

## B.Sc. in Veterinary Medicine and Surgery Study Plan

### University Compulsory Courses

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16 C.H

### University Elective Courses

Pages ( 64 & 65 )

9 C.H

### Faculty Compulsory Courses

136 C.H

Line No.	Code	Course					
662210	VM221	ANIMAL PHYSIOLOGY( I)	4	664641	VM464A	MEAT HYGIENE	3
662211	VM221A	ANIMAL PHYSIOLOGY LAB	0	664642	VM464	MEAT HYGIENE	0
662220	VM222	ANIMAL PHYSIOLOGY( II)	3	664730	VM473	VET.INTERNAL MED(I)	3
662221	VM222A	ANIMAL PHYSIOLOGY(LAB)	0	664731	VM473A	VET. INTERNAL MED.I LAB	0
662230	VM223	BIOCHEMISTRY	4	664740	VM474	VET.INFECTIOUS DISEASES	3
662250	VM225	ANIMAL HUSBANDRY	3	664820	VM482	VET.SURGERY( I)	3
662251	VM225A	ANIMAL HUSBANDRY LAB	0	664821	VM482A	VET . SURGERY I (LAB)	0
662260	VM226	GENETIC AND ANIMAL BREEDING	2	664841	VM484A	THERIOGENOLOGY (1)	3
662312	VM231B	VETERINARY ANATOMY( I)	3	664843	VM484	THERIOGENOLOGY	0
662313	VM231C	VETERINARY ANATOMY I LAB	0	664990	VM499	PRACTICAL TRAINING	6
662320	VM232	MICROSCOPIC AND DEVLOPMENTAL ANATOMY	3	665540	VM554	TOXICOLOGY AND FORENSIC MEDICINE	2
662321	VM232A	MICROSCOPIC AND DEVLOPMENTAL ANAYOMY (LAB)	0	665541	VM554A	TOXICOLOGY AND FORENSIC MEDICINC MEDICINE LAB	0
662341	VM234A	VET ANATOMY( II)	3	665620	VM562	EPIDEMIOLOGY AND HERD HEALTH	4
662342	VM234B	VET ANATOMY (LABII)	3	665721	VM572A	INTERNAL MEDICINE (2)	3
662421	VM242A	INTRODUCTORY MICROBIOLOGY	3	665811	VM581A	VET.SURGERY( 11)	3
662422	VM242B	INTRODUCTORY MICROBIOLOGY LAB	0	665812	VM581B	VET. SURGERY LAB	0
663211	VM321A	POULTRY MANAGEMENT	2	665831	VM583A	THERIOGENOLOGY (11)	3
663212	VM321B	POULTRY MANAGMENT (LAB)	3	665832	VM583B	THERIOGENOLOGY II LAB	0
663230	VM323	ANIMAL NUTRITION	0	665911	VM591A	CLINIC (1)	4
663231	VM323A	ANIMAL NUTRITION LAB	0	665920	VM592	CLINIC( 2)	4
663410	VM341	VET .IMMUNOLOGY	3	911010	CHEM101	GENERAL CHEMISTRY( I)	3
663411	VM341A	IMMUNOLOGY LAB	0	911020	CHEM102	GENERAL CHEMISTRY (2)	3
663420	VM342	VET VIROLOGY	3	911072	CHEM107B	GENERAL CHEMISTRY LAB	1
663421	VM342A	VET VIROLOGY (LAB)	0	912170	CHEM217	ORGANIC CHEMISTRY	3
663431	VM343A	VET. PARASITOLOGY( I)	3	931010	BIO101	GENERAL BIOLOGY (1)	3
663432	VM343B	VET. PARASITOLOGY I	0	931020	BIO102	GENERAL BIOLOGY (2)	3
663441	VM344A	VET. PARASITOLOGY (II)	3	931070	BIO107	GENERAL BIOLOGY (PRACTICAL)	1
663442	VM344B	VET .PARASITOLOGY II (LAB)	0	1731160	CS116	SELLECTED PROGRAMMING LANGUAGES (FOR NON COMPUTER SCIENCE INFORMATION STUDENTS)	3
663452	VM345B	VET. BACTERIOLOGY AND MYCOLOGY	4	<b>Faculty Elective Courses</b>			<b>5 C.H</b>
663453	VM345C	VET. BACTERIOLOGY AND MYCOLOGY LAB	0	<b>Line No.</b>	<b>Code</b>	<b>Course</b>	
663520	VM352	VET.PATHOLOGY (I)	4	665120	VM512	ETHICS AND LAWS INVETERINARY MIDICINE	1
663521	VM352	VET. PATHOLOGY (1)	0	665130	VM513	VETERINARY ECONOMICS	1
663720	VM372	PHARMACOLOGY	4	665150	VM515	ANIMAL AND ENVIRONMENT	1
663721	VM372A	PHARMACOLOGY (LAB)	0	665170	VM517	SPECIAL TOPICS	1
663991	VM399A	PRACTICALTRAINING	3	665210	VM521	MOLECULAR BIOLOGY	1
664511	VM451A	VET. PATHOLOGY( II)	4	665220	VM522	CIINICAL CHEMISTRY	2
664512	VM451B	VET. PATHOLOGY II LAB	0	665221	VM522A	CLINICAL CHEMISTRY	0
664540	VM454	VET.CLINICAL PATHOLOGY	2	665230	VM523	HORMONES OF REPRODUCTION	1
664542	VM454	VET. CLINICAL PATHOLOGY	0	665250	VM525	CLINICAL NUTRITION	1
664550	VM455	POULTRY DISEASES	3	665320	VM532	SURGICAL ANATOMY	2
664551	VM455A	POULTRY DISEASES LAB	0	665520	VM552	FISH SCIENCE (ICHTHYOLOGY)	2
664611	VM461A	DAIRY HYGIENE	3	665530	VM553	BEE DISEASES	1
664612	VM461B	DAIRY HYGIENE LAB	0	665700	VM570	DRUG EVALUATION	2
				665715	VM571E	CLINICAL PHARMACOLOGY	2
				665730	VM573	LABORATORY ANIMAL MANAGEMENT AND DISEASES	2
				665740	VM574	EQUINE MEDICINE AND SURGERY	2
				665760	VM576	VET . OPHTHALMOLOGY	2
				665780	VM578	ZOONOTIO DISEASES	2
				665823	VM582C	SMALL ANIMAL SURGERY AND MEDICINE	2

