxicologic history and preparing a covering letter for analytical laboratory. Rules for sampling and sending samples for laboratory test.	2
2. Preliminary steps in cases of dog and cat poisonings. Taking a complete toxicologic history and preparing a covering letter for analytical laboratory. Rules for sampling and sending samples for laboratory tests.	2
3. Organization of work in the toxicological laboratory. Scheme of toxicological analysis. Taking samples for testing. Preliminary physicochemical examination. Methods of poisons extraction from biological material. Detection of water-soluble compounds. Quantitative detection of chlorides in the fodder and in gastrointestinal contents.	2
4. Nitrate and nitrite poisoning. Qualitative detection of nitrate and nitrite in biological samples. Cyanide and gases poisonings (carbon monoxide, hydrogen sulfide and ammonia). Qualitative detection of toxins isolated by distillation on the example of cyanide.	2
5. Urea poisoning. Safety in the use of urea as a source of non-protein nitrogen in ruminant feed. Quantitative determination of urea and ammonia in the fodder and in the content of the gastrointestinal tract. Poisoning by phosphorus and its	2

compounds. Qualitative detection of phosphides in the content of the gastrointestinal tract and feed using Gutzeit method.	
6. Metal poisonings (lead, copper). Mineralization as a method of isolation of metals from biological material. Types of mineralization techniques. Sources of exposure to compounds containing metals. Intra-vitam and post-mortem laboratory tests used for lead poisoning. Principles of quantitative methods for determining metals concentration (atomic absorption spectrometry - AAS).	2
7. Descriptive test nr 1 (table salt, urea, nitrates and nitrites, phosphorus and its compounds, fluorosis, poisoning with metals: lead, copper, zinc).	2
8. Commercially available preparations of insecticides and their applications. Insecticide toxicity characteristics. Toxicological anamnesis and sample preparation for further laboratory analysis. Pesticide extraction from biological material - organic solvent extraction method. Quantitative determination of selected pesticides by high performance liquid chromatography.	2
9. Commercially available preparations of fungicides, herbicides and molluscocides. Their applications, toxicity characteristics. Toxicological anamnesis and sample preparation for further laboratory analysis. Metaldehyde poisoning, qualitative determination of metaldehyde in biological samples and baits.	2
10. Commercially available preparations of rodenticides. Their usage and toxicity characteristics. The principle of medical treatment in cases of the anticoagulant poisoning. Toxicological anamnesis and sample preparation for further laboratory analysis. Qualitative determination of hydroxycoumarin rodenticides by liquid chromatography.	2
11. The veterinary proceedings in acute poisoning of small animals. Overview of the current base of diagnosis laboratories useful in the small animals poisonings.	2
12. Descriptive test nr 2 – Pesticide poisonings. Introduction to plant poisonings in animals. Toxicological anamnesis in cases of suspected plant poisonings. The principles of botanical investigation	2
13. Botanical classification of poisonous plants and their toxic compounds. The review of poisonous and conditionally poisonous plants important in veterinary toxicology – part 1. Poisonings with fodder plants, meadow plants and weeds.	2
14. The review of poisonous and conditionally poisonous plants important in veterinary toxicology – part 2. Poisonings with garden and ornamental plants commonly found in homes. Plant poisonings in cats and dogs.	2
15. Descriptive test nr 3. Poisonings with plants, drugs and household chemicals. Repetition of failed tests.	2

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	62	2
Student's own work	25	1
Total hours/ECTS of student's workload	87	3

Hours:

1. Lectures: 30
2. Laboratory: 30
3. Clinical classes **: 27

4. Auditorium / seminar **:
5. Internship classes **:
6. Practice **:
7. Others with the teacher: 2 (exam, consultations)

* choose the right one

** if applicable

Course description - SYLLABUS

Code	MWW-AJ>Zoonoses
Course Title	Zoonoses
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	sem.8
ECTS / including contact hours	1 ECTS/ 0.9 ECTS
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 0
	CLASSES - LAB. GROUP: 3
	CLASSES - CLIN. GROUP: 0
	CLASSES - AUD. GROUP: 12
Teacher responsible for the course	PLONECZKA-JANECZKO KATARZYNA
Language of instruction	ENGLISH*
Prerequisites	Veterinary microbiology (I, II), Parasitology and Invasiology (I, II), Pathomorphology (I, II), Veterinary Epidemiology, Infectious diseases of animals.
Short description of the course (max. 500 characters)	The aim of the course is to familiarize students with issues concerning zoonoses. The training course includes basic definitions and terms, regarding presence of zoonoses in populations and successively (including division of animal's species like cattle, pigs, horses, dogs, cats, birds, exotic animals): sources of infection, routs of disease transmission (infection/invasion). Clinical manifestation of individual diseases in animals, methods of laboratory diagnostics in veterinary medicine as well as overall conduct of diseases and diagnostics in humans (classes performed by doctor of medicine, specialist in human infectious diseases) are presented.
Content of the course unit (detailed description)	Students get to know existing acts and legislation, which adjust control and monitoring of zoonoses; basic definitions and classification of zoonoses according to WHO (direct zoonoses, cyclozoonoses, metazoonoses, saprozoonoses);

		clinical manifestation and diagnostics of zoonoses of infectious and parasitic background; vector-borne diseases; reservoirs of pathogens (species-specific distribution); basic clinical course of the selected diseases in humans (classes performed by doctor of human medicine) and current state of human infectious diseases according to the EFSA/ECDC reports (European Food Safety Authority and European Centre for Disease Prevention and Control).	
Learning outcomes (max. 3)			
Nr No.	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	presents the biology of infectious factors that cause diseases transmitted between animals, as well as anthroozoonoses, taking into account the mechanisms of disease transmission and defense mechanisms of the macroorganism;	Credit (test)	Wet_WO_05
2	knows to an extensive degree the biology of infectious factors that cause diseases transmitted between animals, as well as anthroozoonoses, taking into account the mechanisms of disease transmission and defense mechanisms of the organism;	Credit (test)	Wet_WSP_13
3	knows to an extensive degree the method of procedure in the case of suspicion or diagnosing diseases that are subject to the obligation of disease eradication or its registration;	Credit (test)	Wet_WSK_08
<i>Skills</i>			
1	plans the diagnostic procedure;	Practical training	Wet_UO_03
2	interprets the responsibility of veterinary physician in regard to the animal, its owner, society, as well as the natural environment;	Practical training	Wet_USP_16
3	is able to work in a multidisciplinary team;	Practical training	Wet_USP_15
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	Practical training	Wet_KS_01
2	uses the objective sources of information;	Practical training	Wet_KS_04
3	cooperates with representatives of other professions in the scope of public health protection;	Practical training	Wet_KS_10
Literature (max. 8, including Youtube presentations, etc.) - compulsory 1.Zoonoses ECDC (aktualny raport) https://ecdc.europa.eu/en/zoonoses 2.Colville J., Berryhil D.: Handbook of Zoonoses, Identification and Prevention, , Elsevier 2007.			

<p>3.Dziubek Z.: Choroby zakaźne i pasożytnicze, Wydawnictwo Lekarskie PZWL, Warszawa 2003.</p> <p>4.Gliński Z., Kostro K.: Choroby zakaźne zwierząt z elementami epidemiologii i zoonoz, PWRiL, Warszawa 2011 r.</p> <p>5.Gliński Z., Kostro K., Buczek J.: Zoonozy, PWR i L, Warszawa 2008 r.</p> <p>6.Mazurkiewicz M., Wieliczko A.: Choroby Drobiu, Wyd. 3, Uniwersytet Przyrodniczy we Wrocławiu, Wrocław 2019.</p> <p>7.Quessenbery K., Carpenter J.: Ferrets, Rabbits and Rodents – Clinical Medicine and Surgery, Third Edition, Elsevier 2011.</p> <p>- complementary/optional</p> <p>1.Greene C.E.: Infectious Diseases of Dogs and Cats, Fourth Edition, Elsevier 2012.</p> <p>2.Beugnet F., Halos L., Guillot J.: Clinical parasitology in dogs and cats, 2018.</p> <p>3.Smith T.C., Harper A.L., Nair R., Wardyn SE, Hanson BM, Ferguson DD, Dressler AE: Emerging swine zoonoses, Vector-borne and Zoonotic diseases 2011, 11 (9).</p> <p>4.Mc Daniel C.J., Cardwell D.M., Moeller R.B., Gray G.C.: Humans and Cattle: A review of Bovine Zoonoses, Vector-borne and Zoonotic Diseases 2014, 14 (1).</p> <p>5.Bender J.B., Tsukayama D.T.: Horses and the risk of zoonotic infections, Vet.Clin. Equine 2004, 643-653.</p>	
Total grade components	Grade (100%) based on the test (1 st or 2 nd term), covering all topics from the classes, whereby participation in the test is possible only for students, who settled all absences in the semester with responsible teachers. Regulation of the subject does not provide any improvement of positive grade from the 1 st term on superior grade.
Comments:	<p>Test questions include issues from each class. Test questions are prepared by various university teachers, specialising in particular zoonotic problems for example: parasitology, infectious diseases of animals, birds diseases, human medicine etc.</p> <p>Students are obliged to pass all absences in the term and in the form designated by the teacher responsible for this topic (in oral or written form), by prior appointment.</p>

List of subjects and exercises for the course/module

Titles of lectures: not apply

Titles of classes:

Definitions: direct zoonoses, cyclo-, meta- and saproozoonoses, „emerging zoonoses”, zoonoses and transmissible diseases, Arboviral infections, conditions of occurrence of zoonoses (global climate changes, immune deficiencies)

Zoonoses (bacterial, viral) transmitted by cats, dogs and horses:

dogs and cats: brucellosis, leptospirosis, campylobacteriosis, Rabies, Salmonellosis, Cat Scratch Disease (Bartonella henselae), chlamydiosis (Chlamydia felis), E.coli 0:157: H7, MRSA (methicylin resistant Staphylococcus aureus)

horses: maleus, melioidosis, campylobacteriosis, leptospirosis, rabies, salmonellosis

Tick borne- and mosquito borne diseases- zoonotic Vector borne diseases (ehrlichiosis, anaplasmosis, borreliosis, RVF, RMSF Rocky Mountain Spotted Fever, WNV West Nile Virus, Arboviral encephalitis)

Food and animal products (meat, milk, eggs, fishes, shellfishes, honey) as a source of zoonoses (Salmonella sp, Staphylococcus aureus, Clostridium botulinum, Clostridium perfringens, Enterococcus sp. Yersinia enterocolitica, Bacillus cereus, Trichinella sp., Toxoplasma gondii, tasiemce, Campylobacter jejuni, Listeria monocytogenes, ciguatera, parasites: Kudoa aliararia; w ECHO virus, Norwalk; bacteria: Aeromonas hydrophila, Vibrio parahaemolyticus, Vibrio vulnificus,

Risk of animal by-products and derived products not intended for human consumption

Zoonoses (viral, bacterial) transmitted by swine: etiology, clinical symptoms and diagnosis, swine herds as a reservoir , collection of samples, bacterial and viral diseases (influenza, leptospirosis, tuberculosis, listeriosis, leptospirosis, E.coli, salmonellosis, Erysipelotrix rhusiopathiae).

Ruminants as a source of zoonoses: TSE, verocytotoxic strains of E.coli (VTEC), salmonellosis, cryptosporidiosis, tuberculosis, brucellosis, Q fever, listeriosis (risk for cattle, sources of infection, diagnostics and pathogenicity for people).

Zoonoses transmitted by birds: etiology, clinical symptoms and pathological changes, diagnosis, prevention, routes of transmission and reservoirs, samples collection: bacterial and viral infections (salmonellosis, campylobacteriosis, avian influenza)

Zoonoses transmitted by exotic animals: etiology, clinical symptoms and pathological changes, diagnosis, exotic animals as a reservoirs, collection of samples, bacterial and viral diseases (LCM - Lymphocytic Choriomeningitis); bacterial infections (salmonellosis, chlamydia), fungal infections (dermatophytosis), parasitoses (hymenolepsis, encephalitozoonosis), RBF (rat Bite Fever).

Parasitic zoonoses transmitted by companion animals (dogs, cats) and laboratory animals: zoonotic risk during contacts, toxoplasmosis, giardiasis, toxocarosis, tapeworm diseases), prophylaxis in pets (deworming programs).

Parasitic zoonoses transmitted by farm animals (cattle, pigs) and horses: food-borne parasitic zoonoses and culinary customs, risk of invasion , ways of preventing.

“Exotic” Parasitic zoonoses: risk of invasion (climatic zones) during travels around different geographical areas and climate zones; malaria, leishmaniasis, sleeping sickness and others – human behavior and risk of invasion; other arthropod-borne diseases, Prophylaxis in “exotic “ zoonoses.

Zoonotic fungal infections: risk of infection, prophylaxis and treatment, Candida spp., Microsporium spp., Trichophyton spp.

Legislation and zoonoses: monitoring and eradication of zoonoses – existing legislation. Proceedings medical-veterinary staff in case of zoonoses threatening public health.

Most recognized zoonoses in clinical and diagnostic aspects: campylobacteriosis, salmonellosis, yersiniosis, STEC/VTEC, Q fever; clinical syndromes and zoonoses with practical relevance; animal bites (Rabies, RBF), toxocarosis and toxoplasmosis, therapy in the selected zoonotic diseases; EFSA/ ECDC reports.

Credit (test)

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	15 (classes) + 1 (consultations, credit)	0.9
Student's own work	2	0.1
Total hours/ECTS of student's workload	18	1

Hours:

1. Lectures: 0
2. Laboratory / project / language classes / sports classes **: 3
3. Clinical classes **: 0
4. Auditorium / seminar **: 12
5. Internship classes **: 0
6. Practice **: 0
7. Others with the teacher: consultations

* choose the right one

** if applicable

Course description – SYLLABUS

Code	SJO>A-MWWB1-SJ-2S-1 SJO>A-MWWB1-SJ-3S-2 SJO>A-MWWB1-SJ-4S-3 SJO>A-MWWB1-SJ-5N-4E SJO>A-MWWB2-SJ-2S-1 SJO>A-MWWB2-SJ-3S-2 SJO>A-MWWB2-SJ-4S-3 SJO>A-MWWB2-SJ-5N-4E SJO>A-MWWC1-SJ-2S-1 SJO>A-MWWC1-SJ-3S-2 SJO>A-MWWC1-SJ-4S-3 SJO>A-MWWC1-SJ-5S-4E
Course Title	English language – B1 level, B2+ level or C1 level
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	2-5
ECTS / including contact hours	2 ECTS/semester (8 ECTS/full course)

Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	Tutorials: 30 hours /semester, full course – 120h		
Teacher responsible for the course	Ewa Hajdasz MA		
Language of instruction	ENGLISH*		
Pre-requisites	Required knowledge of English at minimum A2 level (for English language B1 level), at minimum B1 level (for English language B2 level) or at minimum B2/B2+ (for English language C1 level)		
Short description of the course (max. 500 characters)	Students study medical English throughout the four semesters and finally take the written and spoken examination on level B2+ or C1.		
Content of the course unit (detailed description)	During the course, which is based on a medical English coursebook, students have the opportunity to learn language skills necessary to work in their field of study in the English-speaking environment. Students study medical content and learn how to talk and write about related issues and processes. After completion of the course, students should be able to read professional journals and textbooks more fluently. Students should be able to communicate in English with veterinarians from other countries. As part of the course programme students have to prepare a presentation in English. The course enables them to extend professional vocabulary and become more fluent linguistically to either communicate with non-Polish animal owners or take up research abroad.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	The student knows and understands vocabulary and grammatical structures of the English language at the B2+ level of the Common European Framework of Reference for Languages, as well as specialised veterinary terminology necessary in professional activity.	Tests (written and oral)	Wet_WZU_01
<i>Skills</i>			
1	The student uses the English language at the B2+ level of the Common European Framework of Reference for Languages, including specialised veterinary terminology necessary in professional activity.	Speaking, writing, reading, listening, tests and activating exercises on the University e-learning Platform Moodle.	Wet_UZU_01

2	The student uses vocabulary and grammatical structures of the English language to create and understand written and oral statements, both general and specialised, in the field of veterinary.	Speaking, writing, reading, listening, tests and activating exercises on the University e-learning Platform Moodle.	Wet_UO_10
<i>Social competences</i>			
1	The student wants to communicate in the English language to obtain specific information, broaden their knowledge and develop their linguistic skills.	The student does tasks in class and at home	Wet_KS_06
2	The student wants to acquire new knowledge, has a need for self-development and is aware of the necessity of improving their linguistic skills all their life	The teacher observes student's performance during team and individual work.	Wet_KS_07
3			
<p>Literature (max. 8, including Youtube presentations, etc.)</p> <ol style="list-style-type: none"> 1. Donesch-Jeżo E., English for Medical Students and Doctors. Part 1. Wydawnictwo Przegląd Lekarski, Kraków 2000. 2. Aspinall V., Capello M., Phillips C., Introduction to Veterinary Anatomy and Physiology: Textbook, Butterworth, Heinemann, Elsevier, 2015. 3. Black`s Veterinary Dictionary, 21st Edition. A&C Black, London 2005. 4. Bowden S., Introduction to Veterinary Anatomy and Physiology: Workbook, Butterworth, Heinemann, Elsevier, 2015. 5. Donesch-Jeżo E., English for Medical Students and Doctors. Part 2. Wydawnictwo Przegląd Lekarski, Kraków 2001. 6. Donesch-Jeżo E., English for Students of Pharmacy and Pharmacists. Wydawnictwo Przegląd Lekarski, Kraków 2007. 7. Doś A., dr n. wet. Prządka P., Vetaski – karty pracy opracowane na podstawie najlepszych na rynku podręczników weterynaryjnych. 8. Glendinning Eric H., Howard R. Professional English in Use – Medicine. Cambridge University Press 2007. 9. Matuszak-Król A., Król J., Język angielski – teksty dla studentów medycyny weterynaryjnej. Wydawnictwo Akademii Rolniczej w Lublinie. 10. Meier Penn J., Hanson E., Anatomy and Physiology for English Language Learners. Pearson Longman 2006. 11. Pohl A., Professional English – Medical. Penguin English Guide 2004. 12. Strugała A., English in Veterinary Medicine – Common Veterinary Disorders – selection of original internet materials. <p>Also the Internet resources chosen by the teacher as they are needed in the given group. Teacher's own materials.</p>			
Total grade components		<i>e.g. grade obtained at classes (60%) + grade obtained at lectures (40%)</i>	
Comments:			

List of subjects and exercises for the course/module

Semester 1

1. Introduction to anatomy and physiology- molecules and cells, tissues, organs and organ systems.
2. The anatomical position. Features of the mammalian body. The functions of the body. Irregular plural forms in medical words of Latin and Greek origin.
3. The integumentary system (the structure and functions of the skin and its disorders).
4. The body cavities. Names of the body systems and organs.
5. Review of the present tenses.
6. The skeletal system (bone tissue, types of bone, the functions of bone, homeostasis of calcium, ligaments and tendons, cartilage, joints).
7. The respiratory system – structure. Respiration and gas exchange.
8. Common diseases of the respiratory system in mammals.
9. Review of the past tenses.
10. Animal Kingdom. Groups of animals.

