DECISION - PPG *Stricto Sensu Board* No. 26/2017

Restructures the Postgraduate Program em Ciência Animal, at the Master's and Doctorate levels, with the areas of concentration em Sanidade Animalandem Produção Animal.

CONSIDERING the request from the Program Coordination, as per process no. 17934/2017;

Stricto sensu Graduate Programs , by process no. 11318/2016, which changed the regulations of the Graduate Studies Chamber;

The BOARD OF DIRECTORS OF POSTGRADUATE PROGRAMS *STRICO SENSU* , in a meeting held on September 18, 2017, approved the following Resolution:

Art. 1º The Postgraduate Program is restructured em Ciência Animal, at Master's and Doctorate level, with areas of concentration em Sanidade Animaland em Produção Animal, to be in effect from the 1st semester of 2018.

Art. 2º The duration of the Program will be a minimum of 2 (two) academic periods and a maximum of 4 (four) full-time academic periods for the Master's Degree and a minimum of 4 (four) academic periods and a maximum of 8 (eight) full-time academic periods for the Doctorate Degree.

Art. 3º To complete the Master's and Doctorate levels, the student must complete the course load and credits distributed as follows:

I) **For the Master's degree,** the student must complete 64 (sixty-four) credits corresponding to 960 (nine hundred and sixty) hours, distributed as follows:
a) 7 (seven) credits in common core subjects;
b) at least 13 (thirteen) credits em disciplinas Optativasfrom the Program, with the remaining 4 (four) credits being able to be completed em outros Programaswith national validity;
c) 40 (forty) credits in dissertation.

II) **For the Doctorate,** the student must complete 160 (one hundred and sixty) credits, corresponding to 2,400 (two thousand and four hundred) hours, distributed as follows:
a) 08 (eight) credits in common core subjects;
b) at least 26 (twenty-six) credits em disciplinas Optativasfrom the Program, with the remaining 6 (six) credits being able to be completed em outros Programasin Postgraduate studies with national validity;
c) 120 (one hundred and twenty) credits in Thesis.

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Sole paragraph. The CAPES/MEC Foundation scholarship holder must also complete 2 (two) credits for the Master's degree and 4 (four) credits for the Doctorate related to the Teaching Internship in Undergraduate Studies subject.

Art. 4º The Program will follow the following curricular organization:

a) Common Core Subjects:

2 MAP 062 -	Biostatistics Applied to Animal Experimentation Techniques – (Animal Production area)	2 cr 30 h
2 PIV 451 -	Seminars em Ciência Animal I(Master's)	3 cr 45 h
2 PIV 229 -	Seminars em Ciência Animal II(Doctorate)	2 cr 30 h
2 PIV 233 -	Advanced Seminars (2nd year of the Doctorate)	2 cr 30 h
2 PIV 643 -	Animal Science Research	2 cr 30 h
2 STA 146 -	Statistical techniques applied to Animal Health	2 cr 30 h

b) Elective Courses:

b.1) Animal Health area:

2 PIV 089 -	Special Procedures Applied to the Study of Zoonoses	2 cr 30 h
2 PIV 194 -	Immunology Applied to Animal Health	3 cr 45 h
2 PIV 197 -	Models Applied to the Study of Infectious Diseases: Viruses	2 cr 30 h
2 PIV 204 -	Animal Pathology	2 cr 30 h
2 PIV 205 -	Planning of Health Programs	2 cr 30 h
2 PIV 360 -	Structural and Functional Responses of Organic Systems to the Action of Pathogens	2 cr 30 h
2 PIV 207 -	Immunological and Molecular Techniques Applied to Diagnosis and Research in Animal Health	4 cr 60 h
2 PIV 361 -	Epidemiology Applied to Animal Health I	2 cr 30 h
2 PIV 362 -	Epidemiology Applied to Animal Health II	2 cr 30 h
2 PIV 232 -	Pathogenic Microorganisms in Food	3 cr 45 h
2 PIV 234 -	Histological, Hematological and Biochemical Changes in Mycotoxicoses in Production Animals	2 cr 30 h
2 PIV 364 -	Infectious Diseases of Bacterial Etiology	2 cr 30 h
2 PIV 644 -	Study of Protozoa Transmitted by Water and Food of Veterinary Medical Interest	2 cr 30 h
2 PIV 645 -	Molecular Epidemiology, Genetic Diversity Methods and Omics Applications for Bacterial Pathogens	3 cr 45 h
2 PIV 646 -	Study of Helminthiasis	2 cr 30 h
2 PIV 647 -	Study of Anthropods	2 cr 30 h
2 PIV 648 -	Study of Protozoa and Rickettsia Transmitted by Vectors	2 cr 30 h