665842	VM584B	VET. ANTHESIOLOGY	2
665850	VM585	DIAGNOSTIC IMAGING	2
665851	VM585A	DIAGNOSTIC IMAGING (LAB)	0
665860	VM586	VETERINARY ORTHOPEDICES	2
665870	VM587	THERIOGENOLOGY TECHNIQUES	2

**TOTAL** **166 C.H**

***\* For prerequisite & equivalent courses see the Courses' Description.***

## B.Sc. in Veterinary

### Courses' Description

#### **VM 211 Animal Health (3H: 3T, 0P)**

This course offers basic knowledge in the management and feeding of domestic animals like cows, sheep, goats, ruminants, horses, poultry and pet animals. It also covers the diagnosis of common diseases found in domestic animals with the emphasis on infectious diseases that are transmitted from animals to humans.

#### **VM 221 Animal Physiology I (4H: 3T, 3P)**

This is a general physiology course in which the major organ systems are described. In this course the nervous system, cardiovascular system, blood component and digestive system are discussed.

#### **VM 222 Animal physiology II (3H: 2T, 3P)**

This is a continuation of Animal Physiology I in which the respiratory system, renal system, endocrinology, animal reproduction, acid - base balance and thermal regulation are discussed.

#### **VM 223 Biochemistry (4H: 3T, 3P)**

This is an introductory biochemistry course which covers the general structure and function of proteins, carbohydrates, lipids and nucleic acids. In addition, the different metabolic pathways and information pathways are discussed.

#### **VM 225 Animal Husbandry (3H: 2T, 3P)**

Different methods of handling and controlling domestic animals such as cows, sheep, goats, horses and camels in addition to small animals (dogs and cats) are discussed. The course also covers the identification of different anatomical body regions. Besides, the students will be introduced to methods of writing short assays and reports related to issues and problems in animal husbandry. The students will be evaluated partially on their writing performance.

#### **VM 226 Genetics and Breeding (2H: 2T, 0P)**

This course includes the introduction to improving animal breeds through the study of cellular structures, such as chromosomes and genes as well as methods of mating selection to obtain genetically improved breeds.