Semester 2

1. The blood and its disorders (the composition and functions of blood, full blood count, body defences, anaemia, pernicious anaemia, other blood disorders).
2. The cardiovascular system (the heart structure; blood vessels; heart action and blood circulation).
3. Common cardiovascular disorders – congenital and acquired (common heart deformities, shortness of breath, arteriosclerosis, heart failure, examining the heart and circulation).
4. The digestive system (the structure, the path of food in the digestive tract, accessory organs).
3. The process of digestion. Common gastrointestinal disorders.
4. Ruminants - the anatomy of the digestive tract and digestion in ruminants.
5. Review of the future structures.
6. The urinary system its disorders (anatomy and physiology of the kidneys, organs of the urinary system, common urinary disorders).
7. The nervous system – part I (organization of the nervous system, how the nervous system works, the peripheral nervous system, common neural disorders).
8. The nervous system – part II (parts of the brain, parts of the spinal cord, autonomic nervous system, common CNS disorders).
9. The eye and its disorders (parts of the eye, examination of the eye, retinopathy).
10. The ear and its disorders (infections).
11. The reproductive and the endocrine systems in mammals
12. Infertility. Spaying/neutering of domestic animals.

Semester 3

1. The Doctor and his patient – different specialisations
2. Taking history, physical examination and accessory investigations (laboratory blood tests, radiography, radiology, angiography, ultrasound examination, ECG, EEG, MRI, CT, PET, endoscopy).
3. Different treatments and procedures (conservative treatment, surgery, transplant surgery, artificial implants, endoscopic surgery, pharmacological treatment, intensive therapy, dialysis, lithotripsy, physiotherapy)
4. Review of the modal verbs.
5. The job of a veterinary doctor.
6. The doctor`s surgery (rooms, equipment, basic instruments, dressings).
7. The modern hospital and veterinary clinic.
8. Temperature. Review of passive structures.
9. Pulse rate. Review of conditionals.
10. Blood pressure. Review of reported speech.
11. Injections.
12. Classification of drugs and routes of drug administration (Analgesics and antipyretics. Antibiotics).
13. The structure and functions of the lymphatic system (lymphatic vessels, lymphatic nodes, lymphoid organs: the spleen, the thymus and the tonsils).
14. Cancer (the mechanism of neoplastic growth, common types of cancer).

Semester 4

1. The language of presentations: the structure of a talk, common phrases used during a presentation. Choosing topics for students` presentations (e.g. selected diseases or animal species).
Topic suggestions: e.g. Tics, Swine fever, Neurological disorders in dogs, Mad cow disease, Glanders, Grass sickness in horses, Artificial insemination in horses, Founder in horses, Leptospirosis in cattle, Tuberculosis, Parasitic diseases, Bluetongue disease, Mange in cattle and pigs, Salmonellosis, Parasitic bronchitis, Zoonoses, Canine and feline “body language”;
2. Revision of the medical vocabulary and expressions. Review of the grammar of relative clauses.
3. The students` presentations and feedback activities.
4. Case study: Avian Influenza
5. Case study: Bladder Stones (urolithiasis)
6. Case study: Colic in horses.
7. Case study: Diabetes mellitus
8. Case study: Distemper.
9. Case study: Rabies.

10. Case study: Foot-and-mouth disease.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	124	4
Student's own work	80	4
Total hours/ECTS of student's workload	204	8

Hours:

Laboratory / project / language classes / sports classes **:120

Others with the teacher:4

- choose the right one
** if applicable

Course description – SYLLABUS

Code	SJO>H-MWWB1-SJ-2S-1 SJO>H-MWWB1-SJ-3S-2 SJO>H-MWWB1-SJ-4S-3 SJO>H-MWWB1-SJ-5N-4E SJO>H-MWWB2-SJ-2S-1 SJO>H-MWWB2-SJ-3S-2 SJO>H-MWWB2-SJ-4S-3 SJO>H-MWWB2-SJ-5N-4E
Course Title	Spanish language – B1 level, B2+ level
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	2-5
ECTS / including contact hours	2 ECTS/semester (8 ECTS/full course)
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	Tutorials: 30 hours /semester, full course – 120h
Teacher responsible for the course	Ewa Hajdasz MA

Language of instruction	Spanish*		
Pre-requisites	Required knowledge of Spanish at minimum A2 level (for Spanish language B1 level), at minimum B1 level (for Spanish language B2 level)		
Short description of the course (max. 500 characters)	Students study medical English throughout the four semesters and finally take the written and spoken examination on level B2+.		
Content of the course unit (detailed description)	During the course, which is based on an online medical coursebook in Spanish: https://zoovetesmipasion.com/libros-de-zootecnia-y-veterinaria/ , students have the opportunity to learn language skills necessary to work in their field of study in the Spanish-speaking environment. Students study medical content and learn how to talk and write about related issues and processes. After completion of the course, students should be able to read professional journals and textbooks more fluently. Students should be able to communicate in Spanish with veterinarians from other countries. As part of the course programme students have to prepare a presentation in Spanish. The course enables them to extend professional vocabulary and become more fluent linguistically to either communicate in Spanish with non-Polish animal owners or take up research abroad.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	The student knows and understands vocabulary and grammatical structures of the English language at the B2+ level of the Common European Framework of Reference for Languages, as well as specialised veterinary terminology necessary in professional activity.	Tests (written and oral)	Wet_WZU_01
<i>Skills</i>			
1	The student uses the English language at the B2+ level of the Common European Framework of Reference for Languages, including specialised veterinary terminology necessary in professional activity.	Speaking, writing, reading, listening, tests and activating exercises on the University e-learning Platform Moodle.	Wet_UZU_01
2	The student uses vocabulary and grammatical structures of the English language to create and understand written and oral statements, both general and specialised, in the field	Speaking, writing, reading, listening, tests and	Wet_UO_10

	of veterinary.	activating exercises on the University e-learning Platform Moodle.	
<i>Social competences</i>			
1	The student wants to communicate in the English language to obtain specific information, broaden their knowledge and develop their linguistic skills.	The student does tasks in class and at home	Wet_KS_06
2	The student wants to acquire new knowledge, has a need for self-development and is aware of the necessity of improving their linguistic skills all their life	The teacher observes student's performance during team and individual work.	Wet_KS_07
3			
<p>Literature (max. 8, including Youtube presentations, etc.) https://zoovetesmpasion.com/libros-de-zootecnia-y-veterinaria/ Church, D.C., <i>Fundamentos de nutrición y alimentación animal</i>, Limusa, Mexico, 2002. Muedra V. (red), <i>Anatomia animal, atlas tematico</i>, Idea books, 1996. Aragones L., <i>Gramatica de uso del espanol</i>, Cesma, Madrid, 2007. Raya, R.A., <i>Gramatica basica del estudiante de espanol</i>, Difusión, Madrid, 2012. Also the Internet resources chosen by the teacher as they are needed in the given group. Teacher's own materials.</p>			
Total grade components	The final grade is the resultant value of the component grades in the areas of knowledge (40% or 20%), skills (40% or 60%) and social competences (20%). (All summed up to make 100%).		
Comments:	The final grade in semester 4 constitutes the mean of two grades: the final grade for the classes in semester 4 and the grade for the exam. In addition, the mean is calculated only when the two grades are passing grades. A failing grade in the exam results in the student failing the whole semester.		

List of subjects and exercises for the course/module

Titles of classes:

Variety of topics:

Semester I

1. Names of animals according to type, characteristics and comparison of animals.
2. Comparing adjectives, nouns, verbs.
3. Anatomy of animals.
4. Names of body parts and organs.
5. Present tense - conjugation.
6. Nutrition of animals. Vocabulary - food, types of foods, digestive disorders in animals.
7. Animal welfare.

Semester II

1. Wild and domestic animals
2. Diseases of pets
3. Dogs, cats, farm animals
4. Diseases of wild animals: mammals, birds, fish
5. Therapy - drugs, recommendations.
6. Veterinary activities - verbs and varieties
7. Equipment of a veterinary surgery, medical equipment.
8. Past time *indefinido and preterito perfecto*
9. *Imperfecto*

Semester III

1. Veterinary profession - activities, characteristics.
2. Job advertisements in the veterinary field
3. Veterinarian's CV
4. A veterinarian's job in Spain
5. Vets without borders
6. Talking about work / one's own veterinary practice
7. Therapies with animals: horses, fish, dogs.
8. The imperative and negative imperative
9. Conditional sentences I and II type

Semester IV

1. Introduction to the rules of preparing and presenting a presentation. Expressions typical of presentations. A selection of topics for student presentations.
2. Preventive veterinary medicine - text.
3. Animal production-text.
4. Zoo - text.
5. Ecological threats to animals-text.
6. Animal shelters - text.
7. Hospitalization of animals-text.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	124	4
Student's own work	80	4
Total hours/ECTS of student's workload	204	8

Hours:

- language classes: 120
- others with the teacher:4

* choose the right one

** if applicable

Course description – SYLLABUS

Code	SJO>N-MWWB1-SJ-2S-1 SJO>N-MWWB1-SJ-3S-2 SJO>N-MWWB1-SJ-4S-3 SJO>N-MWWB2-SJ-2S-1 SJO>N-MWWB2-SJ-3S-2 SJO>N-MWWB2-SJ-4S-3 SJO>N-MWWB2-SJ-5N-4E
Course Title	Spanish language – B1 level, B2+ level
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY
Semester of study	2-5
ECTS / including contact hours	2 ECTS/semester (8 ECTS/full course)
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	Tutorials: 30 hours /semester, full course – 120h
Teacher responsible for the course	Ewa Hajdasz MA
Language of instruction	German *
Pre-requisites	Required knowledge of German at minimum A2 level (for German language B1 level), at minimum B1 level (for English language B2 level).
Short description of the course (max. 500 characters)	Students study medical German throughout the four semesters and finally take the written and spoken examination at B2 level.
Content of the course unit (detailed description)	During the course, which is based on veterinary and medical literature in the German language, students have the opportunity to learn language skills necessary to work in their field of study in the German-speaking environment. Students study medical content and learn how to talk and write about related issues and processes. After completion of the course, students should be able to read professional journals and textbooks more fluently. Students should be able to communicate in German with veterinarians from other countries. As part of the course programme students have to prepare a presentation in German. The course enables them to extend professional vocabulary and become more fluent linguistically to either communicate with non-Polish animal owners or take up research abroad.

Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	The student knows and understands vocabulary and grammatical structures of the English language at the B2+ level of the Common European Framework of Reference for Languages, as well as specialised veterinary terminology necessary in professional activity.	Tests (written and oral)	Wet_WZU_01
<i>Skills</i>			
1	The student uses the English language at the B2+ level of the Common European Framework of Reference for Languages, including specialised veterinary terminology necessary in professional activity.	Speaking, writing, reading, listening, tests and activating exercises on the University e-learning Platform Moodle.	Wet_UZU_01
2	The student uses vocabulary and grammatical structures of the English language to create and understand written and oral statements, both general and specialised, in the field of veterinary.	Speaking, writing, reading, listening, tests and activating exercises on the University e-learning Platform Moodle.	Wet_UO_10
<i>Social competences</i>			
1	The student wants to communicate in the English language to obtain specific information, broaden their knowledge and develop their linguistic skills.	The student does tasks in class and at home	Wet_KS_06
2	The student wants to acquire new knowledge, has a need for self-development and is aware of the necessity of improving their linguistic skills all their life	The teacher observes student's performance during team and individual work.	Wet_KS_07
3			

Literature (max. 8, including Youtube presentations, etc.)	
<ol style="list-style-type: none"> 1. Hagner V., Schmidt A., <i>Deutsch in der Medizin</i>, Hueber Verlag, München 2017. 2. Szafranski M., <i>Deutsch für Mediziner</i>, Wydawnictwo Lekarskie PZWL, Warszawa 2008. 3. König H., Lieblich H., <i>Anatomie der Haussäugetiere, Lehrbuch und Farbatlas für Studium und Praxis</i>, Schattauer Verlag Stuttgart 2014. 4. Carlos T., <i>Histopathologie. Lehrbuch und Atlas zur Befunderhebung und Differenzialdiagnostik</i>, Schattauer Verlag Stuttgart 2006. 5. Schmidt A., <i>Menschen im Beruf Medizin</i>, Hueber Verlag, München 2015. 6. Also the Internet resources chosen by the teacher as they are needed in the given group. Teacher's own materials. 	
Total grade components	The final grade is the resultant value of the component grades in the areas of knowledge (40% or 20%), skills (40% or 60%) and social competences (20%). (All summed up to make 100%).
Comments:	The final grade in semester 4 constitutes the mean of two grades: the final grade for the classes in semester 4 and the grade for the exam. In addition, the mean is calculated only when the two grades are passing grades. A failing grade in the exam results in the student failing the whole semester.

List of subjects and exercises for the course/module

Titles of classes:

Variety of topics:

Semester 1

1. Introduction to anatomy and physiology - molecules and cells, tissues, organs and organ systems.
2. The anatomical position. Features of the mammalian body. The functions of the body.
3. The integumentary system (the structure and functions of the skin and its disorders).
4. The body cavities. Names of the body systems and organs.
5. Review of the past tenses.
6. The skeletal system (bone tissue, types of bone, the functions of bone, homeostasis of calcium, ligaments and tendons, cartilage, joints).
7. The respiratory system – structure. Respiration and gas exchange.
8. Common diseases of the respiratory system in mammals.
9. Review of the past tenses.
10. Animal Kingdom. Groups of animals.

Semester 2

1. The blood and its disorders (the composition and functions of blood, full blood count, body defences, anaemia,

pernicious anaemia, other blood disorders).

2. The cardiovascular system (the heart structure; blood vessels; heart action and blood circulation).

3. Common cardiovascular disorders – congenital and acquired (common heart deformities, shortness of breath, arteriosclerosis, heart failure, examining the heart and circulation).

4. The digestive system (the structure, the path of food in the digestive tract, accessory organs).

5. The process of digestion. Common gastrointestinal disorders.

6. Ruminants - the anatomy of the digestive tract and digestion in ruminants.

7. Review of the passive structures.

8. The urinary system its disorders (anatomy and physiology of the kidneys, organs of the urinary system, common urinary disorders).

9. The nervous system – part I (organization of the nervous system, how the nervous system works, the peripheral nervous system, common neural disorders).

10. The nervous system – part II (parts of the brain, parts of the spinal cord, autonomic nervous system, common CNS disorders).

11. The eye and its disorders (parts of the eye, examination of the eye, retinopathy).

12. The ear and its disorders (infections).

13. The reproductive and the endocrine systems in mammals.

14. Infertility. Spaying/neutering of domestic animals.

Semester 3

1. The Doctor and his patient – different specialisations.

2. Taking history, physical examination and accessory investigations (laboratory blood tests, radiography, radiology, angiography, ultrasound examination, ECG, EEG, MRI, CT, PET, endoscopy).

3. Different treatments and procedures (conservative treatment, surgery, transplant surgery, artificial implants, endoscopic surgery, pharmacological treatment, intensive therapy, dialysis, lithotripsy, physiotherapy).

4. Review of the conditionals.

5. The job of a veterinary doctor.

6. The doctor's surgery (rooms, equipment, basic instruments, dressings).

7. The modern hospital and veterinary clinic.

8. Temperature. Review of conditionals for past structures.

9. Pulse rate. Review of conditionals for past structures.

10. Blood pressure. Review of complex sentences. Syntax.

11. Injections.

12. Classification of drugs and routes of drug administration (Analgesics and antipyretics. Antibiotics).

13. The structure and functions of the lymphatic system (lymphatic vessels, lymphatic nodes, lymphoid organs: the spleen, the thymus and the tonsils).

14. Cancer (the mechanism of neoplastic growth, common types of cancer).

Semester 4

1. The language of presentations: the structure of a talk, common phrases used during a presentation.

Choosing topics for students` presentations (e.g. selected diseases or animal species).

Topic suggestions: e.g. Ticks, Swine fever, Neurological disorders in dogs, Mad cow disease, Glanders, Grass sickness horses, Artificial insemination in horses, Founder in horses, Leptospirosis in cattle, Tuberculosis, Parasitic diseases, Bluetongue disease, Mange in cattle and pigs, Salmonellosis, Parasitic bronchitis, Zoonoses, Canine and feline “body language”.

2. Revision of the medical vocabulary and expressions. Review of complex sentences. Syntax.

3. The students` presentations and feedback activities.

4. Case study: Avian Influenza.

5. Case study: Bladder Stones (urolithiasis).

6. Case study: Colic in horses.

7. Case study: Diabetes mellitus.

8. Case study: Distemper.

9. Case study: Rabies.

10. Case study: Foot-and-mouth disease.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student`s workload, including: teaching hours + tutorials + tests + exam	124	4
Student`s own work	80	4
Total hours/ECTS of student`s workload	204	8

Hours:

- language classes: 120
- others with the teacher:4

* choose the right one

** if applicable

Course description – SYLLABUS

Code	SJO>R-MWWB1-SJ-2S-1 SJO>R-MWWB1-SJ-3S-2 SJO>R-MWWB1-SJ-4S-3 SJO>R-MWWB2-SJ-5S-4E		
Course Title	Russian language – B1 level, B2+ level		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY		
Semester of study	2-5		
ECTS / including contact hours	2 ECTS/semester (8 ECTS/full course)		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	Tutorials: 30 hours /semester, full course – 120h		
Teacher responsible for the course	Ewa Hajdasz MA		
Language of instruction	Russian*		
Pre-requisites	Required knowledge of Russian at minimum A2 level (for Russian language B1 level), at minimum B1 level (for Russian language B2 level).		
Short description of the course (max. 500 characters)	Students study medical Russian throughout the four semesters and finally take the written and spoken examination at B2 level.		
Content of the course unit (detailed description)	During the course, which is based on veterinary and medical literature in the Russian language, students have the opportunity to learn language skills necessary to work in their field of study in the Russian-speaking environment. Students study medical content and learn how to talk and write about related issues and processes. After completion of the course, students should be able to read professional journals and textbooks more fluently. Students should be able to communicate in Russian with veterinarians from other countries. As part of the course programme students have to prepare a presentation in Russian. The course enables them to extend professional vocabulary and become more fluent linguistically to either communicate with non-Polish animal owners or take up research abroad.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	The student knows and understands vocabulary and	Tests (written and	Wet_WZU_01

	grammatical structures of the English language at the B2+ level of the Common European Framework of Reference for Languages, as well as specialised veterinary terminology necessary in professional activity.	oral)	
<i>Skills</i>			
1	The student uses the English language at the B2+ level of the Common European Framework of Reference for Languages, including specialised veterinary terminology necessary in professional activity.	Speaking, writing, reading, listening, tests and activating exercises on the University e-learning Platform Moodle.	Wet_UZU_01
2	The student uses vocabulary and grammatical structures of the English language to create and understand written and oral statements, both general and specialised, in the field of veterinary.	Speaking, writing, reading, listening, tests and activating exercises on the University e-learning Platform Moodle.	Wet_UO_10
<i>Social competences</i>			
1	The student wants to communicate in the English language to obtain specific information, broaden their knowledge and develop their linguistic skills.	The student does tasks in class and at home	Wet_KS_06
2	The student wants to acquire new knowledge, has a need for self-development and is aware of the necessity of improving their linguistic skills all their life	The teacher observes student's performance during team and individual work.	Wet_KS_07
3			
Literature (max. 8, including Youtube presentations, etc.) The Internet resources chosen by the teacher as they are needed in the given group. Teacher's own materials.			
Total grade components	The final grade is the resultant value of the component grades in the areas of knowledge (40% or 20%), skills (40% or 60%) and social competences (20%). (All summed up to make 100%).		
Comments:	The final grade in semester 4 constitutes the mean of two grades: the final grade for the classes in semester 4 and the grade for the exam. In addition, the mean is calculated only when the two grades are passing grades. A failing grade in the exam results in the student failing the whole semester.		

