

GRADUATION REQUIREMENTS FOR THE BACHELOR OF VETERINARY SCIENCE (B.Vet. Sc.)

COURSE LIST

Faculty Requirements

Course No	Title	Gredit Hours		Maximum	Written
		Lectures	Practical	Mark	exam. hours
101	Computer	1	1 (2)	50	2
102	English language and medical terminology	2	- (2)	50	2
103	Biology	2	1 (2)	50	2
104	Biophysics	2	1 (2)	50	2

Prerequisite courses for Veterinary studies

Course No	Title	Gredit Hours		Maximum	Written
		Lectures	Practical	Mark	exam. hours
151	Chemistry	3	1 (3)	100	2
152	Vet. Genetics and genetic engineering	2	1 (2)	50	2
153	Biostatistics	2	-	50	2
154	Molecular Biology	1	1(2)	50	2

Core courses

Course No	Title	Gredit Hours		Maximum	Written
		Lectures	Practical	Mark	exam. hours
ANA 105	Equine anatomy and general embryology	2	1 (3)	100	2
CH1 106	Histology	3	1 (2)	100	2
VHM 154	Animal and poultry management	3	1 (2)	100	2
ANA 156	Equine anatomy	2	1 (3)	100	2
CH1 157	Histology	4	1 (3)	100	3
ANA 201	Equine anatomy and special embryology	3	1 (3)	100	2
BIC 201	Molecular biochemistry	4	1 (3)	100	3
PHY 203	General physiology	4	1 (2)	100	3
VHM 204	Veterinary economics and farm management	2	1 (2)	100	2
ANA 205	Comparative and applied anatomy	3	1 (3)	100	2

Core courses

Course No	Title	Gredit Hours		Maximum	Written
		Lectures	Practical	Mark	exam. hours
VHM 251	Animal and anatomy behaviour	3	1 (3)	100	2
BIC 252	Metabolism and chemistry of nutrition	4	1 (3)	100	3
PHY 253	Physiology of endocrines and reproduction	3	-	50	2
NCN 254	Animal breeding	2	1 (2)	100	2
NCN 255	Poultry breeding	2	1 (2)	100	2
PAR 256	Helminthology	2	1 (2)	100	2
PHY 257	Comparative physiology	2	1 (2)	100	2
MIC 301	General microbiology	1	1 (2)	50	2
PAT 302	General pathology	2	1 (3)	100	2
PHA 303	General pharmacology	3	1 (2)	100	2
PAR 305	Entomology	2	1 (2)	50	2
PAR 306	Protozoology	2	1 (2)	50	2
NCN 307	Nutrition	3	1 (2)	100	2
MIC 351	Immunology	1	1 (2)	50	2
MIC 352	Bacteriology and mycology	2	1 (2)	100	2
PAT 353	Special pathology	2	1 (3)	100	2
PHA 354	Special pharmacology	3	1 (2)	100	2
<u>VIR 355</u>	<u>Virology</u>	2	1 (4)	100	2
	357 Summer training	-	10 (30)	100	2
PAT 401	Morbid anatomy	4	1 (4)	200	2
	402 Veterinary Epidemiology	2	1 (2)	50	2
SUR 403	General surgery	3	1 (2)	150	2
NCN 404	Clinical nutrition	3	1 (2)	100	2
MID 405	Principles of veterinary medicine	3	1 (3)	100	2
FDM 406	Fish diseases and management	2	1 (4)	100	2
SUR 407	Anaesthesiology and diagnostic imaging	1	1 (2)	50	2
FOH 451	Milk hygiene and control	2	1 (2)	100	2
MID 452	Internal medicine and infectious diseases of sheep and goat	2	1 (2)	100	2
MID 453	Internal medicine and infectious diseases of pet animals	1	1 (2)	50	2
CPA 454	Clinical pathology	2	1 (4)	100	
THG 455	Farm animals reproduction and Gynaecology	2	1 (2)	100	2
FOH 456	Fats, oils eggs hygiene and control			100	2
TFV 457	Toxicology	2	1 (2)	50	2