#### **VM 231 Veterinary Anatomy I (3H: 1T, 6P)**

This course covers embalming of animals including bone preparation for study, osteology, arthrology, myology and cardio-vascular systems of different domestic animals. Additionally, the innervation of thoracic, pelvic limbs of the horse, the peritoneum with its reflection and all parts of the digestive system are discussed.

#### **VM 232 Veterinary Microscopic and Developmental Anatomy (3H: 2T, 3P)**

This course covers glass slide preparation, methods of study by light microscope, different intracellular structures such as epithelium, glands, C.T., muscular, nervous, and all animal systems of different domestic animals. Furthermore, electron microscopy photographs, desmosomes and cell to cell pictures and embryonic development starting from fertilization to implantation inside the uterus are presented.

#### **VM 234 Veterinary Anatomy II (3H: 1T, 6P)**

This course covers the pleura and its reflection, respiratory, urinary, male and female genital in addition to the anatomy of nervous system, lymphatic, eye and

hoof. Also a brief description of poultry anatomy is described.

#### **VM 242 Introduction to Microbiology (3H: 2T, 3P)**

This course deals with the structure, physiology, growth, nutrition classification of microbes, their mode of infection, virulence, and hosts with emphasis on veterinary health aspects.

#### **VM 321 Poultry Management (2H: 1T, 3P)**

This course is designed to provide basic and applied knowledge on sound management of different poultry enterprises: breeder, layer, broiler flocks, hatcheries and feed mills. It also covers the poultry house design, ventilation systems, drinking and feeding systems, environmental management, sanitation, disinfection, and vaccination. The role of biosecurity in poultry industry is defined.

#### **VM 323 Animal Nutrition (3H: 2T, 3P)**

The study of basic nutritional requirements for all species of domestic animals and the metabolic differences are discussed. Further, it covers ration components and the diagnosis of diseases resulting from under-or-over feeding of different constituents with emphasis on sick animals rations.

#### **VM 341 Veterinary Immunology (3H: 2T, 3P)**

This course includes an overview of the fundamental concepts of immunology with emphasis on the immune system of domestic animals and comparative immunology. The interaction between the host and microbial pathogens, mechanisms that underline hypersensitivity reactions, autoimmune disease and immune deficiency are included. In addition, it provides students with knowledge to perform different serological techniques used in disease diagnosis.

#### **VM 342 Veterinary Virology (3H: 2T, 3P)**

This course covers general virology, systemic virology and practical virology. The general virology includes virus evaluation, host range, and virus classification. The systemic virology includes important viral diseases of cattle, sheep, goats, equine, poultry and canine. The practical virology includes the proper collection, presentation and submission of specimens for laboratory diagnosis of viral diseases.

#### **VM 343 Veterinary Parasitology I (3H: 2T, 3P)**

This course includes general aspects of parasitic infection in different animals in addition to classification, description of external features of parasites, internal parasites, molecular infection and epidemiology of parasitic infections.

#### **VM 344 Veterinary Parasitology II (3H: 2T, 3P)**

This course covers external parasites especially ticks, in addition to classification of parasites, epidemiology, and methods of tick control.

#### **VM 345 Veterinary Microbiology and Mycology (4H: 3T, 3P)**

The course deals with the study of different groups of aerobic and anaerobic bacteria, spirochetes, mycoplasmas, chlamydia, fungi, yeast and mold, with the emphasis on their methods of classification, virulence and distribution in different animals species.

#### **VM 352 Veterinary Pathology I (4H: 3T, 3P)**

Main anatomical and functional changes which found in animal diseases are discussed. Besides, cellular identification, inflammation and tumors are covered.

**VM 372 Veterinary Pharmacology (4H: 3T, 3P)**

This course deals with the principles of drug action, including pharmacokinetics, mode of action, drug interactions, major side effects and important drug toxicities. Emphasis is placed on the general principles of drugs that alter tissue and system functions and antimicrobial and antiparasitic drugs.

**VM 399 Practical Training (3H: 0T, 9P)**

The students will be trained in veterinary laboratories outside the university and learn methods of clinical laboratory.

**VM 411 Animal Health II (3H: 3T, 0P)**

This course is an introduction to some health aspects related to domestic animals and poultry. It also covers some hygienic measures needed to prevent the spread of diseases as well as the identification of sick animals and their treatment.