List of subjects and exercises for the course/module

Titles of classes:

Semester I

1. Introduction to anatomy and physiology.
2. Anatomical position. Features of the body of a mammal. Body functions. Irregular plural of medical words of Latin and Greek origin.
3. Structure, functions and disorders of the skin.
4. Body cavities. Names of body parts and organs.
5. Repetition of the present tense.
6. Skeletal system (bone tissue, bone types, bone functions).
7. Respiratory system.
8. Diseases of the respiratory system in mammals.
9. Repetition of the past tense.

Semester II

1. Blood and blood diseases.
2. Cardiovascular system; disorders in functioning (heart, blood vessels and lymphatic)
3. Congenital and acquired cardiovascular diseases.
4. Digestive system (digestive system anatomy).
5. The digestive system. Common gastrointestinal disorders.
6. Ruminants - Digestive system anatomy in ruminants.
7. Repetition of the future time.
8. Urinary system and its disorders.
9. Nervous system - (structure, operation, peripheral nervous system, frequent disorders of the nervous system).
11. Eye and its diseases.
12. Ear and its diseases.

Semester III

1. Doctor and patient. Different specializations.
2. Repetition of verbs and nouns.
3. The work of the veterinarian
4. Medical clinic / office (rooms, equipment, basic tools, dressings).
5. A modern hospital and veterinary clinic.
6. Classification of medicines. Drug delivery routes. Mechanisms of drug action.
7. Repetition of the previous material

Semester IV

1. Introduction to the rules of preparing and presenting a presentation. Expressions typical of presentations. A selection of topics for student presentations. Sample topics: Ticks, Swine flu, Zoonosis, Body language of dogs and cats.
2. Repetition of medical vocabulary and medical expressions.
3. Student presentations and presentation tasks.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	124	4
Student's own work	80	4
Total hours/ECTS of student's workload	204	8

Hours:

- language classes: 120
- others with the teacher: 4

* choose the right one

** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description - SYLLABUS

Code	MWW-AJ>Ethology
Course Title	Ethology and animal welfare
Subject area /Field of study	VETERINARY
Study cycle	FULL-TIME
Profile	ACADEMIC
Type of course	OBLIGATORY/ELECTIVE
Semester of study	3
ECTS / including contact hours	3/2
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES
	CLASSES - LAB. GROUP:
	CLASSES - CLIN. GROUP:
	CLASSES - AUD. GROUP:
Teacher responsible for the course	Tadeusz Stefaniak
Language of instruction	ENGLISH*
Prerequisites	Animal Anatomy, Biochemistry, Professional ethics
Short description of the course (max. 500 characters)	The goal of the course is to introduce general principles of ethology and basic issues associated with the welfare of animals kept by humans. During the course the students gain knowledge about behavioural needs of farm animals and pets and learn to interpret their behaviours. Methods of assessing animal welfare are introduced as well as main

		problems associated with transport and slaughter of farm animals.	
Content of the course unit (detailed description)		Introduction in basic ethology, discussion of basic rights and behavioral phenomena. Introduction to patterns of normal behaviour of farm animals (horse, cattle, swine, goat, sheep) and pet animals (dog, cat). Preparing of future veterinarians to recognition and proper interpretation of the behaviour of healthy and ill domestic animals. Recognition of abnormal animal behaviour, discussion of causes, course, consequences and prevention methods. Novel methods of animal welfare evaluation and their use in conditions of veterinary practice. Discussion of major problems associated with transport and slaughter of farm animals.	
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree the principles of maintaining animal welfare	Written or oral exam, evaluation of presentations prepared by students, pop quizzes	Wet_WO_07
2	describes the principles of ensuring animal welfare	Written or oral exam, evaluation of presentations prepared by students, pop quizzes	Wet_WSK_10
<i>Skills</i>			
1	uses his/her professional skills to improve the quality animal welfare	Written or oral exam, evaluation of presentations prepared by students, pop quizzes	Wet_USP_19
2	interprets the responsibility of veterinary physician in regard to the animal and its owner	Written or oral exam, evaluation of presentations prepared by students, pop quizzes	Wet_USP_16
3	uses the collected information associated with the health and welfare of animals, and in selected cases also with productivity of the herd.	Written or oral exam, evaluation of presentations	Wet_USK_21

		prepared by students, pop quizzes	
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people and animals	Written or oral exam, evaluation of presentations prepared by students	Wet_KS_01
2	communicates with the co-workers and shares knowledge	evaluation of presentations prepared by students	Wet_KS_08
Literature (max. 8, including Youtube presentations, etc.) - compulsory Tinbergen N.: The study of Instinct, 1951 Hafez E.S.E.: The behaviour of domestic animals. Bailliere Tindall, London, 1975. - complementary/optional Keeling L.J., Gonyou H.W.: Social Behaviour in Farm Animals. CABI Publishing. London. 2005 Lindsay S.R.: Handbook of applied dog behavior and training. Vol. I Adaptation and learning. Blackwell Publishing, Ames 2000 Bradshaw JWS., Casey RA, Brown SL. The behavior of the domestic cat. CABI 2012			
Total grade components		Grade obtained at partial exams 60% Evaluation of students' presentations 30% Pop quizzes 10%	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

1. Associations between behaviour and welfare. Basic features of behaviour. The role of senses in the behaviour of different animal species. Phases of behavioural act. Innate releasing mechanism. Behavioural chain. Innate and adaptative factors influencing the animal behaviour.
2. Definition of animal welfare. Five freedoms. Limitations of welfare in pets and farm animals. Methods of evaluation of farm animal welfare. Partitioning of abnormal behaviour. Typical limitations of environment of intensive animal production. Suffering versus health. Limits of adaptation abilities.
3. Normal and abnormal behaviours of dogs. Natural behavioural patterns, methods of communication, senses. Novel theories in the field of dogs' behaviour and training. Scientific basics of animal training.

4. Normal and abnormal cat behaviour. Natural behavioural pattern, means of communication; senses; territorialism of cats and their situation at home; kinds of behavioural problems; urination and defecation at home; damage of furnitures, objects associated with scratching need; prevention of urine spraying; aggression problem in cats; occurrence of stereotypies.
5. 5. Normal and abnormal horse behaviour in keeping conditions. Natural behavioural pattern; means of communication; herd organisation; senses; hierarchic behaviour; factors affecting the occurrence of stereotypies in horses; types of stereotypic behavior, diagnosis, causes, course, consequences, prevention.
6. Normal and abnormal cattle behaviour in keeping conditions. Natural behavioural pattern; means of communication; herd organisation; senses; the role of the hierarchy and problems associated with in group housing. Relations between the individuals in horned and decornized herds; proper behaviour of humans in relation to cattle; recognition of proper and inappropriate relations between human and cows; types of stereotypies, their diagnosis, causes, course consequences and prevention.
7. Normal and abnormal pig behaviour in keeping conditions. Natural behavioural pattern; means of communication; herd organisation; senses; limitations associated with group housing in large farms; pigsty according to Stolba – the possibilities of modeling the pig behaviour; types of stereotypies, their diagnosis, causes, course consequences and prevention; periparturient abnormal behaviour of sows.
8. Normal and abnormal sheep behaviour in keeping conditions. Natural behavioural pattern; means of communication; herd organisation; senses; breed associated differences in herd organisation, practical aspects; „sheep rush”- importance of the phenomenon, threats in keeping conditions; offsprings’ care; types of stereotypies their diagnosis, causes, course consequences and prevention.
9. Normal and abnormal goat behaviour in keeping conditions. Natural behavioural pattern; means of communication; herd organisation; senses; hierarchic problems in conditions of poor welfare; offsprings’ care; sex behaviour; basic requirements associated with the welfare of goats.
10. Evaluation of animal welfare – clinical methods. Factors that influence the human-animal relations. Methodical clinical examination and registration of problems. Ethological parameters. How to recognize proper and inappropriate relations between the animals and the human based on animal behaviour and human behaviour. How to achieve the good relations with cows? What causes bad relations with cows?
11. Evaluation of animal welfare – laboratory methods. Types of physiological parameters in the monitoring of animal welfare. Changes of selected blood parameters in the poor welfare. Utilization of acute phase proteins. The determination of cortisol and its metabolites. Immunological parametrs. Production parameters.
12. Evaluation of animal welfare – the influence of environment and production management. Factors affecting the welfare of cows in farm conditions. Problem of technopaties. Features of high level of animal welfare. Features of low level of animal welfare. Comprehensive evaluation of welfare of tethered cows farms.
13. Methods of evaluation of insufficient welfare, pain, suffering, injury, and stress in animals. Examples of human-animal relations. The interpretation of intentions of animals in different situations in large farms.
14. How to improve the animal welfare in selected species of farm animals. Technical indices of the keeping conditions. Index of Animal Welfare.
15. Welfare of slaughter animals. Methods of protecting the pigs before slaughter. Ways of moving the animals in slaughterhouse. Leading with light. Smels. Factors affecting meat quality. Symptoms of failures at electrical stunning of slaughtered pigs.

Titles of classes:

1. Selection of themes to be prepared by students. Methods of studying and evaluation of animal behaviour. Definitions of ethology and welfare. Phases of analysing the behaviour. Phases of behavioural reaction. Key stimuli. The law of heterogenic summation. Loosing behaviour.

Symptoms of crossing over the ability to adaptation. Basic forms of animal behaviour (according to Hafez). Methods of learning.

2. Characterization and recognizing of normal and abnormal canine behaviour. Methods of welfare improvement. Topics presented by students: 1. Communication of dogs 2. Raising of a puppy – the role and methods of socialization. 3. Common aggression-types in dogs (fear-based aggression, interdogs aggression, resource guarding) 4. Problems related to separation (fear, destructiveness, excessive barking, house soiling) 5. Behavioural tools used in dog training
3. Characterization and recognizing of normal and abnormal feline behaviour. Methods of welfare improvement. Topics presented by students: 1. Natural feline behaviour, methods of communication between individuals. 2. Problems associated with defecation and urination at home. 3. Aggression –types. 4. Destruction caused by scratching. 5. Nutritional disturbances and stereotypies.
4. Partial exam I
5. Characterization and recognizing of normal and abnormal horse behaviour. Methods of welfare improvement.. Topics presented by students: 1. Natural organisation of horse herds, methods of communication between individuals. 2. Normal and abnormal sexual behaviour. 3. Associated with ageing changes in behavioural pattern, limitations in keeping conditions as the cause of behavioural disturbances. 4. Stereotypies (weaving, wing sucking, tongue playing). 5. Other stereotypies.
6. Characterization and recognizing of normal and abnormal bovine behaviour. Methods of welfare improvement. Topics presented by students: 1. Natural organisation of bovine herd, methods of communication between individuals. 2. Nutrition of cattle, changes associated with ageing. 3. Limitations of presenting the normal behaviour in farm conditions, their influence of abnormal behaviour. 4. Proper sexual behaviour of cattle, the influence of keeping conditions on expression of natural behaviour. 5. Stereotypies.
7. Characterization and recognizing of normal and abnormal swine behaviour. Methods of welfare improvement. Methods of welfare improvement. Topics presented by students: 1. 1. Natural, social organisation of pigs. 2. Methods of swine keeping 3. Inappropriate behaviour of sows as the cause of losses in piglets. 4. limitations that exist in large farm swine keeping as the cause of behavioural disturbances in pigs. 5. Stereotypies.
8. Scheme of complex evaluation of animal behaviour in large farms. Quiz based on self made photos /movies. Partial exam II.

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
Student's workload, including: teaching hours + tutorials + tests + exam	31	2
Student's own work	20	1
Total hours/ECTS of student's workload	51	3

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **: 15
3. Clinical classes **:
4. Auditorium / seminar **:
5. Internship classes **:

6. Practice **:
 7. Others with the teacher: 13

* choose the right one
 ** if applicable

Załącznik 2.5 do zarządzenia rektora 105/2016 ze zm.

Course description – SYLLABUS

Code	MWW-AJ>Tophic		
Course Title	Topographical anatomy		
Subject area /Field of study	VETERINARY		
Study cycle	FULL-TIME		
Profile	ACADEMIC		
Type of course	OBLIGATORY/ELECTIVE		
Semester of study	Third semester		
ECTS / including contact hours	3		
Form of instruction (lectures, classes, seminar, other) -Number of teaching hours	LECTURES 15		
	CLASSES - LAB. GROUP: 30		
	CLASSES - CLIN. GROUP: 0		
	CLASSES - AUD. GROUP: 0		
Teacher responsible for the course	Chrószcz Aleksander		
Language of instruction	ENGLISH*		
Prerequisites	Animal anatomy		
Short description of the course (max. 500 characters)	This course provides elementary information for the studying of pathological anatomy, physiology, clinical diagnostics of animals, animal husbandry and slaughter animals hygiene.		
Content of the course unit (detailed description)	The objective of the module is to teach the specific position of anatomical structures and organs in domesticated animals (dog, cat, cattle and horses). Comparative analysis of the morphology of above mentioned species. Analysis of joints anatomy.		
Learning outcomes (max. 3)			
<i>Nr No.</i>	<i>Subject-specific</i>	<i>Assessment method</i>	<i>Symbol of the learning effect for the field of study</i>
<i>Knowledge</i>			
1	knows to an extensive degree and understands the structure of the animal organism: cells, tissues, organs and systems;	Partial exam (written)	Wet_WSP_01

2	knows to an extensive degree, describes in detail and explains the structure, activity and regulation mechanisms of organs and systems of the animal organism (respiratory, digestive, circulatory, excretory, nervous, reproductive, hormonal, immune system and skin), as well as their integration at the organism level;	Partial exam (written)	Wet_WSP_02
3	knows and understands the Polish and Latin medical nomenclature;	Partial exam (written)	Wet_WSP_20
<i>Skills</i>			
1	uses Latin medical nomenclature to the extent necessary to understand and describe medical activities, as well as state of animal health, diseases, pathological changes and conditions;		Wet_UO_08
2	performs basic statistical analysis and uses appropriate methods for presentation of the results;		Wet_UO_10
3	maintains physical fitness that is required for the work with certain animal species.		Wet_UO_11
<i>Social competences</i>			
1	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;		Wet_KS_01
2	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;		Wet_KS_02
3	participates in resolution of the conflicts and exhibits flexibility in reactions to social changes;		Wet_KS_03
Literature (max. 8, including Youtube presentations, etc.) - compulsory			
1. H.E. Koenig, H.-G. Liebich - Veterinary Anatomy Domestic Mammals – Textbook and Color Atlas. Schattauer, 2007.			
2. K.M. Dyce, Wolfgang O. Sack, C. J. G. Wensing – Textbook of Veterinary Anatomy. 3rd edn. Elsevier, 2002.			
3. P. Popesko – Atlas anatomii topograficznej zwierząt domowych. PWRiL, 2008.			
4. S.H. Done, P.C. Goody, S.A. Evans, N.C Stickland – Color Atlas of Veterinary anatomy, vol. 3. Mosby, 2001.			
- complementary/optional			
Total grade components		<i>grade obtained at classes (60%) + grade obtained at lectures (40%)</i>	
Comments:			

List of subjects and exercises for the course/module

Titles of lectures:

Subjects	No of hours
1. Introduction, role of topographical anatomy in veterinary sciences.	1
2. Animal body partition into body parts, basic terminology (axis, planes, regions, subregions, skeletotomy, syntopy and holotopy).	1
3. Topographical anatomy of the head (partition, clinical important regions and injection points).	1
4. Topographical anatomy of the head (masticatory apparatus, pharynx and neighbouring structures).	1
5. Topographical anatomy of the neck (partition, clinical important regions and injection points, structure of the jugular groove and jugular fossa).	1
6. Topographic anatomy of the thoracic limb (partition, clinical important regions, injection points).	1
7. Topographic anatomy of the pelvic limb (partition, clinical important regions, injection points).	1
8. Topographical anatomy of the thorax (clinical important regions, location of heart and lungs, structure of thoracic cavity).	1
9. Topographical anatomy of the thorax (puncta maxima of heart, injection points, thorax percussion methods, normal radiography of thoracic cavity).	1
10. Topographical anatomy of the abdomen (partition, clinical important regions, stratigraphy of body wall, location of the digestive tract organs).	1
11. Topographical anatomy of the abdomen (location of the kidneys, retro- and extraperitoneal location of organs, injection points and abdominal cavity imagination methods).	1
12. Topographical anatomy of the pelvis (partition, clinical important regions, location of the urogenital organs, perineum and external genital organs).	1
13. Topographical anatomy of mammary gland in mammals.	1
14. Common integument (skin, hairs and glands).	1
15. Common integument (ungula and unguicula).	1

Titles of classes:

Subjects	No of hours (CL, L, A)
1. Introduction, basic rules of anatomical preparation, basic anatomy of bird I.	2L
2. Basic anatomy of bird II, Bird dissection.	2L
3. I partial exam.	2L
4. Topography of the thoracic limb (joint injections, peripheral nerves access points, dissection).	2L
5. Topography of the thoracic limb (normal radiography and sonography).	2L
6. Topography of the pelvic limb (joint injections, peripheral nerves access points, dissection).	
7. Topography of the pelvic limb (normal radiography and sonography).	2L
8. II partial exam.	2L
9. Topography of the thorax (injection points, location of the heart and lungs, radiographic imaginations).	2L
10. III partial exam.	2L
11. Topography of the abdomen (body organs location, stratigraphy of the body wall, sonographic imagination of the abdominal cavity).	2L
12. IV partial exam.	2L
13. Topography of the pelvis (pelvic organs location, structure of the inguinal canal and femoral triangle).	2L
14. V partial exam.	2L
15. Consultations of I-V exams.	2L

Allocation of ECTS for the course/module

Course title:

Activities/Workload	Average number of hours per activity	ECTS points
---------------------	---	-------------

Student's workload, including: teaching hours + tutorials + tests + exam	46	2
Student's own work	25	1
Total hours/ECTS of student's workload	71	3

Hours:

1. Lectures: 15
2. Laboratory / project / language classes / sports classes **: 30
3. Clinical classes **: 0
4. Auditorium / seminar **: 0
5. Internship classes **: 0
6. Practice **: 0
7. Others with the teacher: 1

* choose the right one

** if applicable

1.2.2. Przedmioty do wyboru:

KOD	NAZWA
MWW-AJ>BehPharm	F7. Behavior Pharmacotherapy
MWW-AJ>AnatPropedeut	F7. Anatomical propedeutics in hippiatry
MWW-AJ>FNutrition	F7. Dogs and cats nutrition
MWW-AJ>ReprodPigs	F7. Management of the reproduction sector in pigs farms
MWW-AJ>PhysBasisNeph	F7. Physiological basis of nephrology and renal replacement therapies
MWW-AJ>PathoGame	F7. Pathology of game animals
MWW-AJ>ParasitEcosys	F7. Parasitic diseases of ecosystems
MWW-AJ>Mycology	F7. Laboratory diagnostics in veterinary mycology
MWW-AJ>Neonatology	F7. Veterinary neonatology
MWW-AJ>Immunhist	F7. Immunohistochemistry in pathomorphology and cancer diagnostics
MWW-AJ>FORTHHORSE	F10. Orthopedics of horses
MWW-AJ>EXOTIC	F10. Exotic animal diseases
MWW-AJ>VetDerm	F10. Veterinary dermatology
MWW-AJ>ViralInfHors	F10. Laboratory diagnosis of viral infection of horses
MWW-AJ>SwineDiseases	F10. Swine diseases
MWW-AJ>Hematology	F10. Diagnostic hematology, hemostasis and cytology in horses
MWW-AJ>PoultryMeat	F10. Poultry meat and egg hygiene and technology
MWW-AJ>AdviceLarge	F10. Veterinary advicement in large farms