Core courses

Course No	Title	Gredit Hours		Maximum	Written
		Lectures	Practical	Mark	exam. hours
TFV 458	Applied Toxicology	1	1(2)	100	2
459	Summer training	-	10(30)	100	-
SUR 501	Special surgery (A)	2	1(2)	100	2
MID 502	Internal medicine and infectious diseases				
	Camels	1	1(2)	50	2
MID 503	Internal medicine and infectious diseases of cattle and buffaloes	3	1(2)	100	2
THG 504	Farm animals andrology and artificial insemination	2	1(3)	100	2
VHM 505	Environmental hygiene and pollution	2	1(2)	100	2
VHM 506	Animal hygiene	1	1(2)	50	2
VHM 507	Poultry and Fish hygiene	2	1(2)	50	2
MID 551	Internal medicine and infectious Diseases of equines	2	1(2)	100	2
SUR 552	Special surgery (B)	2	1(2)	100	2
THG 553	Obstetrics of farm animals	2	1(2)	100	2
<u>POD 554</u>	<u>Avian and rabbit diseases</u>	4	2(6)	200	2
FOH 555	Meat hygiene and control	2	1(2)	100	2
TFV 556	Forensic medicine and Vet. Regulations	1	1(2)	50	2
THG 557	Theriogenology of pet animals	2	1(2)	100	2
FOH 558	Poultry and fish meat hygiene and control	2	1(2)	50	2
559	Summer training	-	10(30)	100	2
ZON 601	Zoonoses	3	1(2)	200	2
FOH 602	Meat technology and preservation	1	1(2)	50	2
FOH 603	Dairy technology and preservation	1	1(2)	50	2
604	Clinical and applied science's training	-	10(30)	100	-

Elective courses

Selecting from the list below, the student must successfully complete a minimum of 10 credit hours

Course No	Title	Credit Hours		Maximum	Written
		Lectures	Practical	Mark	exam. hours
ANA E001	Special topics in Anatomy	1	1 (2)	50	2
CHI E002	Special topics in Cytology & Histology	1	1 (2)	50	2
BIC E003	Special topics in Biochemistry and Chem. of Nutrition	1	1 (2)	50	2
PHY E004	Special topics in Physiology	1	1 (2)	50	2
PAT E005	Special topics in Pathology	1	1 (2)	50	2
NCN E006	Special topics in Nutrition & Clinical Nutrition	1	1 (2)	50	2
PAR E007	Special topics in Parasitology	1	1 (2)	50	2
VIR E008	Special topics in Virology	1	1 (2)	50	2
MIC E009	Special topics in Microbiology	1	1 (2)	50	2
PHA E010	Special topics in Pharmacology	1	1 (2)	50	2
TFV E011	Special topics in Clinical Pathology and Vet. Regulations	1	1 (2)	50	2
VHM E012	Special topics in Toxicology, Forensic Medicine and Vet. Regulations	1	1 (2)	50	2
VHM E013	Special topics in Hygiene & Ecology	1	1 (2)	50	2
VHM E014	Special topics in Animal and Poultry	1	1 (3)	50	2
ZON E015	Special topics in Zoonoses	1	1 (2)	50	2
FOH E016	Special topics in Hygiene and control of Milk and Dairy Products	1	1 (2)	50	2
FOH E017	Special topics in Hygiene and control of meat and meat by-products	1	1 (2)	50	2
FDM E018	Special topics in Fish Diseases and Management	1	1 (2)	50	2
POD E019	Special topics in Avian and Rabbit Diseases	1	1 (2)	50	2
MID E020	Special topics in Internal Medicine and Infectious diseases of large animals (species selected)	1	1 (2)	50	2
MID E021	Special topics in Internal Medicine and Infectious Diseases of small animals (species selected)	1	1 (2)	50	2
SUR E022	Special topics in Surgery	1	1 (2)	50	2
THG E023	Special topics in Theriogenology	1	1 (2)	50	2
E024	Traditions & ethics of Vet. Profession	1	1 (2)	50	2
E025	Animal resources in the Arab Nations	1	1 (2)	50	2
E026	History of Veterinary Medicine	1	1 (2)	50	2

COURSE CONTENTS

Title: Computer	Credit hours	
Code Number: 101	Lectures	Practical
Prerequisite courses: - -	1	1 (2)

History of the computer. What is the computer system. Central Processing Unit (CPU). Core memory. Access time. Formation of bits and by tes. Input output devices. Direct access storage. Auxiliary storage systems. Telecommunications. Distributed systems. Application of electronic spread sheets. Introduction to Basic.