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2 PIV 649 -	Study of Molecular Epidemiology in Protozoa of Veterinary Medical Interest	2 cr 30 h
2 PIV 650 -	One Health Capacity Building Strategies	2 cr 30 h
2 VET 123 -	Deficiency and Metabolic Diseases of Production Animals	2 cr 30 h
2 VET 137 -	Diagnosis and Therapeutics em Medicina Internaof Large Animals	2 cr 30 h
2 VET 138 -	Biotechnologies Applied to Bovine Reproduction	2 cr 30 h
2 VET 140 -	Diagnosis and Therapy em Medicina Internaof Companion Animals	2 cr 30 h
2 VET 168 -	New Techniques Applied to Pharmacological Control of the Estrous Cycle	3 cr 45 h
2 VET 201 -	Indigestion in Ruminants	2 cr 30 h
2 VET 202 -	Reproduction and obstetrics of companion animals	2 cr 30 h
2 VET 451 -	Active Learning Methodologies in Veterinary Medicine	2 cr 30 h
2 VET 452 -	Animal Clinical Pathology	2 cr 30 h
2 VET 453 -	Hospital Infection in Companion Animals	2 cr 30 h
2 VET 454 -	Clinical Neurology of Companion Animals	2 cr 30 h
2 VET 455 -	Neurosurgery in Companion Animals	2 cr 30 h
2 VET 456 -	Veterinary Neuroanatomy and its Clinical and Surgical Correlations in Companion Animals	2 cr 30 h
2 PIV 380 a 2 PIV 425	Special Topics in Animal Health	variable credits
2 PIV 602 a 2 PIV 640	Special Topics in Animal Health	variable credits
2 VET 169 a 2 VET 188	Special Topics in Animal Science	variable credits
2 VET 393 a 2 VET 430	Special Topics in Animal Science	variable credits
2 PIV 208 a 2 PIV 218	Scheduled Activities in Animal Science	variable credits

b.2) Animal Production area:

2 BIQ 045 -	Biochemistry	3 cr 45 h
2 ZOT 006 -	Food Analysis and Evaluation	4 cr 60 h
2 ZOT 008 -	Animal Breeding	3 cr 45 h
2 ZOT 009 -	Monogastric Nutrition	3 cr 45 h
2 ZOT 010 -	Ruminant Nutrition	3 cr 45 h
2 ZOT 011 -	Animal Experimentation Techniques	3 cr 45 h
2 ZOT 027 -	Assessment Methods and Nutritional Requirements in Ruminant Animals	3 cr 45 h
2 ZOT 028 -	Intensive Beef Cattle Production	3 cr 45 h
2 ZOT 029 -	Intensive Poultry Farming	2 cr 30 h

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2 ZOT 030 -	Intensive Pig Production	2 cr 30 h
2 ZOT 067 -	Science of Meat from Livestock Animals	2 cr 30 h
2 ZOT 068 -	Cattle Welfare	2 cr 30 h
2 ZOT 069 -	Pet Welfare	3 cr 45 h
2 ZOT 070 -	Intensive Sheep Production	2 cr 30 h
2 ZOT 071 -	Additives for Poultry and Swine Feed	3 cr 45 h
2 ZOT 072 -	Pasture Formation and Management	3 cr 45 h
2 ZOT 073 -	Forage Conservation	3 cr 45 h
2 ZOT 074 -	Food and Animal Feed	3 cr 45 h
2 ZOT 075 -	Food and Cattle Feeding	3 cr 45 h
2 ZOT 127 -	Freshwater Aquaculture	3 cr 45 h
2 ZOT 128 -	Tilapia farming	3 cr 45 h
2 ZOT 076 a 2 ZOT 110	Special Topics in Animal Production	variable credits
2 ZOT 115 a 2 ZOT 126	Special Topics in Animal Production	variable credits

c) Teaching Internship in Undergraduate Studies:

2 PIV 365 -	Teaching Internship in Undergraduate Studies I (Master's Degree)	2 cr 30 h
2 PIV 366 -	Teaching Internship in Undergraduate Studies II (Doctorate)	2 cr 30 h
2 PIV 367 -	Teaching Internship in Undergraduate Studies III (Doctorate)	2 cr 30 h

d) Dissertation (Master's Degree)