MWW-AJ>BasVetHem	F10. Basis of veterinary haematology
MWW-AJ>OncDC	F10. Oncology of dogs and cats
MWW-AJ>VetNeuro	F10. Veterinary neurology
MWW-AJ>Managemen	F10. Management in Veterinary Practice
MWW-AJ>MarketingA	F10. Marketing in Veterinary Practice
MWW-AJ>F2.EqClinPh	F10. Equine Clinical Pharmacology
MWW-AJ>FishRaw	F10. Hygiene and technology of fish raw materials and fish products
MWW-AJ>Innov	F.10. Innovations (project)
MWW-AJ>CaseBasPhysio	F11. Case based physiology
MWW-AJ>ForensicEx	F11. Veterinarian as a veterinary forensic expert
MWW-AJ>FSIOGIHDAC	F11. Selected issues of gastroenterology in horses, dogs and cats
MWW-AJ>FSIOPIDAC	F11. Selected issues of pulmonology in dogs and cats
MWW-AJ>FOPHTAL	F11. Veterinary ophtalmology
MWW-AJ>ClinPatho	F11. Clinical pathomorphology of dogs and cats
MWW-AJ>Pigeondis	F11. Pigeon diseases
MWW-AJ>FDIAGULTRASMA	F11. Diagnostic ultrasound of small animals
MWW-AJ>VCORIB	F11. Veterinary care on reproduction in breeding dogs and cats
MWW-AJ>F10Audit	F11. Auditing of quality management systems in food industry
MWW-AJ>IntMedFoals	F.11. Internal medicine of foals
MWW-AJ>VetCareExo	F.11. Veterinary care for exotic pets
MWW-AJ>DiagTreatRum	F.11. Diagnostics and treatment of ruminant diseases
MWW-AJ>F3ClinPharnDC	F.11. Clinical pharmacology of dogs and cats
MWW-AJ>ClinPatho	F.11. Clinical pathomorphology of dogs and cats

Nazwa przedmiotu	Przedsiębiorczość
Semestr	9
Liczba punktów ECTS	1
Efekty uczenia się oraz metody ich weryfikacji	

Efekt przedmiotowy/ metoda weryfikacji/ nr efektu kierunkowego

W zakresie wiedzy

absolwent zna i rozumie:

ogólne zasady ekonomii przedsiębiorstwa, jego organizacji i zarządzania oraz marketingu i branding
zasady i metody ochrony własności intelektualnej
zagadnienia dotyczące modeli przedsiębiorstw opartych na wiedzy
zagadnienia z zakresu Przemysłu 4.0
zasady funkcjonowania funduszy inwestycyjnych i innych narzędzi finansowania przedsiębiorstw innowacyjnych
zasady zarządzania zmianą, ryzykiem, motywowania pracowników

W zakresie umiejętności

absolwent potrafi:

właściwie dobierać źródła i informacje z nich pochodzące oraz dokonywać ich oceny, krytycznej analizy i syntezy
planować, analizować, oceniać, zarządzać i wdrażać projekty, w tym w formie nowo powstałego przedsiębiorstwa (np. typu startup)
identyfikować dostępne możliwości i wybierać te odpowiadające planom zawodowym i działaniom biznesowym
stworzyć biznes plan dla nowego produktu/przedsiębiorstwa
oceniać rynek i konkurencję
planować i organizować pracę indywidualną oraz w zespole

W zakresie kompetencji społecznych

absolwent jest gotów do:

myślenia i działania w sposób przedsiębiorczy
wypełniania zobowiązań społecznych i uznawania społecznej odpowiedzialności przedsiębiorstw

Kryteria oceniania

zaliczenie ćwiczenia projektowego „koncepcja własnej firmy”
100%

Treści programowe – ćwiczenia projektowe, dyskusja na zajęciach konwersatoryjnych, praca w zespołach, w tym realizacja ćwiczenia projektowego i mentoring przez internet

Zajęcia 1: Modele kariery.
Przedsiębiorczość i kreatywność. Zajęcia
2: Komunikacja interpersonalna.
Zajęcia 3: Zarządzanie własnością intelektualną.
Zajęcia 4: Społeczna odpowiedzialność przedsiębiorstw.
Zajęcia 5: Rynek, konkurencja, marketing i branding.
Zajęcia 6: Przedsiębiorstwo oparte na wiedzy (cz. 1). Zajęcia 7: Przedsiębiorstwo oparte na wiedzy (cz. 2). Zajęcia 8: Podstawy ekonomii przedsiębiorstwa (cz. 1).
Zajęcia 9: Podstawy ekonomii przedsiębiorstwa (cz. 2).
Zajęcia 10: Rozwiązywanie problemów, podejmowanie decyzji. Zajęcia
11: Zarządzanie projektem, zarządzanie ryzykiem.

Zajęcia 12-14: Wybrane zagadnienia współczesnej przedsiębiorczości (wykłady autorytetów międzynarodowych: zarządzanie wiedzą, spółki startup i spin-off, fundusze inwestycyjne, strategie marketingowe, globalizacja gospodarki, IoT i AI w gospodarce i społeczeństwie przyszłości).

Treści programowe - projekt

Projekt własnego przedsięwzięcia biznesowego, opracowanie koncepcji własnego przedsiębiorstwa, zadanie projektowe realizowane indywidualnie lub zespołach 2-3 osobowych. Prezentacja i obrona na forum grupy zajęciowej wobec obecności prowadzącego.

Nazwa przedmiotu	Innowacje
Semestr	10
Liczba punktów ECTS	1?
Efekty uczenia się oraz metody ich weryfikacji	
Efekt przedmiotowy/ metoda weryfikacji/ nr efektu kierunkowego	
<p>W zakresie wiedzy absolwent zna i rozumie: podstawowe pojęcia z zakresu innowacyjności oraz klasyfikacje innowacji, ich źródła i uwarunkowania standardowe i oryginalne sposoby pobudzania twórczości indywidualnej i grupowej specyfikę proinnowacyjnego środowiska pracy oraz rozwiązania dotyczące jego kształtowania</p> <p>W zakresie umiejętności absolwent potrafi: rozpoznawać wewnętrzne i zewnętrzne bariery innowacyjności pracowników danej organizacji stosować zaawansowane metody i techniki heurystyczne stymulujące innowacyjność pracowników planować i organizować kierunki i sposoby rozwoju osób kreatywnych zatrudnionych w organizacji stosować innowacyjne metody i techniki do rozwiązywania problemów i stymulowania rozwoju w organizacji</p> <p>W zakresie kompetencji społecznych absolwent jest gotów do: myślenia i działania w sposób przedsiębiorczy szukania niekonwencjonalnych rozwiązań dostrzegania korzyści wynikających z dzielenia się wiedzą</p>	
Kryteria oceniania	Zaliczenie ćwiczenia projektowego - 100%
Treści programowe – realizacja projektu z metodologii rozwiązywania interdyscyplinarnego problemu technologicznego, zajęcia seminaryjne dot. metodologii rozwiązywania problemów, mentoring, w tym przez Internet.	
<p>Zajęcia 1: Innowacje i innowacyjność Zajęcia 2 – 3: Metody twórczego rozwiązywania problemów Zajęcia 4 – 5: Metody heurystyczne poszukiwania rozwiązań Zajęcia 6: Praca grupowa w przedsięwzięciach gospodarczych Zajęcia 7: Działalność multidyscyplinarna w innowacyjnym biznesie. Zajęcia 8 – 9: Komercjalizacja wiedzy: przykłady sukcesów i porażek. Zajęcia 10 – 11: Zastosowanie metody „Design Thinking” w tworzeniu produktów „Zielonej Doliny”</p>	

Zajęcia 12: Konsultacje projektu (mentoring indywidualny, w tym 2h z mentorem międzynarodowym)
Treści programowe - projekt
Projekt rozwiązania problemu technologicznego lub opracowania nowego produktu / usługi w rolnictwie lub obszarze pokrewnym (zadanie realizowane w zespołach 1-3-os.)

Nazwa przedmiotu	Szkolenie BHP i PPOŻ
Semestr	pierwszy
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Umiejętności:</p> <p>Student potrafi zachować ostrożność na terenie Uczelni, skutecznie rozpoznaje występujące zagrożenia i potrafi im przeciwdziałać. Potrafi zidentyfikować czynniki szkodliwe i uciążliwe występujące w laboratoriach i salach.</p> <p>Student potrafi udzielić pierwszej pomocy poszkodowanym w określonych wypadkach. Umie zachować się w sytuacji zagrożenia zdrowia i życia.</p> <p>Student potrafi zachować się w przypadku wystąpienia pożaru i ewakuować siebie oraz inne osoby zagrożone z budynku.</p> <p>Kompetencje społeczne:</p> <p>Ma świadomość, że jego zachowanie ma wpływ na bezpieczeństwo jego oraz innych studentów/pracowników Uczelni. Rozumie znaczenie BHP i PPOŻ dla zdrowia i życia studentów/pracowników Uczelni.</p> <p>Rozumie jakie są konsekwencje nie przestrzegania zasad bezpieczeństwa i higieny pracy.</p> <p>Ma świadomość konieczności przeciwdziałania zagrożeniom oraz udzielania pomocy poszkodowanym w wypadkach.</p>	
Kryteria oceniania	Test końcowy
Treści programowe - wykłady	
<p>Moduł 1. Wybrane zagadnienia prawne w zakresie BHP</p> <p>Wykład 1. Podstawy prawne</p> <p>Wykład 2. Obowiązki Rektora</p> <p>Wykład 3. Obowiązki studentów</p> <p>Wykład 4. Wybrane przepisy prawne, o których warto pamiętać</p> <p>Moduł 2. Zagrożenia dla zdrowia i życia</p> <p>Wykład 1. Zagrożenia czynnikami fizycznymi</p> <p>Wykład 2. Zagrożenia czynnikami biologicznymi</p>	

<p>Wykład 3. Zagrożenia czynnikami chemicznymi</p> <p>Wykład 4. Zagrożenia czynnikami psycho-fizycznymi</p> <p>Wykład 5. Zagrożenia czynnikami społecznymi</p> <p>Moduł 3. Pierwsza pomoc</p> <p>Blok 1. Podstawowe informacje</p> <p>Blok 2. Podstawy udzielania pierwszej pomocy</p> <p>Blok 3. Udzielanie pierwszej pomocy w określonych sytuacjach</p> <p>Blok 4. Udzielanie pierwszej pomocy przy wystąpieniu różnego rodzaju ran</p> <p>Moduł 4. Ochrona przeciwpożarowa</p> <p>Wykład 1. Podstawy prawne</p> <p>Wykład 2. Co to jest pożar?</p> <p>Wykład 3. Klasyfikacja pożarów</p> <p>Wykład 4. Przyczyny powstawania pożaru</p> <p>Wykład 5. Zasady zachowania w przypadku powstania pożaru</p> <p>Wykład 6. Znaki bezpieczeństwa ochrony przeciwpożarowej</p> <p>Wykład 7. Zasady ewakuacji</p> <p>Wykład 8. Znaki ewakuacyjne</p> <p>Wykład 9. Gaszenie pożaru</p>
Treści programowe - ćwiczenia

Nazwa przedmiotu	Wychowanie Fizyczne - Aqua aerobik (Physical Education- Aqua Aerobic) kod USOS SWF-S>004
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie wpływ środowiska wodnego na organizm człowieka /obserwacja zachowań studenta podczas ćwiczeń - Zna i rozumie podstawowe zasady obowiązujące podczas zajęć aqua aerobiku w płytkiej i głębokiej wodzie /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi wykorzystać przybory do aqua fitnessu do wzmacniania mięśni w wodzie / obserwacja zachowań studenta podczas ćwiczeń - Potrafi asekurować partnera podczas ćwiczeń w wodzie /obserwacja zachowań studenta podczas ćwiczeń - Potrafi prawidłowo wykonywać ćwiczenia dla poszczególnych grup mięśniowych /obserwacja 	

zachowań studenta podczas ćwiczeń	
Kompetencje społeczne: - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń	
Kryteria oceniania	Na ocenę podsumowującą składają się: - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP. Ćwiczenie 2-4. Adaptacja do zajęć w wodzie. Ćwiczenia czucia wody oraz orientacji w przestrzeni w płytkiej wodzie. Ćwiczenie 5-7 Aqua aerobik z przyborami w płytkiej wodzie – makarony/dyski/piłki. Zestawy ćwiczeń 4-6. Ćwiczenie 8-10. Ćwiczenia w wodzie głębokiej z przyborami wypornościowymi – makarony/pasy wypornościowe. Zestawy ćwiczeń 7-9. Ćwiczenie 11. AQUA FATBURNER – zajęcia o charakterze mieszanym: wytrzymałościowo – siłowym. Ćwiczenie 12. AQUA CIRCUIT TRAINING – zajęcia w formie obwodu stacyjnego. Ćwiczenie 13. AQUA FIGHT KICK – zajęcia z elementami sztuki walki. Ćwiczenie 14-15. AQUA DANCE – zajęcia choreograficzne, taneczna oraz zaliczenie zajęć.	

Nazwa przedmiotu	Wychowanie Fizyczne - Cross Training (Physical Education- Cross Training) kod USOS SWF-S>028
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
Wiedza: - Zna i rozumie różnice między różnymi rodzajami ćwiczeń /obserwacja zachowań studenta podczas ćwiczeń	
Umiejętności: - Potrafi poprawnie wykonać ćwiczenia siłowe i wytrzymałościowe z różnymi przyborami oraz bez przyborów /obserwacja zachowań studenta podczas ćwiczeń - Potrafi wyznaczać granice dla swojego organizmu i modyfikować obciążenie z którym ćwiczy /obserwacja zachowań studenta podczas ćwiczeń	

<p>Kompetencje społeczne:</p> <p>- Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń</p>	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1: Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenia 2-15: Cross-Training – Zajęcia składają się z rozgrzewki, ćwiczeń nauczających techniki, ćwiczeń funkcjonalnych przygotowujących do części głównej oraz „workout”- cz. główna, rozciągania oraz „rolowania”- rozluźniania. Część główna – workout jest ciągle zmienna i składa się z wielu różnych ćwiczeń – z oporem własnego ciała „gimnastics” – np. pomki, przysiady, podciągnięcia na drążku, z użyciem siły funkcjonalnej przy pomocy wolnego ciężaru „weightlifting” – np. martwy ciąg, podrzut, zarzut kettlebellem oraz wytrzymałościowych- np. skakanka, bieg. Zajęcia prowadzone są z użyciem przyborów, m. in.: skakanki, rollery, body pumpy (sztangi), bosu, kettlebell, rip60, power bands, abmata.</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Ćwiczenia siłowe ogólnorozwojowe (Physical Education- Body Workout) kod USOS SWF-S>007
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna sposoby korzystania z urządzeń stacjonarnych i przyrządów znajdujących się w salach ćwiczeń siłowych i rozumie ich działanie /obserwacja zachowań studenta podczas ćwiczeń - Zna szeroki zakres ćwiczeń siłowych na poszczególne partie mięśniowe i rozumie jaki wpływ na organizm daje ich stosowanie /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi prawidłowo dobierać i wykonywać ćwiczenia dla określonych grup mięśniowych /obserwacja zachowań studenta podczas ćwiczeń - Potrafi w sposób obiektywny ocenić grupy mięśniowe decydujące o prawidłowej postawie ciała /obserwacja zachowań studenta podczas ćwiczeń 	

<p>Kompetencje społeczne:</p> <p>- Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń</p>	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP oraz przeciwwskazań zdrowotnych do wykonywania intensywnych ćwiczeń na siłowni</p> <p>Ćwiczenie 2-4. Zapoznanie się wstępnie z techniką wykonywania ćwiczeń na urządzeniach stacjonarnych i przy użyciu sztangielek.</p> <p>Ćwiczenie 5-7. Kształtowanie wytrzymałości ogólnej i lokalnej wytrzymałości siłowej z wykorzystaniem treningu obwodowego pod kontrolą prowadzącego.</p> <p>Ćwiczenie 8-15. Zapoznanie ćwiczących z metodami: powtórzeniową, szybkościowo – siłową, wytrzymałościowo – siłową i obciążeń o maksymalnym ciężarze, które będą miały zastosowanie w późniejszych etapach treningu.</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Fitness funkcjonalny (Physical Education-Functional fitness) kod USOS SWF-S>024
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna położenie dużych grup mięśniowych i rozumie ich funkcje i znaczenie /obserwacja zachowań studenta podczas ćwiczeń - Zna i rozumie działanie izometrycznych i izotonicznych rodzajów skurczu mięśniowego /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Prawidłowo wykonuje różne ćwiczenia angażujące duże grupy mięśniowe: pośladki, uda, brzuch, grzbiet, ramiona z przyborami oraz bez przyborów /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta 	

podczas ćwiczeń	
Kryteria oceniania	Na ocenę podsumowującą składają się: - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP. Ćwiczenie 2-15 Zajęcia w formie różnych obwodów ćwiczebnych z wykorzystaniem ciężaru własnego ciała oraz przyborów fitness tj. hantle, kettlebell, tubingi, stepy, bosu, piłki lekarskie, bodepump, duże piłki gimnastyczne, małe piłki gimnastyczne, systemy podwieszane "Rip 60".	