Title: English language and medical terminology	Credit hours	
Code Number: 102	Lectures	Practical
Prerequisite courses: - -	2	---

Reading skills; reviewing, recognizing, perception, analysis, evaluation & comprehending. Writing skills; thinking & itemizing points, choosing effective phrases, planning, preparing good sentences, & better ones, comprehension and revising. Basic principles of medical terminology.

Title: Biology	Credit hours	
Code Number: 103	Lectures	Practical
Prerequisite courses: - -	1	1 (2)

Classification of the plant kingdom; Plant physiology (Colloids, Osmosis, Enzymes, Respiration); Genetics. Classification of the animal kingdom; General characteristics of each class.

Title: Biophysics	Credit hours	
Code Number: 104	Lectures	Practical
Prerequisite courses: - -	1	1 (2)

Body electricity and tissue/organ electric conductivity; Biophysical basics of diagnostic x-ray; natural and artificial nuclear activity; Control of ionized radiation and personal preventive means; cooling and heating measures in medical and surgical treatment.

Title: Equine Anatomy and General Embryology	Credit hours	
Code Number: 105	Lectures	Practical
Prerequisite courses: - -	2	1 (3)

Introduction to Vet. Anatomy, mycology, abdomen & thorax splanchnology; topographic anatomy; embryology and osteology.

Title: Hisotology	Credit hours	
Code Number: 106	Lectures	Practical
Prerequisite courses: - -	3	1 (2)

Introduction to general histology and cytology. Histological techniques. General morphology in relation to functions of cells and tissues, epithelial and connective tissues. (Blood. Muscular

tissue. Nervous tissue and system. Cardiovascular system). Integumentary system and sense organs.

Title: Chemistry	Credit hours	
Code Number: 151	Lectures	Practical
Prerequisite courses: - -	3	1 (3)

Physical chemistry (states of matter, solutions, chemical equilibrium and kinetics. Thermochemistry, Electrolytic conduction, Application of ionic theory).

Organic chemistry (General principles of alkanes, alkenes, alkynes, alcohols, ethers, aldehydes and ketones); Saturated monocarboxylic acids; Monocarboxylic acid derivatives; Amines; Monosubstituted monocarboxylic acids; Carbohydrates; Isomerism; Aromatic compounds.

Title: Vet. Genetics and Genetic Engineering	Credit hours	
Code Number: NCN 152	Lectures	Practical
Prerequisite courses: - -	2	1 (2)

Principles of inheritance; Monohybrid; Dihybrid; Multiple allelism; Epistasis; Linkage; Chromosomes; Karyotype; Sex chromosomes; Sex determination; Sex-linked inheritance; Chromosome aberrations. Gene; Gene function; Gene mutation lethals in animals; Genes in population; Quantitative inheritance; Variation; Heritability; Correlation among traits. Methods of selection; Systems of breeding; Hereditary defects and diseases in domestic animals; Genetic resistance and resistance to diseases.

Title: Biostatistics	Credit hours	
Code Number: 153	Lectures	Practical
Prerequisite courses: - -	2	--

Introduction; population and sampling. Measures of central tendency. Dispersion and variability. Normal and binomial distribution; Estimation and hypothesis testing. Analysis of frequencies. Analysis of variance; Correlation and regression. Use of computer in biostatistics.

Title: Animal & Poultry Management	Credit hours	
Code Number: VHM 154	Lectures	Practical
Prerequisite courses: - -	3	1 (2)

Introduction. Management of Equines; Cattle & Buffaloes; Camel; Sheep & Goats; Pet animals; Lab. Animals; Fowl; Water fowl; Turkey; Pigeons & Fish.

Title: Molecular Biology	Credit hours	
Code Number: 155	Lectures	Practical
Prerequisite courses: (103)	1	1 (2)

Introduction; Structure of DNA and RNA: eukaryotic, prokaryotic and viral genomes; Replication; Transfer; Mutation; Gene arrangement; Gene expression.

Title: Equine Anatomy	Credit hours	
Code Number: ANA 156	Lectures	Practical
Prerequisite courses: - -	2	1 (3)

Anatomy of limbs; systematic and topographic.

Title: Histology	Credit hours	
Code Number: CHI 157	Lectures	Practical
Prerequisite courses: (106)	4	1 (3)

Immune system; Digestive system; Respiratory system; Urinary system; Male and female reproductive system; Endocrine system.