Electives: Animal Health

2 PIV 426 -	Dissertation I	10 cr 150 h
2 PIV 427 -	Dissertation II	10 cr 150 h
2 PIV 428 -	Dissertation III	10 cr 150 h
2 PIV 429 -	Dissertation IV	10 cr 150 h

OR

Electives: Animal Production

2 ZOT 111 -	Dissertation I	10 cr 150 h
2 ZOT 112 -	Dissertation II	10 cr 150 h
2 ZOT 113 -	Dissertation III	10 cr 150 h
2 ZOT 114 -	Dissertation IV	10 cr 150 h

e) Thesis (Doctorate)
Electives: Animal Health

2 PIV 237 -	Thesis I	10 cr 150 h
2 PIV 238 -	Thesis II	10 cr 150 h
2 PIV 239 -	Thesis III	10 cr 150 h
2 PIV 240 -	Thesis IV	10 cr 150 h
2 PIV 241 -	Thesis V	20 cr 300 h
2 PIV 242 -	Thesis VI	20 cr 300 h
2 PIV 243 -	Thesis VII	20 cr 300 h
2 PIV 244 -	Thesis VIII	20 cr 300 h

OR

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Electives: Animal Production

2 ZOT 031 -	Thesis I	10 cr 150 h
2 ZOT 032 -	Thesis II	10 cr 150 h
2 ZOT 033 -	Thesis III	10 cr 150 h
2 ZOT 034 -	Thesis IV	10 cr 150 h
2 ZOT 035 -	Thesis V	20 cr 300 h
2 ZOT 036 -	Thesis VI	20 cr 300 h
2 ZOT 037 -	Thesis VII	20 cr 300 h
2 ZOT 038 -	Thesis VIII	20 cr 300 h

Art. 5º Of the 40 (forty) credits in Doctorate subjects, 50% of the credits from subjects from the UEL Master 's Degree or other em Ciência Animal*stricto sensu* postgraduate programs with national validity may be validated, provided they are approved by the Program Coordinating Committee.

Sole paragraph. For the Doctorate, Master's credits may be validated, except for the subject 2PIV 451 – Seminars em Ciência Animal I(Master's).

Art. 6º *stricto sensu* postgraduate programs may be granted up to a maximum limit of 50% (fifty percent) of the minimum number of credits required.

Art. 7º To obtain a Master's or Doctorate degree, in addition to fulfilling the other requirements, students must have passed:

I. in the Proficiency Exam in 1 (one) or 2 (two) foreign languages, respectively, one of which is English and the other indicated by the Program Coordinating Committee;
II. in the Qualification Exam, according to criteria established by the Program Coordinating Committee.

Art. 8º The selection of candidates will be carried out by the Program Coordinating Committee, with the criteria defined in the vacancy notice, which may include:

I. analysis of the Lattes CV;
II. analysis of undergraduate academic records;
III. analysis of the dissertation pre-plan and thesis project;
IV. candidate's argument;
V. assessment of the time available to dedicate to studies;
VI. assessment of professional experience;
VII. verification of the existence and type of employment relationship;
VIII. proficiency test em Língua Estrangeira(English)
IX. written test on specific knowledge related to the area sought by the candidate.

Art. 9º in Animal Science and related fields may apply for the Program .em Medicina Veterinária

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Art. 10º The assessment of performance and verification of attendance will follow the rules of the UEL General Regulations.

Art. 11º The syllabuses of the subjects included in the curricular organization are included in the annex to this Resolution.

Art. 12º Students regularly enrolled in the Master's degree may request a change of level to the Doctorate within 18 (eighteen) months, through a formal request from the advisor to the Program Coordinating Committee and provided that they meet the requirements of the Program's Bylaws, in addition to the requirements of CAPES/MEC or CNPq in the case of scholarship holders.

Art. 13º The Postgraduate Program em Ciência Animal, at the Master's and Doctorate levels, will be part of the Board of Postgraduate Programs *stricto sensu* and its academic control will be centralized in the Pro-Rectory of Research and Postgraduate Studies.

Art. 14º This Resolution shall come into force on the date of its publication, revoking any provisions to the contrary.

STATE UNIVERSITY OF LONDRINA, September 18, 2017.

Prof. Dr. Ana Paula Frederico RL Bracarense
Coordinator of the Board of Directors of the Programs
Stricto sensu postgraduate studies in practice

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ANNEX OF THE DECISION - PPG *Stricto Sensu Board* No. 26/2017

a) Common Core Subjects:

2 MAP 062 - BIOSTATISTICS APPLIED TO ANIMAL EXPERIMENTATION TECHNIQUES 2 cr 30 h
Basic concepts in animal experimentation. Experiment planning. Significance, regression and correlation tests. Use of computer science in data analysis.