Nazwa przedmiotu	Wychowanie Fizyczne - Fitness prozdrowotny (Physical Education - Fitness Body & Mind) kod USOS SWF-S>022
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie zasady wykonywania ćwiczeń rozciągających oraz ćwiczeń wzmacniających grupy mięśni odpowiedzialnych za stabilizację kręgosłupa i prawidłową postawę ciała/obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi świadomie pracować ciałem w przestrzeni, kontrolować ruch ciała i napięcie mięśniowe /obserwacja zachowań studenta podczas ćwiczeń - Potrafi wykonywać ćwiczenia stretchingowe i relaksacyjne oraz uwalniać napięcia mięśniowe podczas rolowania ciała /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	Na ocenę podsumowującą składają się: - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	

Treści programowe - ćwiczenia
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2. Zdrowy kręgosłup – mobilizacja kręgosłupa we wszystkich płaszczyznach, ćwiczenia w pozycjach wysokich, półwysokich i niskich.</p> <p>Ćwiczenie 3. Kontrolowanie przez umysł ruchu, uwalnianie mięśni od napięcia i stresu, modelowanie sylwetki i wzmacnianie tonusu mięśniowego – mental body z wykorzystaniem dużych piłek gimnastycznych.</p> <p>Ćwiczenie 4. Wzmacnianie mięśni środka – dynamiczna stabilizacja kręgosłupa z wykorzystaniem BOSU.</p> <p>Ćwiczenie 5. Uwalnianie napięć w ciele – stretching powięziowy.</p> <p>Ćwiczenie 6. Zdrowy kręgosłup funkcjonal – lekcja inspirowana Jogą i bodyArt`em; naturalne wzorce ruchowe.</p> <p>Ćwiczenie 7. Wzmacnianie CORE (mięśnie głębokie brzucha i pleców) z wykorzystaniem małych piłek gimnastycznych.</p> <p>Ćwiczenie 8. Zdrowy kręgosłup – silny brzuch – ćwiczenia z wykorzystaniem rollera.</p> <p>Ćwiczenie 9. Uwalnianie ciała od napięć, rozciąganie dużych grup mięśniowych – natural stretch.</p> <p>Ćwiczenie 10. Kształtowanie wzorców ruchowych – TRENING FUNKCJONALNY w obwodzie: duża piłka gimnastyczna, mała piłka gimnastyczna, BOSU, roller.</p> <p>Ćwiczenie 11. Trening profilaktyki wad postawy z wykorzystaniem drabinki gimnastycznej.</p> <p>Ćwiczenie 12. Wzmacnianie mięśni grzbietu przy wykorzystaniu systemów podwieszanych (rip60).</p> <p>Ćwiczenie 13. Po izometryczna relaksacja mięśni (PIR) – zajęcia w parach.</p> <p>Ćwiczenie 14. Uwalnianie napięć poprzez rolowanie powięzi: piłka tenisowa.</p> <p>Ćwiczenie 15. Uwalnianie napięć poprzez rolowanie powięzi: roller.</p>

Nazwa przedmiotu	Wychowanie Fizyczne - Fitness wzmacniający (Physical Education - Fitness - Shape Up) kod USOS SWF-S>023
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna położenie dużych grup mięśniowych i rozumie ich funkcje i znaczenie /obserwacja zachowań studenta podczas ćwiczeń - Zna i rozumie działanie izometrycznych i izotonicznych rodzajów skurczu mięśniowego /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Prawidłowo wykonuje różne ćwiczenia angażujące duże grupy mięśniowe: pośladki, uda, brzuch, grzbiet, ramiona z przyborami oraz bez przyborów /obserwacja zachowań studenta podczas ćwiczeń 	

<p>Kompetencje społeczne:</p> <p>- Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń</p>	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2. ABT – modelowanie ciała, wzmacnianie dużych grup mięśniowych (brzuch, uda, pośladki) bez przyborów fitness.</p> <p>Ćwiczenie 3-5. SHAPE – modelowanie ciała, wzmacnianie mięśni (ramiona, brzuch, plecy, uda, pośladki) z przyborami fitness (hantle 1,5 kg, double tube, duża piłka gimnastyczna).</p> <p>Ćwiczenie 6-7. Piłka lekarska 3 kg i 4 kg w kontekście modelowania ciała i kształtowania wytrzymałości siłowej.</p> <p>Ćwiczenie 8-9. BODY PUMP – modelowanie ciała, wzmacnianie dużych grup mięśniowych, kształtowanie wytrzymałości siłowej z wykorzystaniem lekkiej sztangi (ok. 18 kg).</p> <p>Ćwiczenie 10. KETTLEBELE – siła funkcjonalna z wykorzystaniem odważnika 4 kg, 8 kg, 12 kg.</p> <p>Ćwiczenie 11. BOSU BALANCE – siła funkcjonalna, dynamika i stabilizacja z wykorzystaniem specjalistycznej platformy.</p> <p>Ćwiczenie 12-13. System podwieszany (rip60) – pokonywanie własnych barier, kształtowanie wytrzymałości siłowej.</p> <p>Ćwiczenie 14. Małe obwody ćwiczebne z wykorzystaniem różnych przyborów fitness.</p> <p>Ćwiczenie 15. Trening obwodowy z różnymi przyborami fitness.</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Futsal (Physical Education- Futsal) kod USOS SWF-S>008
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie aktualne przepisy gry w futsal /obserwacja zachowań studenta podczas ćwiczeń - Zna i rozumie taktykę gry w obronie i ataku /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p>	

<p>- Potrafi przeprowadzić rozgrzewkę z elementami futsalu /obserwacja zachowań studenta podczas ćwiczeń</p> <p>- Potrafi wykonywać podstawowe elementy techniki gry: prowadzenie piłki, strzały do bramki, przyjęcia piłki podeszwą i podania piłki wewnętrzną częścią stopy /obserwacja zachowań studenta podczas ćwiczeń</p> <p>Kompetencje społeczne:</p> <p>- Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń</p>	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2-6. Nauka i doskonalenie podstawowych elementów: techniki prowadzenia piłki, przyjęcia piłki podeszwą i wewnętrzną częścią stopy, podań oraz oddawania strzałów do bramki. Nauka i doskonalenie poszczególnych elementów gry w formie zabaw i gier uproszczonych. Poznanie zasad obowiązujących w futsalu oraz zastosowanie ich w czasie gry.</p> <p>Ćwiczenie 7-15. Nauka poruszania się w obronie i ataku, poznanie wariantów taktycznych w ataku. Doskonalenie współdziałania graczy w ataku w formie gier uproszczonych, małych gier i gry właściwej.</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Karate Shotokan z elementami samoobrony (Physical Education- Karate Shotokan) kod USOS SWF-S>009
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <p>- Zna i rozumie podstawowe przepisy i zasady obowiązujące w karate oraz samoobronie /obserwacja zachowań studenta podczas ćwiczeń</p> <p>Umiejętności:</p> <p>- Potrafi poprawnie wykonać poznane techniki karate /obserwacja zachowań studenta podczas ćwiczeń</p> <p>- Potrafi wykorzystać i zastosować poznane techniki karate w formie ataku i obrony /obserwacja zachowań studenta podczas ćwiczeń</p>	

<p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>ĆWICZENIA 1:</p> <ul style="list-style-type: none"> - Zasady bezpieczeństwa w trakcie zajęć karate i na obiekcie sportowym - Rys historyczny – karate jako sztuka walki (karate-do) - Etykieta dojo - Ćwiczenia wzmacniające mięśnie nóg, obręczy barkowej i klatki piersiowej - Nauka pozycji, w których wykonuje się podstawowe ćwiczenia - Technika ręczna ataku choku-zuki w pozycji hachiji-dachi - pokaz i objasnienie - Omówienie i pokaz ćwiczeń gibkościowych <p>ĆWICZENIA 2:</p> <ul style="list-style-type: none"> - Bloki ich rodzaje i zastosowanie w karate - Nauka podstawowych bloków w karate :gedan-barai, age uke, soto uke i uchi uka - Ćwiczenia wzmacniające mięśnie brzucha i grzbietu <p>ĆWICZENIA 3:</p> <ul style="list-style-type: none"> - Wykonanie techniki ataku oi-zuki i bloków uchi-uke, soto-uke, gedan-barai i age-uke w pozycji zenkutsu-dachi – pokaz i objaśnienie - Ćwiczenia gibkościowe <p>ĆWICZENIA 4:</p> <ul style="list-style-type: none"> - Technika nożna mae-geri/kopnięcie w przód/, rodzaje – pokaz i objaśnienie - Wykonanie techniki nożnej mae-geri keage w pozycji zenkutsu-dachi - ćwiczenia - Elementy samoobrony na bazie poznanych technik - Ćwiczenia gibkościowe <p>ĆWICZENIA 5:</p> <ul style="list-style-type: none"> - Praktyczne zastosowanie bloków uchi-uke, soto-uke, gedan-barai, age-uke i techniki oi-zuki w pozycji zenkutsu-dachi z partnerem - Techniki ręczne ataku i kontrataku gyaku-zuki i kizami-zuki – pokaz i objaśnienie - Ćwiczenia gibkościowe i koordynacyjne <p>ĆWICZENIA 6:</p> <ul style="list-style-type: none"> - Techniki ręczne gyaku-zuki, kizami-zuki jako techniki ataku - ćwiczenia - Elementy samoobrony na bazie poznanych technik - Ćwiczenia gibkościowe <p>ĆWICZENIA 7:</p>	

- Kihon jako element treningu doskonalącego poznane techniki
- Elementy samoobrony
- Ćwiczenia gibkościowe i siłowe
- ĆWICZENIA 8:
 - Technika nożna mawashi-geri jej zastosowanie – pokaz i objaśnienie
 - Doskonalenie techniki nożnej mawashi-geri – ćwiczenia
 - Elementy samoobrony
 - Ćwiczenia gibkościowe i koordynacyjne
- ĆWICZENIA 9:
 - Kata taikioku shodan – pokaz i objaśnienie
 - Doskonalenie kata taikioku shodan – ćwiczenia
 - Ćwiczenia gibkościowe i siłowe
- ĆWICZENIA 10:
 - Gohon kumite podstawowa forma kumite - pokaz i omówienie
 - Ćwiczenia gibkościowe
- ĆWICZENIA 11:
 - Gohon kumite i kihon ippon kumite jako podstawowe formy kumite/walki/ - ćwiczenia
 - Poruszanie się w kumite/walka/, pojęcie dystansu i jego rodzaje - pokaz i objasnienie
 - Elementy samoobrony
 - Ćwiczenia gibkościowe
- ĆWICZENIA 12:
 - Doskonalenie technik mae-geri i mawashi-geri z partnerem - ćwiczenia
 - Elementy samoobrony
 - Ćwiczenia gibkościowe
- ĆWICZENIA 13:
 - Wykonanie technik gyaku-zuki i kizami-zuki w pozycji walki - pokaz i objasnienie
 - Doskonalenie wykonania technik gyaku-zuki i kizami-zuki w pozycji walki - ćwiczenia
 - Elementy samoobrony
 - Ćwiczenia gibkościowe i siłowe
- ĆWICZENIA 14:
 - Elementy samoobrony na bazie poznanych technik i ich zastosowanie
 - Ćwiczenia gibkościowe
- ĆWICZENIA 15:
 - Powtórzenie poznanych technik i ich wykorzystania na bazie egzaminu na 9 kyu
 - Omówienie zajęć oraz przedstawienie możliwości kontynuacji w kolejnych grupach szkolenia

Nazwa przedmiotu	Wychowanie Fizyczne - Koszykówka (Physical Education- Basketball) kod USOS SWF-S>010
Semestr	
Liczba punktów ECTS	0

Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie przepisy gry w koszykówkę, potrafi je poprawnie interpretować /obserwacja zachowań studenta podczas ćwiczeń - Zna i rozumie podstawowe założenia taktyki gry w ataku i obronie /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi poruszać się po boisku koźlując piłkę prawą i lewą ręką /obserwacja zachowań studenta podczas ćwiczeń - Potrafi prawidłowo wykonać podania oraz rzuty do kosza /obserwacja zachowań studenta podczas ćwiczeń - Potrafi grać w obronie i ataku /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP i przepisów gry w koszykówkę.</p> <p>Ćwiczenie 2. Nauka poruszania się po boisku: zmiany tempa i kierunku biegu, zatrzymania na jedno i dwa tempa, krok odstawno-dostawny w obronie.</p> <p>Ćwiczenie 3-4. Nauka różnych podań w miejscu i biegu.</p> <p>Ćwiczenie 5. Nauka rzutu do kosza z biegu po koźlowaniu i po podaniu.</p> <p>Ćwiczenie 6. Nauka rzutu do kosza z dystansu po zatrzymaniu na jedno tempo po koźlowaniu i po podaniu.</p> <p>Ćwiczenie 7-8. Nauka koźlowania piłki w miejscu i biegu w różnych kierunkach.</p> <p>Ćwiczenie 9-10. Nauka obrony „każdy swego”.</p> <p>Ćwiczenie 11. Nauka zasad szybkiego ataku 2×1.</p> <p>Ćwiczenie 12. Gry małe 1×1, 2×2, 3×3.</p> <p>Ćwiczenie 13. Nauka podstawowej taktyki w ataku: „mała ósemka”.</p> <p>Ćwiczenie 14. Wykorzystanie poznanych umiejętności w różnych formach rywalizacji drużynowej.</p> <p>Ćwiczenie 15. Wykorzystanie poznanych umiejętności podczas rozgrywek turniejowych w grupie oraz zaliczenie zajęć.</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Narciarstwo alpejskie (Physical Education-Alpine Skiing) kod USOS SWF-S>011
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie zasady bezpieczeństwa na trasach zjazdowych i wyciągach narciarskich /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi dobrać technikę jazdy do warunków panujących na stoku oraz kontrolować prędkość i kierunek jazdy /obserwacja zachowań studenta podczas ćwiczeń - Potrafi korzystać z wyciągów narciarskich /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenia realizowane są podczas dwóch wyjazdów sobotnio-niedzielnych. Zakres realizacji poniższych zagadnień uzależniony jest od poziomu zaawansowania narciarskiego ćwiczących.</p> <ol style="list-style-type: none"> 1. Zasady BHP na zajęciach. Kryteria oceniania. Sprawdzenie sprzętu narciarskiego. 2. Rozgrzewka narciarska. 3. Doskonalenie podstawowych metod poruszania się na nartach: zwroty przestępowaniem i przez przełożenie nart, podchodzenie, jazda w skos stoku, krok tyżwowy, łuki płużne, zatrzymania pługiem, jazda na wyciągu narciarskim. Zasady bezpiecznego upadania i podnoszenia się. 4. Doskonalenie skrętu z półpługu oraz z poszerzenia kątownego. Ześlizgi bokiem, nauka ustawienia równoległego. 5. Nauka i doskonalenie skrętu równoległego NW. 6. Nauka i doskonalenie szybkiego zatrzymania się – skręt stop. 7. Nauka i doskonalenie skrętu równoległego. Ćwiczenia doskonalące jazdę na krawędziach nart, 	

ustawienia tułowia w skręcie równoległym. Ćwiczenia w dwójkach ze wzajemną korekcją błędów po przejazdach. Ćwiczenia przejazdu po dużym i małym promieniu skrętu. Proste elementy carvingu.

8. Nauka i doskonalenie śmigu. Ćwiczenia tempowe odciążenia nart i zawężania promienia skrętu do śmigu.

9. Elementy jazdy terenowej. Elementy techniki freestylowej. Skręty synchroniczne w dwójkach, trójkach, czwórkach.

Nazwa przedmiotu	Wychowanie Fizyczne - Nordic Walking (Physical Education- Nordic Walking) kod USOS SWF-S>026
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie zasady rozgrzewki przed i ćwiczeń uspokajających po wykonanym wysiłku /obserwacja zachowań studenta podczas ćwiczeń - Zna i rozumie zasady i sposoby kształtowania wydolności ogólnej i siły mięśni obręczy barkowej, wykorzystując technikę nordic walking /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi wykonać technikę basic nordic walking /obserwacja zachowań studenta podczas ćwiczeń - Potrafi kształtować wydolność ogólną organizmu oraz poprawiać siłę podczas wykonania ćwiczeń nordic walking /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2-4. Nauka zasad rozgrzewki i ćwiczeń uspokajających. Nauka techniki basic. Wprowadzenie i wykorzystanie techniki basic w marszu.</p> <p>Ćwiczenie 5-6. Kształtowanie wydolności ogólnej i siły mięśni obręczy barkowej w marszu.</p> <p>Ćwiczenie 7-10. Kształtowanie wydolności ogólnej i siły mięśni obręczy barkowej w marszu.</p>	

Wprowadzenie wiadomości dotyczących nauki techniką Fittnees.
 Ćwiczenie 10-14. Kształtowanie wydolności ogólnej i siły mięśni obręczy barkowej w marszu.
 Ćwiczenie 15. Zapoznanie z zasadami i możliwościami wykorzystania nordic walking do treningu na różnych poziomach zawansowania sportowego.

Nazwa przedmiotu	Wychowanie Fizyczne - Piłka siatkowa (Physical Education-Volleyball) kod USOS SWF-S>013
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie przepisy gry w piłkę siatkową oraz potrafi je poprawnie interpretować /obserwacja zachowań studenta podczas ćwiczeń - Zna i rozumie podstawowe założenia taktyki gry w siatkówkę /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi poruszać się po boisku i prawidłowo ustawiać do odbicia piłki /obserwacja zachowań studenta podczas ćwiczeń - Potrafi prawidłowo wykonać odbicia piłki, zagrywkę, atak i blok /obserwacja zachowań studenta podczas ćwiczeń - Potrafi grać w obronie i ataku /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP. Ćwiczenie 2. Postawy siatkarskie. Postawa gotowości do przyjęcia, obrony, bloku. Ćwiczenie 3. Doskonalenie odbić oburącz górnych. Ćwiczenie 4. Doskonalenie odbić oburącz dolnych. Ćwiczenie 5. Odbicia górne i dolne oburącz i jednorącz</p>	

<p>Ćwiczenie 6. Doskonalenie zagrywki rotacyjnej z miejsca.</p> <p>Ćwiczenie 7. Doskonalenie zagrywki szybującej.</p> <p>Ćwiczenie 8. Doskonalenie działań w ataku. Atak kierunkowy ze stref II i IV.</p> <p>Ćwiczenie 9. Doskonalenie działań w ataku. Atak w pierwsze tempo ze strefy III.</p> <p>Ćwiczenie 10. Doskonalenie działań w ataku. Atak ze strefy I i V.</p> <p>Ćwiczenie 11. Doskonalenie bloku pojedynczego i grupowego.</p> <p>Ćwiczenie 12. Przyjęcie piłki z przodu i boku tułowia.</p> <p>Ćwiczenie 13. Doskonalenie działań w obronie pola gry.</p> <p>Ćwiczenie 14. Sposoby przemieszczania, bieg, krok dostawny, krok skrzyżny.</p> <p>Ćwiczenie 15. Turniej trójek siatkarskich oraz zaliczenie zajęć.</p>

Nazwa przedmiotu	Wychowanie Fizyczne - Pływanie dla początkujących (Physical Education- Swimming for beginners) kod USOS SWF-S>015
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna style pływackie: grzbietowy, klasyczny oraz kraul, rozumie w jaki sposób pływak porusza się w wodzie /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi pływać stylami: grzbietowym, klasycznym oraz kraulem /obserwacja zachowań studenta podczas ćwiczeń - Potrafi wykonać skok do wody /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2-4. Oswojenie ze środowiskiem wodnym, ćwiczenia oddechowe w wodzie oraz wykonywanie podstawowych ruchów lokomocyjnych wykorzystując opór wody, przeciwdziałanie oporowi wody przez</p>	

opływowe ułożenie ciała.
 Ćwiczenie 5-10. Nauka podstaw pływania stylami grzbietowym, klasycznym oraz kraulem.
 Ćwiczenie 11. Nauka skoków do wody
 Ćwiczenie 12-15. Doskonalenie podstawowych umiejętności pływania stylami grzbietowym, klasycznym oraz kraulem.