Comparative histology and organology. Structure in relation to function of organs of domestic animals.

Title: Equine Anatomy and Special Embryology	Credit hours	
Code Number: ANA 201	Lectures	Practical
Prerequisite courses: (105)	1	1 (2)

Equine head & neck (topographic & systematic). Developmental anatomy of systems & senses.

Title: Molecular Biochemistry	Credit hours	
Code Number: BIC 201	Lectures	Practical
Prerequisite courses: (151, 152)	4	1 (3)

Molecular structure of carbohydrates; Lipids; Proteins; Nucleic acids; Vitamins; Hormones; Cell membranes and enzymes. Genetic structure and synthesis of proteins.

Title: General Physiology	Credit hours	
Code Number: PHY 203	Lectures	Practical
Prerequisite courses: (105, 151, 152, 156, 157)	4	1 (2)

Cell physiology; Nervous system & special senses; Autonomic nervous system; physiology of muscle & nerve; Physiology of digestion; Circulation; Respiration; Blood & body fluids.

Title: Veterinary Economics and Farm Management	Credit hours	
Code Number: VHM 204	Lectures	Practical
Prerequisite courses: (101, 153)	2	1 (2)

Theory of consumer's attitudes; Theory of productive establishment; Market equilibrium and market dominance; Basic principles of management; Risk factors & un-expected variables in farm/livestock production; Analytical means & ways in economics & management; Evaluation of agronomical enterprises.

Title: Comparative and Applied Anatomy	Credit hours	
Code Number: ANA 205	Lectures	Practical
Prerequisite courses: (156, 201)	3	1 (3)

Anatomy of ruminants; Camel; Dog & Cat; Poultry & Fish. Special topographic and regional anatomy of domestic animals in relation to clinical & surgical approach.

Title: Animal and Poultry Behaviour	Credit hours	
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Code Number: VHM 251	Lectures	Practical
Prerequisite courses: (154, 203)	1	1 (2)

Animal & poultry behaviour; Introduction; Behaviour of Equines; Cattle & Buffaloes; Sheep & Goats; Pet. Animals; Camel; Lab. Animals; Poultry and Rabbits.

Title: Metabolism and Chem. of Nutrition	Credit hours	
Code Number: BIC 252	Lectures	Practical
Prerequisite courses: (202)	4	1 (3)

Digestion; Absorption and chemistry of rumination; Biological Oxidation; Metabolism of Carbohydrates; Lipids; Proteins and Nucleic acids; Comparative metabolism; Putrefaction; Fermentation and detoxication, Animal pigments; Body fluids (Blood, milk, Urine).

Title: Physiology of Endocrines and Reproduction	Credit hours	
Code Number: PHY 253	Lectures	Practical
Prerequisite courses: (203)	3	---

Endocrinology; Female reproduction; Physiology of udder & milk secretion; Male physiology; Physiology of kidney; Metabolism; Growth Physiology.

Title: Animal Breeding	Credit hours	
Code Number: NCN 254	Lectures	Practical
Prerequisite courses: (251)	2	1 (2)

Production traits in Broilers, Layers; Ducks, Geese, Turkeys & Rabbits; Selecting & managing breeding stocks; Pairing-off; heredity/breeding & environment; Avian quantitative/qualitative genetics; Breeding values & aids to selection; breeding methods & poultry hybrids.

Title: Helminthology	Credit hours	
Code Number: PAR 256	Lectures	Practical
Prerequisite courses: (103)	2	1 (2)

Introduction; Clinical periods and rules of nomenclature; General character & Morphological characters and life cycle of flat and round worms which infest animals. The general study of mollusks, their role in the transmission of parasitic diseases & their control. Parasites' immunology; Introduction; Definition and host-parasite immune response; Serological methods to diagnose parasitic infections; Parasites vaccines and preparation.

Title: Comparative Physiology	Credit hours	
Code Number: PHY 257	Lectures	Practical
Prerequisite courses: (253)	2	1 (2)

Ruminant physiology; Environmental and Behavioural physiology; Physiology of birds and fish.