2 PIV 451 - SEMINARSEM CIÊNCIA ANIMAL I 3 cr 45 h
Discussion of topics em Ciência Animalrelated to the areas of concentration Animal Health and Animal Production. Analysis and discussion of research projects and dissertations.

2 PIV 229 - SEMINARS IN ANIMAL SCIENCE II 2 cr 30 h
Discussion of topics em Ciência Animalrelated to the areas of concentration. Analysis and discussion of research projects and theses.

2 PIV 233 - ADVANCED SEMINARS 2 cr 30 h
Present recent scientific advances achieved in topics related to the research lines of the Postgraduate Program in Animal Science.

2 PIV 643 - ANIMAL SCIENCE RESEARCH 2 cr 30 h
Philosophy of Science. Scientific conceptualization and methodology. Scientific standards applied to animal science research. Development of research projects. Scientific journals and scientific articles.

2 STA 146 - STATISTICAL TECHNIQUES APPLIED TO ANIMAL HEALTH 2 cr 30 h
Single-sample t-test; t-test for independent and dependent samples. Analysis of variance in designs: Completely Random and em Blocos. ExperimentosFactorial. Analysis of contingency tables. Dichotomous logistic regression analysis.

b) Elective Courses:

b.1) Animal Health area

2 PIV 089 - SPECIAL PROCEDURES APPLIED TO THE STUDY OF ZOONOSES 2 cr 30 h
Critical analysis of the resources applicable to the isolation, identification and maintenance of zoonoses under controlled conditions. Prophylactic resources applicable to the control and/or eradication of zoonoses, both at the individual and population levels.

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2 PIV 194 - IMMUNOLOGY APPLIED TO ANIMAL HEALTH 3 cr 45 h

Components and functions of natural and acquired immunity. Mechanisms of activation, control and interaction of cellular and humoral immunity. Systemic and mucosal immunity against the main pathogens of em Medicina Veterinária. Tolerânciaimmunological interest, hypersensitivity, immunodeficiency. Immunoprophylaxis methods applied in animal health.

2 PIV 197 - MODELS APPLIED TO THE STUDY OF INFECTIOUS DISEASES: VIRUSES 2 cr 30 h

Etiopathogenesis, frequency of occurrence and clinical signs of viral infections in production animals. Assessment, through the definition of some viruses as study models, of the effects of endemic and/or epidemic presentation forms on animal production and the interrelationship with other infectious and/or parasitic diseases. Definition of conduct for differential diagnosis and control and prophylaxis strategies.

2 PIV 204 - ANIMAL PATHOLOGY 2 cr 30 h

Host-parasite interrelationship. Mechanisms of onset of diseases caused by different pathogens, with a main focus on structural and functional cellular changes in different tissues, fluids, organs and systems of the animal organism and on the vascular and cellular response of tissues to aggression.

2 PIV 205 - PLANNING OF HEALTH PROGRAMS 2 cr 30 h

Main types of approaches in investigating the occurrence of diseases in populations and available resources applicable to disease control and/or eradication programs. HACCP and total quality principles applicable to health programs.

2 PIV 360 - STRUCTURAL AND FUNCTIONAL RESPONSES OF ORGANIC SYSTEMS TO THE ACTION OF PATHOGENS 2 cr 30 h

Characterization of structural and functional changes in organic systems in response to the action of pathogens of interest in animal health. Theoretical basis of histological, immunohistochemical and electron microscopy techniques used in Veterinary Medicine.

2 PIV 207 - IMMUNOLOGICAL AND MOLECULAR TECHNIQUES APPLIED IN DIAGNOSIS AND RESEARCH IN ANIMAL HEALTH 4 cr 60 h

Theoretical basis of the main techniques used em Medicina Veterináriafor the detection of antigens and/or antibodies and for performing molecular diagnosis. Definition of the basic principles and optimal conditions for performing the antigen/antibody reaction and for the identification of DNA or RNA in biological samples. Definition of the specificity and detection threshold of the main immunological and molecular methods.

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2 PIV 361 EPIDEMIOLOGY APPLIED TO ANIMAL HEALTH I 2 cr 30 h

Understand the history of epidemiology, its role and importance in the practice of animal health and public health. Understand the chain of transmission of infectious diseases and the interaction of factors related to the host, etiological agent and environment, as well as preventive aspects. Describe the forms of occurrence of diseases according to time, location and population. Understand the main sources of morbidity and mortality data, interpret incidence and prevalence, their meanings and importance. Calculate population samples and differentiate sampling methods. Introduction to Analytical Epidemiology and types of studies. Apply the methodology for investigating outbreaks and the importance of actions in Health Surveillance.