Nazwa przedmiotu	Wychowanie Fizyczne - Pływanie (Physical Education- Swimming) kod USOS SWF-S>014
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna style pływackie grzbietowy, klasyczny, motylkowy oraz kraul, rozumie w jaki sposób pływak porusza się w wodzie /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi pływać stylami: grzbietowym, klasycznym, kraulem i delfinem /obserwacja zachowań studenta podczas ćwiczeń - Potrafi wykonać skoki startowe i nawroty pływackie w poszczególnych stylach /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP. Ćwiczenie 2-8. Doskonalenie umiejętności pływackich w stylach grzbietowym, klasycznym i kraulu Ćwiczenie 8-10. Nauka i doskonalenie pływania stylem motylkowym Ćwiczenie 11. Nauka i doskonalenie pływania pod wodą Ćwiczenie 12-15. Nauka i doskonalenie nawrotów i skoków startowych</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Szachy (Physical Education - Chess) kod USOS SWF-S>030
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie główne zasady obowiązujące podczas gry w szachy /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi poruszać się poszczególnymi figurami po szachownicy /obserwacja zachowań studenta podczas ćwiczeń - Potrafi zaplanować strategię gry i reagować na ruchy przeciwnika /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2-5. Szachownica i figury –zapoznanie studentów z grą – Król ,Wieża, Goniec , Hetman, Skoczek , Pionek – Co to jest szach? Mat ? Kiedy Pat? Roszada? Czym różni się pionek od reszty bierek? Bicie w przelocie? Przemiana? – Omówienie ruchów poszczególnych figur na planszy.</p> <p>Ćwiczenie 6-9. Treningowe rozgrywki między studentami</p> <p>Ćwiczenie 10. Rozwiązywanie łamigłówek szachowych – mat w jednym posunięciu</p> <p>Ćwiczenie 11. Rozwiązywanie łamigłówek szachowych – mat w dwóch posunięciach</p> <p>Ćwiczenie 12-13. Zakończenia partii szachowych</p> <p>Ćwiczenie 14. Teoria debiutów, czyli jak rozpocząć partię szachów i ich rodzaje</p> <p>Ćwiczenie 15. Turniej szachowy</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Tenis dla początkujących (Physical Education - Tennis for beginners) kod USOS SWF-S>029
Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie przepisy gry w tenisa /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi poruszać się z rakieta po korcie tenisowym /obserwacja zachowań studenta podczas ćwiczeń - Potrafi odbijać piłki z głębi kortu – forhand, backhand /obserwacja zachowań studenta podczas ćwiczeń - Potrafi wykonać serwis, smecz i wolej /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2-5. Ćwiczenia osławajające z piłką i rakieta. Nauka i doskonalenie podstawowych elementów technicznych: forhend, bekhend, serwis, smecz</p> <p>Ćwiczenie 6-9. Nauka odbicia z woleja, forhand i backhand</p> <p>Ćwiczenie 10-13. W parach doskonalenie uderzeń z głębi kortu: serwis-return, lob-smecz, wolej forhend-bekhend</p> <p>Ćwiczenie 14-15. Gry kontrolne oraz zaliczenie zajęć.</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Tenis stołowy (Physical Education- Table Tennis) kod USOS SWF-S>018
Semestr	

Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie przepisy gry oraz potrafi je poprawnie interpretować /obserwacja zachowań studenta podczas ćwiczeń - Zna i rozumie taktykę i technikę gry /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi wykonać różne rodzaje odbić piłeczki forhendem i bekhendem /obserwacja zachowań studenta podczas ćwiczeń - Potrafi narzucić rywalowi swój styl gry /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2. Gry zabawy ruchowe, połączone z doskonaleniem odbijania bekhendem i forhendem.</p> <p>Ćwiczenie 3-4. Naprzemienne odbicia bekhend- forhend- powtarzalność.</p> <p>Ćwiczenie 5. Doskonalenie przebiecia forhendem- akcent na powtarzalność.</p> <p>Ćwiczenie 6. Doskonalenie przebiecia bekhendem –akcent na powtarzalność.</p> <p>Ćwiczenie 7-8. Doskonalenie naprzemiennego odbicia bekhend-forhend ze zmianą pozycji.</p> <p>Ćwiczenie 9-10. Nauka i doskonalenie przebiecia piłki z rotacją awansującą.</p> <p>Ćwiczenie 11. Blok-nauka i doskonalenie.</p> <p>Ćwiczenie 12. Nauka i doskonalenie gry top spin forhend.</p> <p>Ćwiczenie 13. Nauka i doskonalenie gry top spin bekhend.</p> <p>Ćwiczenie 14. Obrona lobem –obrona podcięciem.</p> <p>Ćwiczenie 15. Gry kontrolne, sędziowanie.</p>	

Nazwa przedmiotu	Wychowanie Fizyczne - Workout (Physical Education - Workout) kod USOS SWF-S>031
Semestr	

Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie różnice między różnymi rodzajami ćwiczeń /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi poprawnie wykonać ćwiczenia wytrzymałościowe i siłowe z różnymi przyborami oraz bez przyborów /obserwacja zachowań studenta podczas ćwiczeń - Potrafi modyfikować ćwiczenia oraz poprawnie dobrać obciążenia z którymi ćwiczy /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1: Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasadBHP.</p> <p>Ćwiczenia 2-15: Nauka i doskonalenie techniki wykonywania poszczególnych ćwiczeń. Ćwiczenia bez obciążenia: przysiady z wyskokiem, wykroki z przeskokiem, pompki, pompki tricepsowe, burpees, deska, nożyce poziome itp., oraz ćwiczenia na wolnych ciężarach z uwzględnieniem podstawowych ćwiczeń wielostawowych, takich jak: martwy ciąg, przysiady ze sztangą, wyciskanie sztangi, wiosłowanie i wiele innych. Zajęcia będą oparte na metodach treningowych FBW (Full Body Workout). Podczas zajęć obowiązywać będzie ścisłe trzymanie się kolejności ćwiczeń: zaczynając od największych partii mięśniowych (nogi, plecy, klatka piersiowa), kończąc na mniejszych (brzuch, barki, biceps, triceps).</p> <p>Zajęcia prowadzone są z użyciem przyborów, m. in.: skakanki, body pumpy (sztangi), bosu, kettlebell, rip60, power bands, abmata, piłki lekarskie.</p>	
Nazwa przedmiotu	Wychowanie Fizyczne - Zajęcia korekcyjno prozdrowotne (Physical Education- Correctional health benefits classes) kod USOS SWF-S>020

Semestr	
Liczba punktów ECTS	0
Efekty uczenia się oraz metody ich weryfikacji	
<p>Wiedza:</p> <ul style="list-style-type: none"> - Zna i rozumie wpływ jaki dają ćwiczenia fizyczne na prawidłowe funkcjonowanie poszczególnych układów ciała i narządów ruchu człowieka /obserwacja zachowań studenta podczas ćwiczeń <p>Umiejętności:</p> <ul style="list-style-type: none"> - Potrafi prawidłowo wykonywać ćwiczenia przeciwdziałając określonym wadom postawy, bądź innym dysfunkcjom organizmu /obserwacja zachowań studenta podczas ćwiczeń <p>Kompetencje społeczne:</p> <ul style="list-style-type: none"> - Jest gotów do utrzymywania sprawności fizycznej przez całe życie /obserwacja zachowań studenta podczas ćwiczeń 	
Kryteria oceniania	<p>Na ocenę podsumowującą składają się:</p> <ul style="list-style-type: none"> - uczestnictwo we wszystkich zajęciach określonych programem - aktywna postawa studenta podczas wszystkich zajęć
Treści programowe - wykłady	
Treści programowe - ćwiczenia	
<p>Ćwiczenie 1. Organizacja zajęć. Zapoznanie z regulaminem przedmiotu. Omówienie zasad BHP.</p> <p>Ćwiczenie 2. Informacje dotyczące wpływu ćwiczeń fizycznych na funkcjonowanie poszczególnych układów i narządów człowieka. Dobór oraz omówienie i przedstawienie ćwiczeń w programach indywidualnych i grupowych.</p> <p>Ćwiczenie 3-15. Wykonanie ćwiczeń dobranych do wady postawy lub innej dysfunkcji organizmu według programów indywidualnych lub w grupach.</p>	

Kod przedmiotu	HS-S1L>0020
Nazwa przedmiotu	Coaching osobisty i zawodowy
Semestr	
Liczba punktów ECTS	2

Efekty uczenia się oraz metody ich weryfikacji	
<p>Student po ukończeniu kursu definiuje cechy człowieka dorosłego uczestniczącego w procesach komunikowania się w zarządzaniu podmiotami agrobiznesu; Zna metodykę stosowaną w doradztwie w agrobiznesie wykorzystywaną w sferze produkcji, obrotu rolnego, przetwórstwa i przechowalnictwa produktów rolnych ; Rozpoznaje potrzeby wynikające z sytuacji problemowych związanych z prowadzeniem prawidłowej agrotechniki, w tym z użyciem techniki komputerowej; student interpretuje model przyswajania nowości do praktyki; Przygotowuje konspekt szkolenia w języku polskim; Umie planować i realizować zadania z obszaru doradztwa technologicznego w tym z użyciem techniki komputerowej dotyczące wymagań siedliskowych podstawowych grup roślin, dobrostanu zwierząt, technologii produkcji roślinnej i zwierzęcej z uwzględnieniem aspektów ekologicznych. Student po zakończeniu kursu docenia znaczenie permanentnego doskonalenia zawodowego; Animuje pracę w środowisku lokalnym; Organizuje procesy komunikacji werbalnej i niewerbalnej.</p>	
Kryteria oceniania	<p>Końcowa ocena z kursu stanowi składową punktacji w zakresie wiedzy, umiejętności i kompetencji społecznych. Sumowane są punkty uzyskane ze sprawdzianu pisemnego, aktywności, udziału w dyskusjach, frekwencji oraz wykonania zadań dodatkowych. Wiedza weryfikowana jest podczas sprawdzianu pisemnego. Sprawdzian pisemny zawiera dwa pytania problemowe, umożliwiające ocenę umiejętności. Kompetencje społeczne są oceniane w oparciu o udział w zajęciach i dyskusjach tematycznych, frekwencję oraz wykonanie zadań dodatkowych. Wymagany poziom niezbędny do zaliczenia przedmiotu: 60%</p>
Treści programowe - wykłady	
<p>1. Typ doradców –case study(2h)2. Style pracy doradczej –case study(2h)3. Komunikacja wewnętrzna (2h)4. Personal branding (2h)5. Praca na celach(2h)6. Trening odporności na stres (2h)7. Systemy motywacyjne i motywowanie pracowników (2h)8. Wartościowanie pracy i konstruowanie systemów wynagrodzeń (2h)9. Budowanie relacji w kontaktach z osobowościami sprężynującymi(2h)10. Korporacyjny poker, Antropologia przestrzeni(2h)11. Komunikowanie jako reakcja na sytuację kryzysową(4h)12. Cechy przywódcy, style przywództwa(MWK)(2h)13. Koncepcja „Lis i jeź” (2h)14. Repetytorium (2h)</p>	
Treści programowe - ćwiczenia	

Kod przedmiotu	HS-S1Z>0001
Nazwa przedmiotu	Etyka

Semestr	
Liczba punktów ECTS	2
Efekty uczenia się oraz metody ich weryfikacji	
<p>Po ukończeniu przedmiotu student</p> <p>W zakresie wiedzy:</p> <ol style="list-style-type: none"> 1. Zna podstawową terminologię, stosowaną w naukach humanistycznych i społecznych: zna podstawowe pojęcia, definiuje podstawowe doktryny, zna wybrane współczesne problemy komunikacji. 2. Ma elementarną wiedzę dotyczącą pozyskiwania informacji z zakresu tematyki kursu. 3. Ma podstawową wiedzę społeczną, potrafi wskazać związki oraz zależności między naukami humanistycznymi i społecznymi a naukami rolniczymi, leśnymi, weterynaryjnymi oraz przyrodniczymi. <p>W zakresie umiejętności:</p> <ol style="list-style-type: none"> 1. Posiada umiejętność poszukiwania informacji, analizy i wykorzystania literatury dotyczącej tematyki kursu. 2. Postępuje się terminologią specjalistyczną w języku, w którym prowadzony jest przedmiot. 3. Ma świadomość samokształcenia. <p>W zakresie kompetencji społecznych:</p> <ol style="list-style-type: none"> 1. Potrafi pracować indywidualnie oraz w grupie, przyjmując w niej różne role. Potrafi kierować zespołem, przyjmując odpowiedzialność za efekty jego pracy. 2. Rozumie rolę doradztwa zawodowego i konieczność uczenia się przez całe życie. 3. Potrafi współpracować w grupie, przyjmując w niej różne role. <p>Efekty kierunkowe zostały wyszczególnione w drukowanej wersji sylabusów</p>	
Kryteria oceniania	<p>Końcowa ocena z kursu stanowi składową punktacji w zakresie wiedzy, umiejętności i kompetencji społecznych. Sumowane są punkty uzyskane ze sprawdzianu pisemnego, aktywności, udziału w dyskusjach, frekwencji oraz wykonania zadań dodatkowych. Wiedza weryfikowana jest podczas sprawdzianu pisemnego. Sprawdzian pisemny zawiera dwa pytania problemowe, umożliwiające ocenę umiejętności. Kompetencje społeczne są oceniane w oparciu o udział w zajęciach i dyskusjach tematycznych, frekwencję oraz wykonanie zadań dodatkowych. Wymagany poziom niezbędny do zaliczenia przedmiotu: 60%</p>
Treści programowe - wykłady	
<ol style="list-style-type: none"> 1. Podstawowe pojęcia etyki. Natura etyki (2h) 2. Główne doktryny etyczne (2h) 3. Etyka Arystotelesa (2h) 4. Etyka chrześcijańska (2h) 5. Utylitaryzm (2h) 6. Etyka Kanta (4h) 7. Etyka postmodernistyczna (2h) 8. Bioetyka (2h) 9. Etyki stosowane (2h) 10. Etyka środowiska naturalnego (2h) 11. Etyka biznesu 	

(2h)12. Wybrane współczesne problemy etyczne: aborcja, samobójstwo, eutanazja, tolerancja, równość, pacyfizm (4h)13.

Treści programowe - ćwiczenia

Kod przedmiotu	HS-S1Z>0004
Nazwa przedmiotu	Komunikacja interpersonalna
Semestr	
Liczba punktów ECTS	2
Efekty uczenia się oraz metody ich weryfikacji	
Po ukończeniu przedmiotu student: W zakresie wiedzy: 1. Zna podstawową terminologię, stosowaną w naukach humanistycznych i społecznych: zna podstawowe pojęcia, definiuje podstawowe doktryny, zna wybrane współczesne problemy komunikacji. 2. Ma elementarną wiedzę dotyczącą pozyskiwania informacji z zakresu tematyki kursu. 3. Ma podstawową wiedzę społeczną, potrafi wskazać związki oraz zależności między naukami humanistycznymi i społecznymi a naukami rolniczymi, leśnymi, weterynaryjnymi oraz przyrodniczymi. W zakresie umiejętności: 1. Posiada umiejętność poszukiwania informacji, analizy i wykorzystania literatury dotyczącej tematyki kursu. 2. Posługuje się terminologią specjalistyczną w języku, w którym prowadzony jest przedmiot. 3. Ma świadomość samokształcenia. W zakresie kompetencji społecznych: 1. Potrafi pracować indywidualnie oraz w grupie, przyjmując w niej różne role. Potrafi kierować zespołem, przyjmując odpowiedzialność za efekty jego pracy. 2. Rozumie rolę doradztwa zawodowego i konieczność uczenia się przez całe życie. 3. Potrafi współpracować w grupie, przyjmując w niej różne role. Efekty kierunkowe zostały wyszczególnione w drukowanej wersji sylabusów	
Kryteria oceniania	Końcowa ocena z kursu stanowi składową punktacji w zakresie wiedzy, umiejętności i kompetencji społecznych. Sumowane są punkty uzyskane ze sprawdzianu pisemnego, aktywności, udziału w dyskusjach, frekwencji oraz wykonania zadań dodatkowych.

	Wiedza weryfikowana jest podczas sprawdzianu pisemnego. Sprawdzenie pisemne zawiera dwa pytania problemowe, umożliwiające ocenę umiejętności. Kompetencje społeczne są oceniane w oparciu o udział w zajęciach i dyskusjach tematycznych, frekwencję oraz wykonanie zadań dodatkowych. Wymagany poziom niezbędny do zaliczenia przedmiotu: 60%
Treści programowe - wykłady	
<p>Pojęcie komunikacji interpersonalnej (2h)</p> <p>Wpływ percepcji na proces komunikowania się (2h)</p> <p>Komunikowanie się niewerbalne – współpraca ze słowami oraz udział w ustalaniu relacji osobowej w interakcji (2h)</p> <p>Zasady skutecznej komunikacji (2h)</p> <p>Bariery w komunikowaniu (2h)</p> <p>Komunikowanie informacyjne a komunikowanie perswazyjne (2h)</p> <p>Komunikowanie w Internecie (2h)</p> <p>Rola komunikowania w autoprezentacji (2h)</p> <p>Wystąpienia publiczne (2h)</p> <p>Konflikty interpersonalne – sposoby ich rozwiązywania (2h)</p> <p>Komunikacja asertywna na tle innych strategii: dominującej, manipulacyjnej i uległej (2h)</p> <p>Zasady komunikacji w grupie (2h)</p> <p>Debata – podstawy erystyki (2h)</p> <p>Komunikacja międzykulturowa (2h)</p> <p>Repetitorium (2h)</p>	
Treści programowe - ćwiczenia	

Kod przedmiotu	HS-S1Z>0005
Nazwa przedmiotu	Planowanie kariery i podstawy wiedzy o rynku pracy
Semestr	
Liczba punktów ECTS	2
Efekty uczenia się oraz metody ich weryfikacji	

<p>Po ukończeniu przedmiotu student:</p> <p>W zakresie wiedzy:</p> <ol style="list-style-type: none"> 1. Zna podstawową terminologię, stosowaną w naukach humanistycznych i społecznych: zna podstawowe pojęcia, definiuje podstawowe doktryny, zna wybrane współczesne problemy komunikacji. 2. Ma elementarną wiedzę dotyczącą pozyskiwania informacji z zakresu tematyki kursu. 3. Ma podstawową wiedzę społeczną, potrafi wskazać związki oraz zależności między naukami humanistycznymi i społecznymi a naukami rolniczymi, leśnymi, weterynaryjnymi oraz przyrodniczymi. <p>W zakresie umiejętności:</p> <ol style="list-style-type: none"> 1. Posiada umiejętność poszukiwania informacji, analizy i wykorzystania literatury dotyczącej tematyki kursu. 2. Postępuje się terminologią specjalistyczną w języku, w którym prowadzony jest przedmiot. 3. Ma świadomość samokształcenia. <p>W zakresie kompetencji społecznych:</p> <ol style="list-style-type: none"> 1. Potrafi pracować indywidualnie oraz w grupie, przyjmując w niej różne role. Potrafi kierować zespołem, przyjmując odpowiedzialność za efekty jego pracy. 2. Rozumie rolę doradztwa zawodowego i konieczność uczenia się przez całe życie. 3. Potrafi współpracować w grupie, przyjmując w niej różne role. <p>Efekty kierunkowe zostały wyszczególnione w drukowanej wersji sylabusów</p>	
Kryteria oceniania	<p>Końcowa ocena z kursu stanowi składową punktacji w zakresie wiedzy, umiejętności i kompetencji społecznych. Sumowane są punkty uzyskane ze sprawdzianu pisemnego, aktywności, udziału w dyskusjach, frekwencji oraz wykonania zadań dodatkowych. Wiedza weryfikowana jest podczas sprawdzianu pisemnego. Sprawdzian pisemny zawiera dwa pytania problemowe, umożliwiające ocenę umiejętności. Kompetencje społeczne są oceniane w oparciu o udział w zajęciach i dyskusjach tematycznych, frekwencję oraz wykonanie zadań dodatkowych. Wymagany poziom niezbędny do zaliczenia przedmiotu: 60%</p>
Treści programowe - wykłady	
<p>Tematyka wykładów: 1. Wymagania i ograniczenia współczesnego rynku pracy (2h) 2. Pracownik w świecie ponowoczesnym. Koniec ery etatów –mozaikowość rynku pracy (2h) 3. Rodzaje inteligencji, uczucia w sytuacji zawodowej (2h) 4. Role pracownicze, znaczenie ról zadaniowych (2h) 5. Koncepcja „Lis i jeź” –specjalizacja w kształtowaniu kompetencji pracowniczych (2h) 6. Personal branding (2h) 7. Cechy przywódcy (2h) 8. Zarządzanie karierą: formułowanie celów, zarządzanie czasem, planowanie, determinanty odporności na presję czasu i stres (4h) 9. Antropologia przestrzeni, budowanie przyjaznego otoczenia (2h) 10. Mechanizmy rynku pracy: zasady budowania relacji w kontaktach z osobowościami sprężynującymi, komunikacja w sytuacjach trudnych, korporacyjny poker, relacje toksyczne, destrukcyjny wpływ technik manipulacyjnych (4h) 11. Ochrona przed nadużyciami w relacji trudnej,</p>	

rodzaje przemocy, syndrom współzależnienia, doświadczenie bezradności i bierności (4h)12.
Treści programowe - ćwiczenia