Title: General Microbiology	Credit hours	
Code Number: MIC 301	Lectures	Practical
Prerequisite courses: - -	1	1 (2)

History and evaluation of microbiology. Classification, general morphological, physiological and pathogenic characteristics of bacteria and fungi. Microbial products, microbial relation to

environment. Introduction to the fundamental techniques of microbiology and methods of identification of micro-organisms. Antimicrobial agents. Host-parasite relationship.

Title: General Pathology	Credit hours	
Code Number: PAT 302	Lectures	Practical
Prerequisite courses: (157, 201, 203)	2	1 (3)

Definitions and historical aspects of pathology. Cellular base for disease. Aetiology of diseases. Circulatory disturbances and degenerations. Disturbances of development and growth of cells. Inflammation, immunological disorders, regeneration and repair. Neoplasia.

Title: General Pharmacology	Credit hours	
Code Number: PHA 303	Lectures	Practical
Prerequisite courses: (252, 302)	3	1 (2)

Pharmacological Bases; Pharmacokinetics; Pharmacodynamics; Mechanism of drug action; on systems (Central nervous, autonomic, digestive, respiratory, cardiovascular, urinary, reproductive and dermal). Endocrine pharmacology; Autocoids.

Title: Entomology	Credit hours	
Code Number: PAR 305	Lectures	Practical
Prerequisite courses: (256)	2	1 (2)

Introduction to veterinary entomology; Anatomy and function of arthropods of medical and veterinary importance; Transmission of diseases. Classification. Morphobiological characters, their role in transmitting diseases to animals; Methods of control.

Title: Protozoology	Credit hours	
Code Number: PAR 306	Lectures	Practical
Prerequisite courses: (305)	2	1 (2)

Introduction. Structure, function and classification of parasitic protozo. Morpho-biological characters and diagnosis.

Title: Nutrition	Credit hours	
Code Number: NCN 307	Lectures	Practical
Prerequisite courses: (252, 253)	3	1 (2)

Principles of nutrition and vet. Dietetics; Chemical composition and evaluation of feedstuffs; Assimilation and utilization of nutrients. Nutrients inadequacy. Feeding standards and Nutrients' requirements. Applied nutrition for Maintenance, Poultry, Rabbits, Fish, and other aquatic animals. Classification of feedstuffs; Feed supplements & additives. Feed processing. Commercial feeds and feed laws.

Title: Immunology	Credit hours	
Code Number: MIC 351	Lectures	Practical
Prerequisite courses: (301)	1	1 (2)

Introduction; Antigens; Antigenicity; The immunoglobulins; Cellular basis of the immune response, Antigen-antibody interaction, Immunity to infections; Hypersensitivity;

Autoimmunity; Defects in the immune system. Principles of serological techniques; Immunochemistry and immunobiological techniques.

Title: Bacteriology and Mycology	Credit hours	
Code Number: MIC 352	Lectures	Practical
Prerequisite courses: (301)	1	1 (2)

Bacteria and fungi that are pathogenic to animals and birds with emphasis on their morphology, growth requirements and characteristics, physiological and biological properties, antigenicity, pathogenesis, transmission, immunogenicity and diagnostic procedures.

Title: Special Pathology	Credit hours	
Code Number: PAT 353	Lectures	Practical
Prerequisite courses: (302)	2	1 (3)

Pathology of diseases affecting skin and its appendages; The musculoskeletal system; The respiratory system; The cardio-vascular system; The hemic and lymphatic systems; The digestive system; The urinary system; The genital system; The nervous system and organs of special sense; Pathology of important infectious and non-infectious diseases of domestic animals.

Title: Special Pharmacology	Credit hours	
Code Number: PHA 354	Lectures	Practical
Prerequisite courses: (256, 301, 303)	3	1 (2)

Chemotherapy (sulphonamides, antibiotics, anthelmintics, antiprotozoals, pharmacokinetics of vitamins, drug interaction, adverse reactions to drugs, drug residue and withdrawal). Antiseptics and disinfectants; Anticancer drugs.

Generic and proprietary nomenclature of selected drugs in veterinary practice. Immunopharmacology; Clinical pharmacology.

Title: Virology	Credit hours	
Code Number: VIR 355	Lectures	Practical
Prerequisite courses: (151, 252)	1	1 (4)

Viruses that cause important diseases in animals, poultry and fish with emphasis on their physico-chemical and biological properties including virus multiplication. Viral genetics; Viral immunity; Interference phenomenon; Viral oncogenesis and resistance to viral infection. Principles of vaccines and vaccination. Classification and antigenic properties of viruses. Detection; Isolation, Cultivation and Characterization of viruses.