2 PIV 362 EPIDEMIOLOGY APPLIED TO ANIMAL HEALTH II

2 cr 30 h

Provide basic notions on the preparation of an epidemiological research project, with emphasis on the study question. Conceptualize causality and association, validity and precision in epidemiological studies. Discuss the aspects of the methodology: the study population, sample size, sampling techniques, biases and types of errors that interfere with the validity and precision of the research. Study health indicators and epidemiological research methods with emphasis on observational cross-sectional, case-control and cohort studies. Know and interpret the main risk measures used em epidemiologia. Interpretarin diagnostic tests and the influence of disease prevalence on the validity of the results. Critical interpretation of the literature.

2 PIV 232 - PATHOGENIC MICROORGANISMS IN FOOD

3 cr 45 h

Food as a carrier of pathogens. Main groups of microorganisms transmitted by food. Zoonoses transmitted by food. Microorganisms that indicate contamination.

2 PIV 234 - HISTOLOGICAL, HEMATOLOGICAL AND BIOCHEMICAL CHANGES IN MYCOTOXICOSES IN PRODUCTION ANIMALS 2 cr 30 h

Study of the main mycotoxicoses that affect production animals. Laboratory evaluation of histological, hematological, biochemical and toxicological changes.

2 PIV 364 - INFECTIOUS DISEASES OF BACTERIAL ETIOLOGY 2 cr 30 h

Epidemiological approach with emphasis on virulence factors, diagnosis, control and prophylaxis of bacterial diseases in domestic animals.

2 PIV 644 - STUDIES OF PROTOZOA TRANSMITTED BY WATER AND FOOD OF VETERINARY MEDICAL INTEREST

2 cr 30 h

Etiopathogenesis, epidemiology and clinical signs of infections caused by protozoa of interest in animal health. Evaluation of the main methods used in the identification, diagnosis and control of these parasitic diseases in animals.

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2 PIV 645 - MOLECULAR EPIDEMIOLOGY, GENETIC DIVERSITY METHODS AND OMIC APPLICATIONS FOR BACTERIAL PATHOGENS **3 cr 45 h**

Introduction to molecular biology, structure and function of nucleic acids and amino acids, conventional and next-generation DNA sequencing (from the genomic era to the omics era); Introduction to the omics era and its applications for bacterial pathogens; Introduction to molecular methods for detection and genotyping of microorganisms; Theoretical approach to basic and advanced methods in genotypic characterization: RFLP, RAPD, AFLP, PFGE, VNTR, Spoligotyping/Ribotyping, MLST, Barcode, MST, SNP; Practical application of molecular genotyping methods in the diagnosis of animal diseases and zoonoses; Use of molecular epidemiology of microorganisms.

2 PIV 646 - STUDIES OF HEMINTOSES **2 cr 30 h**

Assessment of the behavior of the main helminths in their ecosystem and their interaction with hosts, emphasizing the phenomena capable of maintaining this population dynamic and its impact on animals. Assessment of the main methods used in the identification, diagnosis and control of these parasitic diseases in animals.

2 PIV 647 - STUDY OF ARTHROPODS **2 cr 30 h**

Bioecological and morphological study of vectors. Importance of arthropods as vectors of pathogenic agents for domestic animals and humans. Epidemiology, identification and control of arthropods of interest in animal health and public health.

2 PIV 648 - STUDY OF PROTOZOA AND RICKETTSIA TRANSMITTED BY VECTORS **2 cr 30 h**

Etiopathogenesis, epidemiology and clinical signs of infections caused by protozoa and rickettsiae em animais. Avaliação, through the definition of some infections as study models, the effects and forms of endemic and/or epidemic presentation in animal production and the interrelationship with other infectious and/or parasitic diseases. Definition of procedures for differential diagnosis and control and prophylaxis strategies.

2 PIV 649 - VETERINARY MOLECULAR EPIDEMIOLOGYEM PROTOZOÁRIOS DE INTERESSE

2 cr 30 h

Taxonomy of protozoa of interest in animal health. Study of DNA, genomic analysis, and genetic variation in parasite populations. Study of evolution and models of specificity between parasite and host. Polymorphism em protozoários. Oand use of molecular biology in the diagnosis of protozoa.