Kod przedmiotu	HS-B1L>0001
Nazwa przedmiotu	Psychologia społeczna
Semestr	
Liczba punktów ECTS	2
Efekty uczenia się oraz metody ich weryfikacji	
<p>Zna i rozumie złożone zasady funkcjonowania człowieka w społeczeństwie.</p> <p>Zna podstawową terminologię stosowaną w naukach humanistycznych i społecznych: zna podstawy, obszary, modele i fazy.</p> <p>Ma elementarną wiedzę dotyczącą pozyskiwania informacji z zakresu tematyki kursu.</p> <p>Ma podstawową wiedzę o relacjach społecznych i potrafi wskazać związki oraz zależności między naukami humanistycznymi i społecznymi a naukami rolniczymi, leśnymi, weterynaryjnymi oraz przyrodniczymi.</p> <p>Uczy się samodzielnie w sposób celowy.</p> <p>Wykorzystuje wszystkie dostępne źródła informacji, w tym elektroniczne, do nauki, przygotowania wystąpień i prezentacji, planowania działań badawczych.</p> <p>Szuka informacji, analizuje i wykorzystuje literaturę przedmiotu.</p> <p>Posługuje się terminologią specjalistyczną w języku, w którym prowadzony jest przedmiot.</p> <p>Ma świadomość samokształcenia.</p> <p>Rozpoznaje problemy, potrafi działać zgodnie z obowiązującymi standardami i zasadami etycznymi.</p> <p>Jest gotowy systematycznie aktualizować swoją wiedzę.</p> <p>Ma świadomość efektów pracy zespołowej i potrafi kierować zespołem oraz współpracować w nim.</p> <p>Potrafi współdziałać i pracować w grupie, przyjmując w niej różne role.</p> <p>Rozumie potrzebę doksztalcania się przez całe życie.</p> <p>Potrafi myśleć i działać kreatywnie.</p> <p>Prawidłowo identyfikuje dylematy związane z podejmowaniem wyborów życiowych i zawodowych.</p>	
Kryteria oceniania	Końcowa ocena z kursu stanowi składową punktacji w zakresie wiedzy, umiejętności i kompetencji społecznych. Sumowane są punkty uzyskane ze sprawdzianu pisemnego, aktywności, udziału w dyskusjach, frekwencji oraz wykonania zadań dodatkowych. Wiedza

	weryfikowana jest podczas sprawdzianu pisemnego. Sprawdzian pisemny zawiera pytania odtwórcze (sprawdzające opanowanie przekazywanej w trakcie wykładów wiedzy) oraz pytania problemowe (umożliwiające ocenę umiejętności). Kompetencje społeczne są oceniane w oparciu o udział w zajęciach i dyskusjach tematycznych, frekwencję oraz wykonanie zadań dodatkowych. Wymagany poziom niezbędny do zaliczenia przedmiotu: 60%
Treści programowe - wykłady	
<ol style="list-style-type: none"> 1. Psychologia społeczna - główne kierunki zainteresowań oraz metody badawcze (2h) 2. Wpływ społeczny i konformizm (2h) 3. Wzorce poznania społecznego (2h) 4. Atrakcyjność interpersonalna (2h) 5. Autoprezentacja - strategie i techniki (2h) 6. Postawy społeczne, sposoby ich kształtowania oraz zmiany (2h) 7. Stereotypy i uprzedzenia społeczne (2h) 8. Agresja interpersonalna (2h) 9. Postawy i zachowania prospołeczne (2h) 10. Procesy grupowe: grupy społeczne a grupy zadaniowe, właściwości grup społecznych, podstawowe procesy grupowe, facylitacja i próżniactwo społeczne (2h) 11. Problemy przywództwa (2h) 12. Dialog międzykulturowy (2h) 13. Umiejętności społeczne (2h) 14. Metody rozwijania umiejętności społecznych (2h) 15. Repetytorium(2h) 	
Treści programowe - ćwiczenia	

Kod przedmiotu	HS-S1L>0019
Nazwa przedmiotu	Skuteczna komunikacja w biznesie
Semestr	
Liczba punktów ECTS	2

Efekty uczenia się oraz metody ich weryfikacji	
Po ukończeniu przedmiotu student	
W zakresie wiedzy:	
1. Student ma podstawową wiedzę z zakresu teorii komunikowania (interpersonalnego i medialnego) przydatną w działalności biznesowej.	
2. Student ma podstawową wiedzę na temat relacji społecznych i rządzących nimi prawidłowości.	
3. Student ma podstawową wiedzę na temat możliwości praktycznego wykorzystania technik i narzędzi komunikacji w procesie rozwoju organizacji (w kontaktach z pracodawcą, współpracownikami i mediami).	
W zakresie umiejętności:	
1. Student posiada umiejętność zastosowania wiedzy teoretycznej w określonym obszarze działań komunikacyjnych organizacji – na poziomie interpersonalnym, grupowym i medialnym.	
2. Potrafi formułować problemy badawcze pozwalające na rozwiązywanie typowych problemów komunikacyjnych w sytuacjach biznesowych.	
3. Student posiada umiejętność przygotowania wystąpień publicznych z zakresu zastosowań komunikologii w biznesie – z wykorzystaniem podstawowych ujęć teoretycznych, a także różnych źródeł informacji.	
W zakresie kompetencji społecznych:	
1. Student rozumie potrzebę ciągłego zdobywania i pogłębiania wiedzy wynikające ze zmienności otoczenia.	
2. Student potrafi współdziałać i pracować w grupie, przyjmując w niej różne role i zadania.	
Kryteria oceniania	Ocena z ćwiczeń 60%, ocena z wykładu 40%.
Treści programowe - wykłady	
1.Znaczenie społeczne i kierunki rozwoju public relations w systemie demokratycznym (2h)	
2.Modele teoretyczne oraz fazy procesu public relations. Kreowanie marki (2h)	
3.Media relations (4h)	
4.Komunikacja wewnętrzna (2h)	
5.Kreowanie stosunków z otoczeniem lokalnym (2h)	
6.Komunikacja międzykulturowa (2h)	
7.Komunikowanie jako reakcja na sytuację kryzysową (2h)	
8.Społeczności internetowe (2h)	
9.Koncepcje CSR (Corporate Social Responsibility). Personal branding (4h)	
10.Elementy wizualne, materiały fotograficzne i druk w PR (2h)	
11.Ocena efektywności działań public relations. Monitoring mediów a prawo autorskie (2h)	
12.Wybrane aspekty prawne public relations (prawo prasowe i autorskie) (2h)	
13.Repetytorium (2h)	
Treści programowe - ćwiczenia	

Kod przedmiotu	HS-S2L>0007
Nazwa przedmiotu	Komunikacja w biznesie
Semestr	
Liczba punktów ECTS	2
<p>Efekty uczenia się oraz metody ich weryfikacji</p> <p>Po ukończeniu przedmiotu student</p> <p>W zakresie wiedzy:</p> <ol style="list-style-type: none"> 1. Student ma podstawową wiedzę z zakresu teorii komunikowania (interpersonalnego i medialnego) przydatną w działaniu biznesowej. 2. Student ma podstawową wiedzę na temat relacji społecznych i rządzących nimi prawidłowości. 3. Student ma podstawową wiedzę na temat możliwości praktycznego wykorzystania technik i narzędzi komunikacji w procesie rozwoju organizacji (w kontaktach z pracodawcą, współpracownikami i mediami). <p>W zakresie umiejętności:</p> <ol style="list-style-type: none"> 1. Student posiada umiejętność zastosowania wiedzy teoretycznej w określonym obszarze działań komunikacyjnych organizacyjnych – na poziomie interpersonalnym, grupowym i medialnym. 2. Potrafi formułować problemy badawcze pozwalające na rozwiązywanie typowych problemów komunikacyjnych w sytuacjach biznesowych. 3. Student posiada umiejętność przygotowania wystąpień publicznych z zakresu zastosowań komunikologii w biznesie – z wykorzystaniem podstawowych ujęć teoretycznych, a także różnych źródeł informacji. <p>W zakresie kompetencji społecznych:</p> <ol style="list-style-type: none"> 1. Student rozumie potrzebę ciągłego zdobywania i pogłębiania wiedzy wynikające ze zmienności otoczenia. 2. Student potrafi współdziałać i pracować w grupie, przyjmując w niej różne role i zadania. <p>Literatura obowiązkowa:</p> <ol style="list-style-type: none"> 1. Hamilton, Ch. (2011). Skuteczna komunikacja w biznesie. Warszawa: PWN. 2. Morreale, S.P., Spitzberg, B.H., Barge, J.K. (2008). Komunikacja między ludźmi. Warszawa: PWN. <p>Literatura uzupełniająca:</p> <ol style="list-style-type: none"> 1. Czechowska-Derkacz, B., Zimnak, M. (red.). (2015) Rzecznik prasowy. Warszawa: Difin. 2. Decker, B. (2009). Wystąpienia publiczne. Warszawa: MT Biznes Sp. z o.o. 	
Kryteria oceniania	Ocena z ćwiczeń 60%, ocena z wykładu 40%.
<p>Treści programowe - wykłady</p> <ol style="list-style-type: none"> 1. Podstawowe pojęcia z zakresu komunikacji w biznesie, modele i zasady skutecznej komunikacji, kompetencja komunikacyjna. 2. „Personal branding” – budowanie wizerunku publicznego za pośrednictwem komunikacji werbalnej i 	

niewerbalnej. 3. Dokumenty aplikacyjne jako narzędzie komunikowania się z potencjalnym pracodawcą. 4. Skuteczna autoprezentacja podczas rozmowy kwalifikacyjnej. 5. Rola savoir vivre'u w budowaniu marki osobistej – zwroty grzecznościowe, precedencja, kultura osobista. 6. Komunikacja w zespole zadaniowym, role, normy, struktura komunikacyjna, audyt komunikacyjny jako narzędzie diagnozowania procesów komunikowania w organizacji. 7. Rozwiązywanie sytuacji trudnych w bezpośrednich interakcjach, techniki asertywnej komunikacji. 8. Prowadzenie negocjacji biznesowych, typy negocjacji, strategie i techniki negocjacji. 9. Komunikacja w procesie kierowania zespołem pracowniczym – instruktarz, feedback i rozmowa oceniająca. 10. Zasady wystąpień publicznych. 11. Komunikowanie się z mediami, rola rzecznika prasowego i public relations. 12. Planowanie i realizacja kampanii komunikacyjnych. 13. Zarządzanie komunikacją w sytuacjach kryzysowych. 14. Rola nowych mediów w działalności biznesowej. 15. Repetytorium.
Treści programowe - ćwiczenia

Kod przedmiotu	HS-B2L>0001
Nazwa przedmiotu	Coaching
Semestr	
Liczba punktów ECTS	2
Efekty uczenia się oraz metody ich weryfikacji	
<p>Student po ukończeniu kursu definiuje cechy człowieka dorosłego uczestniczącego w procesach komunikowania się w zarządzaniu podmiotami agrobiznesu; Zna metodykę stosowaną w doradztwie w agrobiznesie wykorzystywaną w sferze produkcji, obrotu rolnego, przetwórstwa i przechowywania produktów rolnych ; Rozpoznaje potrzeby wynikające z sytuacji problemowych związanych z prowadzeniem prawidłowej agrotechniki, w tym z użyciem techniki komputerowej; student interpretuje model przyswajania nowości do praktyki; Przygotowuje konspekt szkolenia w języku polskim; Umie planować i realizować zadania z obszaru doradztwa technologicznego w tym z użyciem techniki komputerowej dotyczące wymagań siedliskowych podstawowych grup roślin, dobrostanu zwierząt, technologii produkcji roślinnej i zwierzęcej z uwzględnieniem aspektów ekologicznych. Student po zakończeniu kursu docenia znaczenie permanentnego doskonalenia zawodowego; Animuje pracę w środowisku lokalnym; Organizuje procesy komunikacji werbalnej i niewerbalnej.</p>	

Kryteria oceniania	Końcowa ocena z kursu stanowi składową punktacji w zakresie wiedzy, umiejętności i kompetencji społecznych. Sumowane są punkty uzyskane ze sprawdzianu pisemnego, aktywności, udziału w dyskusjach, frekwencji oraz wykonania zadań dodatkowych. Wiedza weryfikowana jest podczas sprawdzianu pisemnego. Sprawdzian pisemny zawiera dwa pytania problemowe, umożliwiające ocenę umiejętności. Kompetencje społeczne są oceniane w oparciu o udział w zajęciach i dyskusjach tematycznych, frekwencję oraz wykonanie zadań dodatkowych. Wymagany poziom niezbędny do zaliczenia przedmiotu: 60%
Treści programowe - wykłady	
Treści programowe - ćwiczenia	

*) – należy wskazać wraz z kodem przedmiotu w USOS

1.3 Opis efektów uczenia się

Efekty uczenia się

Dyscyplina naukowa wiodąca, do której odnoszą się efekty uczenia się*): **weterynaria**

Dyscyplina/y dodatkowa/e: **nie dotyczy**

Opis efektów uczenia się uwzględnia: uniwersalne charakterystyki studiów jednolitych magisterskich, zawartych w charakterystykach drugiego stopnia**) dla kwalifikacji na poziomie 7 Polskiej Ramy Kwalifikacji.

Opis efektów uczenia się uwzględnia efekty uczenia się opisane w standardzie, stanowiącym załącznik do Rozporządzenia Ministra Nauki i Szkolnictwa Wyższego z dnia 17 lipca 2019 r. w sprawie standardu kształcenia przygotowującego do wykonywania zawodu lekarza weterynarii (Dz. U. z 2019 r., poz.1364) w zakresie wiedzy, umiejętności i kompetencji społecznych.

Symbol of the educational outcome for studies major	GENERAL EDUCATIONAL OUTCOMES After completion of the studies, a graduate	Symbol of the educational outcome for PRK	Symbol from the 2019 standard
KNOWLEDGE			
Wet_WO_01	knows to an extensive degree and describes in detail the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the	P7S_WG	

	organ, animal, to the entire animal population;		
Wet_WO_02	knows to an extensive degree, describes in detail and explains the development, structure, functioning, behaviours and physiological mechanisms of animals in normal conditions, as well as the mechanisms of disorders in pathological conditions;	P7S_WG	
Wet_WO_03	explains and interprets the etiology, pathogenesis and clinical symptoms of diseases occurring in individual animal species, and knows the principles of therapeutic procedure, as well as the methods of diagnostic and therapeutic procedure appropriate for the diseases occurring in animals;	P7S_WG	
Wet_WO_04	characterises in detail the methods of using veterinary medicinal products, aimed at prophylaxis and treatment of animals, as well as at guaranteeing food chain safety and environmental protection;	P7S_WG	
Wet_WO_05	presents the biology of infectious factors that cause diseases transmitted between animals, as well as anthroozoonoses, taking into account the mechanisms of disease transmission and defense mechanisms of the macroorganism;	P7S_WG	
Wet_WO_06	specifies the principles of conducting clinical examination, in accordance with the plan of clinical examination, analysis of clinical symptoms and anatomopathological changes;	P7S_WG	
Wet_WO_07	knows to an extensive degree and distinguishes the principles of animal raising and husbandry, taking into account the principles of animal nutrition, principles of maintaining their welfare and principles of production economics;	P7S_WG	
Wet_WO_08	identifies and describes in detail the principles of management and utilisation of animal by-products and waste associated with animal production;	P7S_WG	
Wet_WO_09	presents in detail the principles of examination of the slaughter animals,	P7S_WG	

	meat and other animal products;		
Wet_WO_10	explains in detail the principles of consumer health protection, as well as the principles of appropriate supervision over the production of foodstuffs of animal origin;	P7S_WG	
Wet_WO_11	knows to an extensive degree the standards, principles and conditions of animal production technology and maintaining the hygiene of technological process;	P7S_WG	
Wet_WO_12	describes legal standards associated with the activities of veterinary physicians;	P7S_WK	
Wet_WO_13	presents the basic IT and biostatistic methods used in veterinary medicine.	P7S_WK	
SKILLS			
Wet_UO_01	conducts clinical examination of the animal in accordance with the principles of medical art;	P7S_UW P7S_UK	
Wet_UO_02	analyses and interprets pathological changes and results of laboratory tests and additional tests, formulates the diagnosis of given disease, taking into account the differential diagnostics, and undertakes therapeutic or prophylactic actions;	P7S_UW	
Wet_UO_03	plans the diagnostic procedure;	P7S_UW	
Wet_UO_04	monitors health of the herd, as well as undertakes action in the case of a disease that is subject to the obligation of disease eradication or its registration;	P7S_UW	
Wet_UO_05	performs pre- and post-mortem inspection of slaughter animals and examination of meat, as well as other products of animal origin;	P7S_UW P7S_UK	
Wet_UO_06	performs activities that are associated with the veterinary supervision, including trade in animals, as well as sanitary and veterinary conditions of animal gathering locations and processing products of animal origin;	P7S_UW	

Wet_UO_07	issues veterinary medical opinion and certificate;	P7S_UW P7S_UK	
Wet_UO_08	uses Latin medical nomenclature to the extent necessary to understand and describe medical activities, as well as state of animal health, diseases, pathological changes and conditions;	P7S_UW P7S_UK	
Wet_UO_09	applies IT systems used to support the health facility for animals, herd and analysis of epizootic situation;	P7S_UW P7S_UK	
Wet_UO_10	performs basic statistical analysis and uses appropriate methods for presentation of the results;	P7S_UW P7S_UK	
Wet_UO_10	uses vocabulary and grammatical structures of a foreign language, which constitutes the language of international communication, in the scope of creating and understanding written and oral statements, both general and specialised in the scope of veterinary;	P7S_UK	
Wet_UO_11	maintains physical fitness that is required for the work with certain animal species.	P7S_UO	
SOCIAL COMPETENCE			
Wet_KS_01	exhibits responsibility for his/her decisions made in regard to the people, animals and the natural environment;	P7S_KO P7S_KR	
Wet_KS_02	has an attitude consistent with ethical principles and undertakes actions based on the code of ethics in professional practice, as well as exhibits tolerance for attitudes and behaviours resulting from various social and cultural conditions;	P7S_KR	
Wet_KS_03	participates in resolution of the conflicts and exhibits flexibility in reactions to social changes;	P7S_KK	
Wet_KS_04	uses the objective sources of information;	P7S_KK	
Wet_KS_05	formulates conclusions from own measurements or observations, as well as opinions regarding various aspects of professional activity;	P7S_KK	