**VM 412 Animal Health II (3H: 3T, 0P)**

This is an introduction on the management of sick domestic animals and poultry. It covers vaccination programs and the methods of cleaning and disinfecting farms as well as methods of handling sick animals and their by-products to reduce contamination and transmission of diseases.

**VM 451 Veterinary Pathology II (4H: 2T, 6P)**

This course will expose the student to the pathological changes of different body systems with the emphasis on congenital, bacterial infections, metabolic, nutritional and immunological disturbances.

**VM 454 Veterinary Clinical Pathology (2H: 1T, 3P)**

This course covers methods of hematological and body fluid examination, liver, pancreas and kidney function tests in order to make laboratory interpretations.

**VM 455 Poultry Diseases (3H: 2T, 3P)**

This course is designed to give basic and practical knowledge on diagnosis, treatment, and preventive measures against viral, bacterial, parasitic, fungal, and nutritional diseases that occur in chickens, turkeys and cage birds.

**VM 461 Milk Hygiene (3H: 2T, 3P)**

Physical and chemical properties of adulteration, quality evaluation of milk, sources of contamination, heat treatment, zoonotic diseases that are transmitted through milk and milk products and examination of the milk for drug residues are covered.

**VM 464 Meat Hygiene (3H: 2T, 3P)**

Meat inspection for bacterial, viral, parasitic infections of slaughtered animals are discussed. Detection of chemical residues in meat and poultry, and judgement of fitness of the meat for human consumption are covered.

**VM 473 Veterinary Internal Medicine I (3H: 2T, 3P)**

The purpose of this course is to provide the students with a basic understanding of the general systemic status and the clinical approaches of diagnosis and treatment of common medical diseases of domestic animals.

**VM 474 Infectious Diseases (3H: 3T, 0P)**

This course covers diseases caused by viruses, bacteria, parasites and fungi affecting different domestic animals in addition to the causative agents, clinical symptoms, diagnosis, treatment and control.

**VM 482 Veterinary Surgery I (3H: 2T, 3P)**

This course offer the basic knowledge of veterinary surgery and anesthesiology. It discusses the general principles of pre-surgical, surgical and postsurgical considerations.

**VM 484 Theriogenology I (3H: 2T, 3P)**

This course covers male and female genital systems, puberty, follicular development, oogenesis, ovulation, fertilization and estrous in domestic animals, in addition to semen collection, evaluation, preparation, freezing and artificial insemination.

**VM 499 Practical Training (6H: 0T, 18P)**

This course deals with diseased cases presented to the University Veterinary Health Center as well as that presented to specialized clinics and farms outside the university. In addition student will be trained for meat inspections in slaughter houses and morbid anatomy.

**VM 512 Ethics and Laws in Vet. Med. (1H: 1T, 0P)**

The course covers the development of the Veterinary Profession during different ancient civilizations. Description of laws related to the veterinary profession in all mentioned civilizations with emphasis on activities related to animals and their production on national, regional and international levels are covered.

**VM 513 Veterinary Economics (1H: 1T, 0P)**

This course covers an introduction in administration sciences, financial record keeping and agricultural economics. It also includes financial resources, problems and critical parameters, insurance and modifications of premises and buildings.

**VM 515 Animal and Environment (1H: 1T, 0P)**

This course covers the inter-relationship between animals and the environment in addition to the effect of animals on the environment and vice-versa. Diseases of animals resulting from environmental changes are also covered.

**VM 517 Special Topic (1H: 1T, 0P)**

This will include different subjects related to the need, interest and student specialization.

**VM 521 Molecular Biology (1H: 1T, 0P)**

Basic principles of amino acids structures, function and introduction to modern molecular biology techniques which are used in disease diagnosis in veterinary medicine are presented.

**VM 522 Clinical Chemistry (2H: 1T, 3P)**

This course covers body fluid chemistry with emphasis on changes that occur in body fluids.

**VM 523 Hormones of Reproduction (1H: 1T, 0P)**

Selected subjects on hormonal regulations of male and female reproductive systems, and methods of improving reproductive performance are studied.

**VM 525 Clinical Nutrition (1H: 1T, 0P)**

Nutrition and diseases, malnutrition and infection, metabolic disturbances, and principles of veterinary nutrition in normal and sick animals are discussed.

**VM 532 Surgical Anatomy (2H: 1T, 3P)**

The students will learn topographical locations of different body systems of animals in addition to most common surgical sites.