2 PIV 650 - CAPACITY BUILDING STRATEGIES IN ONE HEALTH **2 cr 30 h**

To enable training of veterinarians to understand the associations between the various species of domestic, synanthropic, wild animals, vectors and the environment with humans, so that they can promote training and qualifications for health professionals and elementary and secondary school teachers, in One Health actions, promoting cooperation and collaboration between these professionals for the well-being of all animal and plant species, which assist in the evaluation, treatment and prevention of inter-species diseases.

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2 VET 123 - DEFICIENCY AND METABOLIC DISEASES OF PRODUCTION ANIMALS **2 cr 30 h**

Practical and targeted approach to macro and micro-element deficiencies in ruminants and pigs, causing clinical conditions and low productive and reproductive performance. Diagnostic methods for metabolic disorders (production diseases) with economic impact on cattle farming, with the adoption of preventive measures for herds, aiming to minimize losses for rural producers.

2 VET 137 - DIAGNOSTICS AND THERAPY EM MEDICINA INTERNA DEFOR LARGE ANIMALS **2 cr 30 h**

Etiopathogenesis, diagnostic methods, prevention and treatment of the main digestive, respiratory, neurological and newborn diseases in ruminant and equine species.

2 VET 138 - BIOTECHNIQUES APPLIED TO BOVINE REPRODUCTION **2 cr 30 h**

Pathophysiology of the male and female genital system. Clinical and therapeutic approach to infertility of nutritional, endocrine, infectious and management origin.

2 VET 140 - DIAGNOSTICS AND THERAPY EM MEDICINA INTERNA DEFOR PETS **2 cr 30 h**

Diagnosis, prevention and treatment of the main diseases of the cardiorespiratory, digestive, nervous and urinary systems, endocrinopathies, metabolic diseases and neoplasms in companion animals.

2 VET 168 - NEW TECHNIQUES APPLIED TO PHARMACOLOGICAL CONTROL OF THE ESTRAL CYCLE **3 cr 45 h**

Study of phenomena involving follicular growth, ovulation, luteogenesis and the initial phase of pregnancy, aiming to present the most recent techniques for pharmacological control of the estrous cycle and ovulation, for application in artificial insemination and fixed-time embryo transfer programs, gonadotropic therapies in oocyte collection programs and donor superovulation.

2 VET 201 - RUMINANT INDIGESTION **2 cr 30 h**

Etiopathogenesis, diagnostic methods, prevention and treatment of the main pre-stomach, abomasal and intestinal diseases of cattle, sheep and goats.

2 VET 202 - PET REPRODUCTION AND OBSTETRICS **2 cr 30 h**

Physiology and disorders of the reproductive system of companion animals. Obstetric morphology of companion animals. Physiology and pathology of pregnancy, birth and puerperium in companion animals. Main surgeries of the reproductive systems in companion animals. Biotechniques of reproduction applied to companion animals: vaginal cytology, semen technology, artificial insemination.

2 VET 451 - ACTIVE LEARNING METHODOLOGIES IN VETERINARY MEDICINE **2 cr 30 h**

Presentation of teaching and learning strategies. The role of the teacher as a mediator in the acquisition of knowledge.

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2 VET 452 - ANIMAL CLINICAL PATHOLOGY **2 cr 30 h**

Veterinary Hematology. Bone marrow analysis. Laboratory evaluation of the urinary system, liver, endocrine pancreas and glucose metabolism. Analysis of cavity fluids.

2 VET 453 - HOSPITAL INFECTION IN PET ANIMALS

2 cr 30 h

Study of the main types of infection, history of infection, catheter infection, urinary tract infection, surgical site infection, respiratory infection. Infection prophylaxis, antibiotic prophylaxis, use of antibiotics, sepsis. Advances in dressings.

2 VET 454 - CLINICAL NEUROLOGY OF COMPANION ANIMALS

2 cr 30 h

Introduction to neurology, clinical neuroanatomy, neurological examination, location of the lesion, differential diagnoses, complementary exams in neurology, treatment and prognosis.

2 VET 455 - NEUROSURGERY IN PETS **2 cr 30 h**

Study of surgical conditions of the skull and spine of dogs and cats.

2 VET 456 - VETERINARY NEUROANATOMY AND ITS CLINICAL AND SURGICAL CORRELATIONS IN PETS **2 cr 30 h**

General organization of the nervous system; critical discussion on the anatomy of the central nervous system, autonomic nervous system and peripheral nervous system. Correlation between the structure/architecture of the nervous system and its functions; relationship between the function of the nervous system and clinical changes when there is impairment of these functions; Correlation between impairment of function and neuroplasticity.