Wet_KS_06	is ready for reliable self-assessment, formulating constructive criticism in the scope of veterinary practice, accepting criticism of presented solutions, reacting to such criticism in a clear and material manner, also with the use of arguments referring to the available scientific achievements in the discipline;	P7S_KK	
Wet_KS_07	deepens his/her knowledge and improves skills;	P7S_KK	
Wet_KS_08	communicates with the co-workers and shares knowledge;	P7S_KO	
Wet_KS_09	is ready to act in the conditions of uncertainty and stress;	P7S_KO	
Wet_KS_10	cooperates with representatives of other professions in the scope of public health protection;	P7S_KK P7S_KO P7S_KR	
Wet_KS_11	gets involved in the activities of professional and local government organisations.	P7S_KO P7S_KR	
DETAILED EDUCATIONAL OUTCOMES			
After completion of the studies, a graduate			
IN THE SCOPE OF BASIC SCIENCES			
KNOWLEDGE			
Wet_WSP_01	knows to an extensive degree and understands the structure of the animal organism: cells, tissues, organs and systems;	P7S_WG	A.W1
Wet_WSP_02	knows to an extensive degree, describes in detail and explains the structure, activity and regulation mechanisms of organs and systems of the animal organism (respiratory, digestive, circulatory, excretory, nervous, reproductive, hormonal, immune system and skin), as well as their integration at the organism level;	P7S_WG	A.W2.
Wet_WSP_03	presents the development of organs and the entire animal organism in relation to	P7S_WG	A.W3

	the mature organism;		
Wet_WSP_04	characterises in detail the metabolic processes at the molecular, cellular, organ and system levels;	P7S_WG	A.W4
Wet_WSP_05	knows to an extensive degree and understands the principles of water and electrolyte metabolism, acid-base balance of animal organism, as well as the mechanism of system homeostasis;	P7S_WG	A.W5
Wet_WSP_06	characterises the basic reactions of organic and inorganic compounds in aqueous solutions;	P7S_WG	A.W6
Wet_WSP_07	presents the physical laws describing flow of fluids and factors affecting vascular resistance of blood flow;	P7S_WG	A.W7
Wet_WSP_08	knows to an extensive degree and understands the physicochemical and molecular foundations of the operation of sensory organs;	P7S_WG	A.W8
Wet_WSP_09	describes in detail the mechanism of neurohormonal regulation, reproduction, aging and death;	P7S_WG	A.W9
Wet_WSP_10	knows to an extensive degree and understands the principles and mechanisms underlying animal health, disease formation and their treatment - from the level of cells, through the organ, animal, herd of animals, to the entire animal population;	P7S_WG	A.W10
Wet_WSP_11	explains the correlation between factors that disturb the balance of biological processes of the animal body and physiological and pathophysiological changes;	P7S_WG	A.W11
Wet_WSP_12	describes and interprets the pathophysiological changes occurring in cells, tissues, organs and systems of animals, as well as biological mechanisms, including immunological mechanisms, and therapeutic possibilities that allow recovery;	P7S_WG	A.W12
Wet_WSP_13	knows to an extensive degree the biology of infectious factors that cause diseases transmitted between animals, as well as	P7S_WG	A.W13

	anthropozoonoses, taking into account the mechanisms of disease transmission and defense mechanisms of the organism;		
Wet_WSP_14	describes and characterises the principles and processes of inheritance, genetic disorders and the basics of genetic engineering;	P7S_WG	A.W14
Wet_WSP_15	knows to an extensive degree and presents the basics of microbiological diagnostics;	P7S_WG	A.W15
Wet_WSP_16	knows to an extensive degree and understands the mechanisms of operation, activity in the system, side effects and mutual interactions of the groups of veterinary medicinal products used in target animal species;	P7S_WG	A.W16
Wet_WSP_17	describes in detail the application of antibacterial and antiparasitic chemotherapy;	P7S_WG	A.W17
Wet_WSP_18	presents the mechanisms of drug resistance, including multi-drug resistance by microorganisms and cancer cells;	P7S_WG	A.W18
Wet_WSP_19	knows to an extensive degree the procedures and elements necessary to issue a prescription for veterinary medicinal products;	P7S_WG	A.W19
Wet_WSP_20	knows and understands the Polish and Latin medical nomenclature;	P7S_WG	A.W20
Wet_WSP_21	describes and characterises the types of poisonings occurring in animals and the principles of diagnostic and therapeutic procedure in the case of poisonings;	P7S_WG	A.W21
Wet_WSP_22	knows and understands the veterinary physician's code of ethics;	P7S_WK	A.W22
Wet_WSP_23	presents the concepts in the scope of intellectual property protection.	P7S_WK	A.W23
SKILLS			
Wet_USP_01	is able to use the knowledge of the laws of physics in order to explain the impact of external factors (temperature, pressure, electromagnetic field, ionizing radiation) on the animal body;	P7S_UW	A.U1

Wet_USP_02	uses the basic laboratory techniques, such as: qualitative analysis, titration, colourimetry, pH-metry, chromatography and electrophoresis of proteins and nucleic acids;	P7S_UW	A.U2
Wet_USP_03	calculates the molar and percentage concentrations of substances and compounds in isoosmotic solutions;	P7S_UW	A.U3
Wet_USP_04	describes changes in functioning of the organism in the situation of homeostasis disorders;	P7S_UW	A.U4
Wet_USP_05	predicts the direction of biochemical processes, depending on the energy state of the cells;	P7S_UW	A.U5
Wet_USP_06	explains the anatomical basis of physical examination, taking into account the individual animal species;	P7S_UW	A.U6
Wet_USP_07	defines physiological state as the animal's adaptation to the changing environmental factors;	P7S_UW	A.U7
Wet_USP_08	recognises (in the images from optical microscope) histological structures corresponding to organs, tissues and cells, and is able to formulate their description, interpret their structure and relations between their structure and activity, taking into account the animal species from which they originate;	P7S_UW	A.U8
Wet_USP_09	analyses genetic crosses and pedigree of the characteristics of individuals from respective species;	P7S_UW	A.U9
Wet_USP_10	performs basic microbiological diagnostics;	P7S_UW	A.U10
Wet_USP_11	is able to choose and apply rational empirical and targeted antibacterial chemotherapy, taking into account the target species of animals;	P7S_UW	A.U11
Wet_USP_12	communicates with the clients and other veterinary physicians;	P7S_UK	A.U12
Wet_USP_13	is able to listen and provide answers with the use of understandable language, appropriate to the given situation;	P7S_UK	A.U13

Wet_USP_14	prepares transparent case descriptions and keeps documentation, in accordance with regulations applicable in this scope, in the form understandable to the animal owner and legible to other veterinary physicians;	P7S_UK	A.U14
Wet_USP_15	is able to work in a multidisciplinary team;	P7S_UO	A.U15
Wet_USP_16	interprets the responsibility of veterinary physician in regard to the animal, its owner, society, as well as the natural environment;	P7S_UK	A.U16
Wet_USP_17	estimates the toxicological danger in specific technological groups of farm animals;	P7S_UK	A.U17
Wet_USP_18	assesses the economic and social conditions, in which the profession of veterinary physician is performed;	P7S_UW P7S_UK	A.U18
Wet_USP_19	uses his/her professional skills to improve the quality of veterinary care, animal welfare, as well as public health;	P7S_UW P7S_UK	A.U19
Wet_USP_20	organises and conducts veterinary practice (including calculation of the fees), as well as issues invoices, keeps financial and medical documentation, and uses IT systems for effective communication, collection, processing, transmission and analysis of information;	P7S_UW P7S_UK	A.U20
Wet_USP_21	understands the need of continuing education, in order to ensure continuous professional development;	P7S_UU	A.U21
Wet_USP_22	adapts to the changing situation on the labour market;	P7S_UW P7S_UU	A.U22
Wet_USP_23	is able to use the advice and help of specialised organisational units or persons in the scope of problem solving.	P7S_UW P7S_UO	A.U23
DETAILED EDUCATIONAL OUTCOMES			
After completion of the studies, a graduate			

KNOWLEDGE			
IN THE SCOPE OF CLINICAL SCIENCES			
Wet_WSK_01	knows to an extensive degree as well as understands disorders at the level of the cell, tissue, organ, system and organism, in the course of the disease;	P7S_WG	B.W1
Wet_WSK_02	explains the mechanisms of organ and systemic pathologies;	P7S_WG	B.W2
Wet_WSK_03	describes the causes and symptoms of anatomopathological changes, principles of treatment and prophylaxis in individual disease entities;	P7S_WG	B.W3
Wet_WSK_04	knows and understands the principles of diagnostic procedure, taking into account the differential diagnostics and therapeutic procedure;	P7S_WG	B.W4
Wet_WSK_05	presents the principles of conducting clinical examination and monitoring animal health;	P7S_WG	B.W5
Wet_WSK_06	explains the method of handling clinical data, as well as results of laboratory tests and additional tests;	P7S_WG	B.W6
Wet_WSK_07	knows and interprets the regulations of the law, rules for issuing judgments and preparing opinions for the needs of courts, state, local government and professional administration bodies;	P7S_WG P7S_WK	B.W7
Wet_WSK_08	knows to an extensive degree the method of procedure in the case of suspicion or diagnosing diseases that are subject to the obligation of disease eradication or its registration;	P7S_WG	B.W8
Wet_WSK_09	knows and understands the principle of functioning of the parasite-host system, as well as basic disease symptoms and pathological changes caused by parasites in the host organism;	P7S_WG	B.W10
IN THE SCOPE OF ANIMAL PRODUCTION			
Wet_WSK_10	describes the principles of ensuring animal welfare;	P7S_WG	B.W9

Wet_WSK_11	characterises breeds within animal species, as well as principles of animal raising and husbandry;	P7S_WG	B.W11
Wet_WSK_12	knows and understands the assumptions of animal pairing, methods of fertilization, reproduction biotechnology, as well as breeding selection;	P7S_WG	B.W12
Wet_WSK_13	presents the principles of animal nutrition, taking into account the differences in species and age, as well as the principles of planning and analysing the food doses;	P7S_WG	B.W13 B.W14
Wet_WSK_14	knows and understands the principles of economics of the animal production.	P7S_WG P7S_WK	B.W22
IN THE SCOPE OF FOOD HYGIENE			
Wet_WSK_15	presents the methods of management and utilisation of animal by-products and waste associated with animal production;	P7S_WG	B.W15
Wet_WSK_16	knows and describes the principles of functioning of the Veterinary Inspection, also in the aspect of public health;	P7S_WG P7S_WK	B.W16
Wet_WSK_17	presents the principles of consumer health protection, which are ensured by appropriate supervision over the production of foodstuffs of animal origin;	P7S_WG	B.W17
Wet_WSK_18	characterises the control systems in accordance with HACCP (<i>Hazard Analysis and Critical Control Points</i>) procedures;	P7S_WG P7S_WK	B.W18
Wet_WSK_19	knows to an extensive degree the procedures of pre- and post-mortem inspection;	P7S_WG	B.W19
Wet_WSK_20	knows and interprets the conditions of hygiene and technology of animal production;	P7S_WG	B.W20
Wet_WSK_21	knows to an extensive degree, interprets and observes the principles of food law.	P7S_WG P7S_WK	B.W21
SKILLS			
IN THE SCOPE OF CLINICAL SCIENCES			
Wet_USK_01	safely and humanely handles animals and instructs others in this scope;	P7S_UW	B.U1

Wet_USK_02	conducts a medical-veterinary interview in order to obtain precise information regarding individual animal or group of animals and its or their living environment;	P7S_UW	B.U2
Wet_USK_03	performs a full clinical examination of the animal;	P7S_UW	B.U3
Wet_USK_04	is able to provide first aid to animals in the case of haemorrhage, wounds, respiratory disorders, eye and ear injuries, loss of consciousness, cachexia, burns, tissue damage, internal injuries, cardiac arrest;	P7S_UW	B.U4
Wet_USK_05	assesses the nutritional status of the animal and provides advice in this scope;	P7S_UW	B.U5
Wet_USK_06	collects and secures the samples for tests, as well as performs standard laboratory tests, and correctly analyses and interprets the results of laboratory tests;	P7S_UW	B.U6
Wet_USK_07	uses diagnostic equipment, including radiographic, ultrasound and endoscopic equipment, in accordance with its intended purpose and safety rules for animals and people, as well as interprets the results of tests obtained after its application;	P7S_UW	B.U7
Wet_USK_08	implements the appropriate procedures in the case of diagnosing a disease subject to the obligation of eradication or registration;	P7S_UW P7S_UK	B.U8
Wet_USK_09	obtains and uses information on authorised veterinary medicinal products;	P7S_UW	B.U9
Wet_USK_10	is able to prescribe and use veterinary medicinal products and medical materials, taking into account their safe storage and utilisation;	P7S_UW	B.U10
Wet_USK_11	uses the methods of safe sedation, general and local anaesthesia, as well as assessment and relief of pain;	P7S_UW	B.U11
Wet_USK_12	monitors the patient's condition in the intra- and post-operative period on the	P7S_UW	B.U12

	basis of basic life parameters;		
Wet_USK_13	chooses and applies the appropriate treatment;	P7S_UW	B.U13
Wet_USK_14	implements the principles of surgical antisepsis and asepsis, as well as applies appropriate methods of sterilising equipment;	P7S_UW	B.U14
Wet_USK_15	assesses the need for performance of euthanasia of the animal and informs its owner about this fact in an appropriate manner, and euthanizes the animal in accordance with the principles of professional ethics and appropriate handling of corpses;	P7S_UW P7S_UK	B.U15
Wet_USK_16	is able to perform an autopsy of the animal corpse, along with the description, as well as to take samples and secure them for transport;	P7S_UW	B.U16
Wet_USK_17	performs an epizootic investigation in order to determine the period of time, during which a contagious disease may have developed on the farm before suspecting or establishing its occurrence, place of origin of the source of the animal contagious disease, along with determination of other farms and the pathways of movement of people, animals and objects that could cause the spread of an infectious disease to or from the farm;	P7S_UW P7S_UK P7S_UO	B.U19
Wet_USK_18	develops and introduces preventive programs, which are appropriate for the individual animal species;	P7S_UW P7S_UO	B.U21
Wet_USK_19	is able to collect samples for monitoring tests for the presence of prohibited substances, chemical and biological residues, medicinal products and radioactive contamination in animals, in their secretions, excretions, tissues or organs, in products of animal origin, food, in water intended for animal drinking and in the feed;	P7S_UW	B.U23
Wet_USK_20	assesses the risk of contamination, cross-contamination and accumulation of pathogens in veterinary facilities and in	P7S_UW P7S_UK	B.U25

	the natural environment, as well as introduces recommendations that minimise such risk.	P7S_UO	
IN THE SCOPE OF ANIMAL PRODUCTION			
Wet_USK_21	uses the collected information associated with the health and welfare of animals, and in selected cases also with productivity of the herd.	P7S_UW P7S_UK P7S_UO	B.U20
IN THE SCOPE OF FOOD HYGIENE			
Wet_USK_22	is able to perform pre- and post-mortem inspection;	P7S_UW	B.U17
Wet_USK_23	assesses the quality of products of animal origin;	P7S_UW	B.U18
Wet_USK_24	is able to estimate the risk of occurrence of chemical and biological hazards in food of animal origin;	P7S_UW	B.U22
Wet_USK_25	assesses the fulfilment of requirements of the slaughter animals protection, taking into account the various methods of slaughter.	P7S_UW	B.U24
EDUCATIONAL OUTCOMES (SUPPLEMENTARY CLASSES)			
After completion of the studies, a graduate			
KNOWLEDGE			
Wet_WZU_01	Knows and understands vocabulary and grammatical structures of at least one foreign language, which is a language of international communication, at the B2+ level of the Common European Framework of Reference for Languages, as well as specialised terminology in the scope of veterinary medicine, which is necessary in professional activity;	P7S_WG	C.W1
Wet_WZU_02	presents the functioning of institutions associated with veterinary activities and the social role of a veterinary physician;	P7S_WG P7S_WK	C.W2
Wet_WZU_03	describes the rules of occupational health and safety in veterinary activities.	P7S_WG P7S_WK	C.W3

SKILLS			
Wet_UZU_01	uses at least one foreign language, which is a language of international communication, at the B2+ level of the Common European Framework of Reference for Languages, including specialised terminology in the scope of veterinary, which is necessary in professional activity;	P7S_UK	C.U1
Wet_UZU_02	critically analyses veterinary literature and draws conclusions on the basis of available literature;	P7S_UW P7S_UU	C.U2
Wet_UZU_03	uses and processes information with the use of IT tools and modern sources of veterinary knowledge;	P7S_UW P7S_UK P7S_UU	C.U3
Wet_UZU_04	effectively communicates with employees of control bodies and offices, as well as central and local government administration.	P7S_UO P7S_UK	C.U4

Objaśnienia oznaczeń w symbolach

Wet – Weterynaria

WO - wiedza, ogólne efekty kształcenia

UO - umiejętności, ogólne efekty kształcenia

KS - kompetencje społeczne

WSP - wiedza szczegółowe efekty kształcenia, nauki podstawowe

USP - umiejętności, szczegółowe efekty kształcenia, nauki podstawowe

WSK- wiedza szczegółowe efekty kształcenia, kierunkowe

USK- umiejętności, szczegółowe efekty kształcenia, kierunkowe

WZU- wiedza, zajęcia uzupełniające

UZU- umiejętności, zajęcia uzupełniające

P7S – studia jednolite magisterskie

W – kategoria wiedzy

WG – głębia i zakres

WK – kreatywność

U – kategoria umiejętności

UW – wykorzystanie wiedzy

UK – komunikowanie się

UO – organizacja pracy

UU – uczenie się

K – kategoria kompetencji społecznych

KK – krytyczne podejście
KO – odpowiedzialność
KR – rola zawodowa
01, 02 – nr kolejny efektu

1.4. Sposób weryfikacji osiągniętych efektów uczenia się

Weryfikacja osiągniętych efektów uczenia się wymaga zastosowania zróżnicowanych form sprawdzania, adekwatnych do kategorii wiedzy, umiejętności i kompetencji społecznych, których dotyczą te efekty.

Osiągnięcie efektów uczenia się w zakresie wiedzy sprawdza się za pomocą egzaminów pisemnych lub ustnych, prac przeglądowych, elaboratów i prezentacji.

Jako formy egzaminów pisemnych stosuje się: eseje, raporty, krótkie ustrukturyzowane pytania, testy wielokrotnego wyboru, testy wielokrotnej odpowiedzi, testy wyboru tak/nie lub testy dopasowania odpowiedzi.

Egzaminy ustne są ukierunkowane na sprawdzenie wiedzy na poziomie wyższym niż sama znajomość zagadnień (poziom zrozumienia zagadnień, umiejętność analizy i syntezy informacji oraz rozwiązywania problemów).

Weryfikacja osiągnięcia efektów uczenia się w zakresie umiejętności, które dotyczą komunikowania się i umiejętności proceduralnych (manualnych), wymaga bezpośredniej obserwacji studenta demonstrującego umiejętność w czasie egzaminu.

*) – w przypadku kierunków przyporządkowanych do więcej niż jednej dyscypliny należy podać procentowy udział poszczególnych dyscyplin i wskazać dyscyplinę wiodącą, w ramach której będzie uzyskiwana ponad połowa efektów uczenia się

***) – dotyczy kierunków studiów, po których ukończeniu absolwent uzyskuje tytuł zawodowy inżyniera lub magistra inż.