Title: Morbid Anatomy	Credit hours	
Code Number: PAT 401	Lectures	Practical
Prerequisite courses: (353)	4	1 (4)

Necropsy techniques. Collection of samples for laboratory tests. Writing of necropsy report. Fish Pathology; Poultry Pathology

Title: Veterinary Epidemiology	Credit hours	
Code Number: 402	Lectures	Practical
Prerequisite courses: (256, 305, 306, 352, 355)	2	1 (2)

Basic concepts and scopes of epidemiology; Diseases in population, Dissemination of disease; Reservoirs; Carriers and vectors; Application of epidemiological methods to

the investigation of diseases outbreaks; Disease survey and principles of disease control; Effect of animal diseases on national economy; Danger of exotic diseases.

Title: General Surgery	Credit hours	
Code Number: SUR 403	Lectures	Practical
Prerequisite courses: (302, 354)	3	1 (2)

Asepsis and antisepsis; Suturing; Injections; Inflammation; Abscess; Sinus and Fistula; Necrosis and Gangrene; Ulcers; Burns; Phlegmon; Bones; Joints; Muscles; Tendons; Bursae; Nerves; Vessels; Tumors and Cysts; Wounds; Hemorrhage.

Title: Clinical Nutrition	Credit hours	
Code Number: NCN 404	Lectures	Practical
Prerequisite courses: (302, 307, 351, 352)	3	1 (2)

Nutrient's requirements and applied nutrition for pre-ruminants; Beef and dairy animals; Sheep & Goats; Gamels; Equines; Pet and Lab. Animals. Nutrition as related to metabolic disorders & reproduction. Mal-nutritional and food-borne illnesses. Nutrition-infectious diseases inter-relationships. Therapeutic nutrition.

Title: Principles of Vet. Medicine	Credit hours	
Code Number: MID 405	Lectures	Practical
Prerequisite courses: (253, 303)	3	1 (3)

Clinical examination and reaching diagnosis. General systemic states. Principles of therapeutics/clinical practice.

Field diagnostic tests, interpretation of the different tests in connection with clinical findings and treatment in diseased animals.

Title: Fish Diseases and Management	Credit hours	
Code Number: FDM 406	Lectures	Practical
Prerequisite courses: (306, 352, 354, 355)	2	1 (4)

Introduction: economic importance of fish. Environmental; Management and biological stress. Environmental factors in relation to fish and shell fish hygiene and special problems in warm climates. Nutritional disorders. Organoleptic diseases of fish, signs and symptoms of locomotion, colour changes of feeding habits; Growth abnormalities; Examination of individual organs; Dispatch of fish for diagnosis; Clinical aspects; Epidemiology; Differential diagnosis; Treatment and control of viral, bacterial, mycotic, protozoal and parasitic diseases of fresh water and marine water fish.

Title: Anaesthesiology and Diagnostic Imaging	Credit hours	
Code Number: SUR 407	Lectures	Practical
Prerequisite courses: (302, 354)	1	1 (2)

Preanaesthetics; Local, regional and general anaesthetics; Diagnostic imaging; radiography, sonography and other techniques; Endoscopy.

Title: Milk Hygiene and Control	Credit hours	
Code Number: FOH 451	Lectures	Practical
Prerequisite courses: (306, 352, 355)	2	1 (2)

Physical properties of milk; Chemical composition; Chemical examination; Adultration of milk; Sanitary and bacteriological examination of milk; Milk enzymes; Microorganisms associated with milk, sources of contamination; Normal fermentation, taints and abnormal condition of milk; Milk residues; Milk borne diseases; Clean milk production; Changes in milk due to mastitis; Heat treatment of milk; Sanitizing milk utensils and dairy equipment.

Title: Internal Medicine and Infectious Diseases of Sheep and Goat	Credit hours	
Code Number: MID 452	Lectures	Practical
Prerequisite courses: (306, 355, 404, 405)	2	1 (2)

A- Medicine:

The musculo-skeletal system; The digestive; Respiratory and Cardiovascular systems; The blood and blood forming elements; The nervous, urinary and dermal systems; clinical signs, treatment and control. Diseases caused by physical agents. Metabolic disorders and deficiency diseases.