2 PIV 380
a } SPECIAL TOPICS IN ANIMAL HEALTH **variable credits**
2 PIV 425

Study of specific topics in different areas of concentration in Animal Science. Presentation of technological advances.

2 PIV 602
a } SPECIAL TOPICS IN ANIMAL HEALTH **variable credits**
2 PIV 640

Study of specific topics in different areas of concentration in Animal Science. Presentation of technological advances.

2 VET 169
a } SPECIAL TOPICS IN ANIMAL SCIENCE **variable credit**
2 VET 188

Open according to the topics to be addressed.

2 VET 393
a } SPECIAL TOPICS IN ANIMAL SCIENCE **variable credit**
2 VET 430

Open according to the topics to be addressed.

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2 PIV 208
a } **SCHEDULED ACTIVITIES IN ANIMAL SCIENCE** **variable**
2 PIV 218 **credits**
Publication of scientific articles in indexed journals. Internships.

b.2) Animal Production area

2 BIQ 045 - BIOCHEMISTRY **3 cr 45 h**
Study of the structures and chemical properties of macromolecules. Degradation reactions aimed at providing energy for cellular metabolism. Biosynthesis reactions of cellular compounds.

2 ZOT 006 - FOOD ANALYSIS AND EVALUATION **4 cr 60 h**
Importance of food analysis and evaluation in animal nutrition. Collection and preparation of samples for analysis. Determination of moisture, nitrogen, crude fiber, ether extract, mineral matter, cellulose and lignin. Determination of soluble carbohydrate, non-nitrogenous extract and gross energy.

2 ZOT 008 - ANIMAL IMPROVEMENT **3 cr 45 h**
Genetic constitution of the population. Population size. Continuous variation. Values and means. Variance. Similarity between relatives. Heritability. Selection. Inbreeding and crossing. Selection index.

2 ZOT 009 - NUTRITION OF MONOGASTRICS **3 cr 45 h**
Study of the development of nutrition in monogastric animals. Studies of the physiological principles related to the digestive, metabolic and absorptive processes and the excretion of water, carbohydrates, proteins, lipids, vitamins and minerals. Review of current literature.

2 ZOT 010 - RUMINANT NUTRITION **3 cr 45 h**
Anatomical and physiological aspects of the digestive system of ruminant animals. Microbiology of the rumen and ruminal environment. Use and metabolism of nutrients in the ruminal ecosystem and in the animal's body: water, carbohydrates, non-protein nitrogen compounds, proteins, lipids, vitamins, minerals, hormones and additives.

2 ZOT 011 - ANIMAL EXPERIMENTATION TECHNIQUES **3 cr 45 h**
Planning and experimentation techniques with production animals.

2 ZOT 027 - EVALUATION METHODS AND NUTRITIONAL REQUIREMENTS IN RUMINANT ANIMALS **3 cr 45 h**
Methods for determining digestibility in ruminant animals. Partial digestion. Use of indicators in the study of digestion. Factors affecting digestibility. Nutritional balance. Nutritional requirements.

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2 ZOT 028 - INTENSIVE PRODUCTION OF BEEF CATTLE 3 cr 45 h
Breeds, crossbreeding and genetic improvement of cattle. Reproductive management. Feeding management. Production systems. Productivity and efficiency in beef cattle. Planning of beef cattle.

2 ZOT 029 - INTENSIVE POULTRY FARMING 2 cr 30 h
Economic and social aspects of poultry farming. Management of breeding birds. Egg incubation and hatchery management. Planning and management of commercial poultry farming. Nutrition and feeding of birds.

2 ZOT 030 - INTENSIVE PIG PRODUCTION 2 cr 30 h
Study on recent technical advances applied to pig farming, issues related to zootechnical, sanitary, reproductive and food management, environment, breeding methods, quality and classification of pig carcasses.

2 ZOT 067 - SCIENCE OF MEAT FROM ANIMAL LIVESTOCK 2 cr 30 h
Animal development. Tissues that make up meat. Meat components: water, proteins, lipids, collagen. Transformation of muscle and em carne. Propriedadesmeat technologies. Nutritional value of meat. Factors affecting meat quality. Slaughter. Typing and evaluation of meat quality.