**VM 552 Ichthyology (2H: 1T, 3P)**

This course covers physiology, management and diagnosis of most common fish diseases.

**VM 553 Bee Diseases (1H: 1T, 0P)**

This course will cover a historical background on raising bees and their diseases (infectious and noninfectious). Also, infectious and noninfectious diseases of adult bees, parasites, predators and bee diseases, bees intoxication with pesticides and herds are presented.

**VM 554 Toxicology and Forensic Medicine (2H: 1T, 3P)**

This course deals with pharmacological and pathological features of diseases caused by common toxic chemicals, plants and poisons of animal origin with emphasis on clinical manifestations, diagnosis, prevention and treatment. In addition to, dealing professionally and legally with crimes against animals.

**VM 562 Herd Health and Epidemiology (4H: 4T, 0P)**

This course includes the epidemiology and prevention of infectious and chronic diseases and their effects on human health and environment. Also, it includes the basis of biostatistics that are related to veterinary medicine and animal productivity.

**VM 570 Drug Evaluation (2H: 1T, 3P)**

This course includes the study of drug sources, methods of extraction, purification, side effects, evaluation of drug efficacy on the various organs of the animal body.

**VM 571 Clinical Pharmacology (2H: 1T, 3P)**

This course includes the study of pharmacokinetics, dose calculations, drug interactions drug combinations and antidotal measures of drugs used for the treatment of different disease conditions and drugs used in treatment of bacterial, fungal, parasitic diseases, anti-neoplastic drugs and growth promoters.

**VM 572 Veterinary Internal Medicine II (3H: 3T, 0P)**

This is an extension of the course VM 473.

**VM 573 Laboratory Animal Management and Diseases (2H: 1T, 3P)**

This course covers the ethical applications of laboratory animals, their nutrition, and their physical needs.

**VM 574 Equine Medicine & Surgery (2H: 1T, 3P)**

This covers most common diseases of horses, methods of diagnosis, treatment and prevention of these diseases. Also, the students will receive training on surgical treatment and the use of X-ray in the diagnosis of equine disease.

**VM 576 Ophthalmology (2H: 1T, 3P)**

Advance knowledge of eye diseases in veterinary medicine are discussed to enable the students to comprehend surgical treatments of some eye diseases.

**VM 578 Zoonotic diseases (2H: 2T, 0P)**

This course covers infectious diseases (bacterial, viral, fungal and parasitic) that are transmissible between animals and humans with emphasis on their etiology, epidemiology, diagnosis and treatment.

**VM 581 Veterinary Surgery II (3H: 2T, 3P)**

The course includes general knowledge of common surgical problems in domestic animals, and lameness diagnosis in horses using the X-ray method for diagnosis.

**VM 582 Small Animals Medicine and Surgery (2H: 1T, 3P)**

The course will cover diseases of dogs and cats and methods of treatments (therapeutic and surgical).

**VM 583 Theriogenology II (3H: 2T, 3P)**

This covers the physiology, pathology of pregnancy, and methods of pregnancy diagnosis in farm animals. Additionally congenital anomalies, parturition, dystocia, sterility and their treatment are included.

**VM 584 Veterinary Anesthesiology (2H: 1T, 3P)**

It covers the basic and new trends in the field of veterinary anesthesia with emphasis on local analgesia, regional analgesia, general anesthesia, and emergency medications.

**VM 585 Diagnosis Imaging (2H: 1T, 3P)**

The student will learn methods of diagnosis, follow-up of treated diseased cases with the aid of imaging as X-rays, ultrasonography and CT scan.

**VM 586 Veterinary Orthopedics (2H: 1T, 3P)**

It covers the basics of surgical approaches to the bones in small animals as well as large animals. Different forms of the surgical infections of the bone and joints are discussed with emphasis on clinical and surgical aspects.

**VM 587 Techniques in Theriogenology (2H: 1T, 3P)**

The students will be trained on modern technological tools, synchronization, male hormones, oestrous, fertilization, superovulation, semen collection, embryo transfer, sex selection, gamete formation and genetic engineering application in this field.

**VM 591 Veterinary Clinic 1 (4H: 0T, 12P)**

This course covers skills concerning diagnosis and treatment of diseases in different animal species referred to the Veterinary Health Center or through field services.

**VM 592 Veterinary Clinic 2 (4H: 0T, 12P)**

Continuation of Vet. Clinic 1.