B-Infectious diseases:

Clinical aspects; Epidemiology; Diagnosis and differential diagnosis of bacterial, viral, rickettsial and parasitic diseases of Sheep & Goat. Prevention and control.

Title: Internal Medicine & Infectious Diseases of Pet Animals	Credit hours	
Code Number: MID 453	Lectures	Practical
Prerequisite courses: (306, 355, 404, 405)	1	1 (2)

A- Medicine:

The musculo-skeletal system; The digestive; Respiratory and Cardiovascular systems; The blood and blood forming elements; The nervous, urinary and dermal systems: diagnosis, treatment control.

B-Infectious diseases:

Clinical aspects; Epidemiology; Diagnosis and differential diagnosis of bacterial, viral rickettsial and parasitic diseases of Dogs & Cats. Prevention and control.

Title: Clinical Pathology	Credit hours	
Code Number: CPA 454	Lectures	Practical
Prerequisite courses: (306, 352, 355, 405)	1	1 (2)

Clinical Hematology: Response of blood cells to disease and interpretation of abnormal findings, Laboratory evaluation and disorders of coagulation.

Clinical Biochemistry: Organ function tests and alterations of some serum biochemical constituents associated with pathological processes; Urinalysis.

Diagnostic Cytology: Examination of exfoliative cytology of body fluids and solid masses; Laboratory Aids for Diagnosis of animal diseases.

Title: Farm Animals Reproduction and Gynaecology	Credit hours	
Code Number: THG 455	Lectures	Practical
Prerequisite courses: (253, 353)	2	1 (2)

The female reproductive organs. The oestrus cycle and patterns of reproduction, ovogenesis, ovulation and fertilization. Altering reproductive processes. Clinical examination; Methods of pregnancy diagnosis. Infertility in the various species.

Title: Fats, Oils and Eggs Hygiene and Control	Credit hours	
Code Number: FOH 456	Lectures	Practical
Prerequisite courses: (306, 352, 355)	2	1 (2)

Properties of fats & oils; Sampling; Physical constants; Chemical constants; Specific tests for fats and oils; Adulteration of butter with fats & oils, margarine & concentrated margarine. Eggs: formation & structure of egg, chemical composition, nutritive value, egg faults, preservation of eggs, diseases transmitted through eggs, microbiological examination of eggs, antimicrobial defence mechanisms in egg.

Title: Toxicology	Credit hours	
Code Number: TFV 457	Lectures	Practical
Prerequisite courses: (353, 405)	2	---

General Toxicology: Terminology; Introduction; Factors modifying effect of poisons; Classification, Metabolism and Fate of poisons; Toxokinetics and Toxodynamics of poisons; Diagnosis of poisons; General treatment; Antidotes; Sampling; Common causes of poisoning.

Special Toxicology: Corrosive poisons; Irritant poisons; Volatile poisons; Animal poisons; Poisonous plants; Pesticides; Food poisons; Feed additives; Growth Promoters; War gases; Nitrates; Nitrites and Urea; Environmental pollutants; Aquatic toxicity.

Title: Applied Toxicology	Credit hours	
Code Number: TFV 458	Lectures	Practical
Prerequisite courses: (354, 401, 454, 457)	1	1 (2)

Hepatotoxicity; Nephrotoxicity; Neurotoxicity; Ocular toxicity; Respiratory toxicity; Drug toxicity; Immunotoxicity; Genetic toxicity; Reproductive toxicity; Occupational toxicity; Behavioral toxicity.

Title: Special Surgery (A)	Credit hours	
Code Number: SUR 501	Lectures	Practical
Prerequisite courses: (403, 407)	2	1 (2)

Digestive system; Respiratory system; Urinary system; Reproductive system; Udder and teat; Ear; Horns; Special affections.

Title: Internal Medicine and Infectious Diseases of Camels	Credit hours	
Code Number: MID 502	Lectures	Practical
Prerequisite courses: (306, 355, 404, 405)	1	1 (2)

A- Medicine:

The musculo-skeletal system; The digestive; Respiratory and Cardiovascular systems; The blood and blood forming elements; The nervous, urinary and dermal systems; diagnosis, treatment and control.

Diseases caused by physical agents. Metabolic disorders and deficiency diseases.