2 ZOT 068 - CATTLE WELFARE 2 cr 30 h
Interaction between animal, environment and handler, emphasizing the physiopathological, stress, ethological and social factors on the performance and welfare of dairy and beef cattle. Approach to the science of animal welfare (BEA) and its instruments for diagnosing and solving problems related to cattle farming.

2 ZOT 069 - PET WELFARE 3 cr 45 h
Interaction between animals and the environment, emphasizing the physical, chemical, ethological and social stress factors on the performance and well-being of cattle, poultry, pigs, dogs and cats. Approach to the science of animal welfare (AW) and its tools for diagnosing and solving problems related to the raising of domestic animals.

2 ZOT 070 - INTENSIVE SHEEP PRODUCTION 2 cr 30 h
Breeds, crossbreeding and genetic improvement of sheep. Reproductive management. Feeding management. Production systems. Sheep farming planning.

2 ZOT 071 - ADDITIVES FOR POULTRY AND SWINE FEEDS 3 cr 45 h
The discipline of Additives for Poultry and Swine Feeds aims to provide postgraduate students with knowledge of the main additives used in the formulation of poultry and swine feeds, informing the main mechanisms of action and response in the animal.

2 ZOT 072 - PASTURE FORMATION AND MANAGEMENT 3 cr 45 h
Pasture formation; mixed pastures; pasture correction and fertilization; grazing systems; pasture evaluation; production seasonality; forage plant morphogenesis; main pests of tropical pastures; ecology in relation to grazing; pasture reform and recovery; and forage planning.

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2 ZOT 073 - FORAGE CONSERVATION 3 cr 45 h
Main forage plants used for ensilage and haymaking: characterization of species. Ensilage: types of silo, silo sizing, ensilage processes, use of silage in the various phases of animal production, assessment of silage yield and quality. Haymaking: haymaking methods, use of hay in animal production, assessment of hay yield and quality.

2 ZOT 074 - FOOD AND ANIMAL FEEDING 3 cr 45 h
Food evaluation, chemical and bromatological analysis by the Weende and Van Soest systems. Fiber as an inhibiting factor in food intake by monogastric and ruminant animals. The different methods and techniques used in food evaluations (in vivo, in situ and in vitro). Use of indicator and marker techniques in food and feed evaluations. Balanced feed formulations, according to the nutritional requirements of domestic animals. Economic aspects of animal feeding in Brazil.

2 ZOT 075 - FOOD AND FEEDING OF CATTLE 3 cr 45 h
Feed evaluation. Main feeds used in cattle feeding. Nutritional requirements of cattle. Formulation of feed for cattle. Formulation of mineral mixtures for cattle. Evaluation of feeds and mineral mixtures for dairy and beef cattle .

2 ZOT 127 - FRESHWATER FISH FARMING 3 cr 45 h
Global and national overview of fish farming, general information about fish farming, main native and exotic species farmed in Brazil, reproduction, nutrition and health, fish improvement, fish technology, application of molecular markers in fish farming.

2 ZOT 128 - TILAPICULTURE 3 cr 45 h
Tilapia in the world and in Brazil, species, strains and hybrids, water quality and production systems, production planning, nutrition and feeding, reproduction, obtaining monosex populations, main diseases of tilapia, tilapia market.

2 ZOT 076
a } SPECIAL TOPICS IN ANIMAL PRODUCTION variable credit
2 ZOT 110
Open and in accordance with the topics to be addressed.

2 ZOT 115
a } SPECIAL TOPICS IN ANIMAL PRODUCTION variable credit
2 ZOT 126
Open and in accordance with the topics to be addressed.

c) Teaching Internship in Undergraduate Studies

2 PIV 365 - TEACHING INTERNSHIP IN UNDERGRADUATE COURSE I 2 cr 30 h
Supervised participation in practical and theoretical classes of the undergraduate course em Medicina Veterinária. Treinamentofor scientific initiation interns. Other related activities at the discretion and supervision of the advisor and the Program Coordinating Committee.

2 PIV 366 - TEACHING INTERNSHIP IN UNDERGRADUATE COURSE II 2 cr 30 h
Supervised participation in practical and theoretical classes of the undergraduate course em Medicina Veterinária. Treinamentofor scientific initiation interns. Other related activities at the discretion and supervision of the advisor and the Program Coordinating Committee.

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2 PIV 367 - TEACHING INTERNSHIP IN UNDERGRADUATE COURSE III **2 cr 30 h**

Supervised participation in practical and theoretical classes of the undergraduate course em Medicina Veterinária. Treinamentofor scientific initiation interns. Other related activities at the discretion and supervision of the advisor and the Program Coordinating Committee.

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