B-Infectious diseases:

Clinical aspects; Epidemiology; Diagnosis and differential diagnosis of bacterial, viral, rickettsial and parasitic diseases of Camels and their prevention and control

Title: Internal Medicine and Infectious Diseases of Cattle and Buffaloes	Credit hours	
Code Number: MID 503	Lectures	Practical
Prerequisite courses: (306, 355, 404, 405)	3	1 (3)

A- Medicine:

Diseases of the musculo-skeletal system; The digestive; Respiratory and Cardiovascular systems; The blood and blood forming elements; The nervous, urinary and dermal systems; clinical signs, diagnosis, treatment & control. Diseases caused by physical agents. Metabolic disorders and deficiency diseases.

B- Infectious diseases:

Clinical aspects; Epidemiology; Diagnosis and differential diagnosis of bacterial, viral rickettsial and parasitic diseases of Cattle and Buffaloes and their prevention and control.

Title: Farm Animals Andrology and Artificial Insemination	Credit hours	
Code Number: THG 504	Lectures	Practical
Prerequisite courses: (205, 253, 306, 352, 355)	2	1 (2)

Anatomy and physiology of the male reproductive organs. Male mating behaviour. Sexual behaviour, Examination of the male for breeding soundness.

Methods of semen collection. Semen evaluation. Semen processing and storage. Insemination techniques. Evaluation of the results of A.I. Forms of infertility of bulls. Infectious diseases causing reproductive failure.

Title: Environmental Hygiene and Pollution	Credit hours	
Code Number: VHM 505	Lectures	Practical
Prerequisite courses: (352, 503)	2	1 (2)

Air; requirements, pollution, ventilation, microclimate, stressors. Water; sources, pollution, hardness, improvement, treatment. Soil; types, pollution & prevention. Epidemiological importance of air, water & soil. Animal Housing and wastes. Poisonous plants.

Title: Animal Hygiene	Credit hours	
Code Number: VHM 506	Lectures	Practical
Prerequisite courses: (505)	1	1 (2)

Veterinary epidemiology; definitions, types, patterns, measures, frequency, transmission of diseases. Control of contagious diseases and external parasites. Disinfection & disinfestations. Transportation of animals. Wild life; free, in captivity, migrating & conserved areas. Health behaviour & sanitation. Veterinary extension, its role in preventing diseases and in improving the standards of hygiene.

Title: Poultry and Fish Hygiene	Credit hours	
Code Number: VHM 507	Lectures	Practical
Prerequisite courses: (505)	2	1 (2)

Housing of poultry. Hatchery Hygiene. Poultry farm hygiene. Control of poultry epidemics. Disinfection & Disinfestation. Epidemiological importance of poultry hygiene. Fish farming and aquaculture hygiene.

Title: Internal Medicine and Infectious Diseases of Equines	Credit hours	
Code Number: MID 551	Lectures	Practical
Prerequisite courses: (306, 355, 404, 405)	2	1 (2)

A- Medicine:

The musculo-skeletal system; The digestive; Respiratory and Cardiovascular systems; The blood and blood forming elements; The nervous, urinary and dermal systems; diagnosis, treatment and control.

Diseases caused by physical agents. Metabolic disorders and deficiency diseases.

B- Infectious diseases:

Clinical aspects; Epidemiology; Diagnosis and differential diagnosis of bacterial, viral, rickettsial and parasitic diseases of Equines: prevention and control.

Title: Special Surgery (B)	Credit hours	
Code Number: SUR 552	Lectures	Practical
Prerequisite courses: 501	2	1 (2)

Ophthalmology; Introduction to lameness: fore limb, hind limb, hind limb, claws and hoof; Cryosurgery.

Title: Obstetrics of Farm Animals	Credit hours	
Code Number: THG 553	Lectures	Practical
Prerequisite courses: 501, 504)	2	1 (2)

Physiology and pathology of pregnancy; Normal birth; Fetal attitude; Obstetrical examination; Dystocia; Puerperium; Care of the new-born.

Title: Avian and Rabbit Diseases	Credit hours	
Code Number: POD 554	Lectures	Practical
Prerequisite courses: (306, 352, 354, 355, 506)	4	2 (6)

General lines for diseases' prevention and control. Avian & rabbit diseases caused by viral, bacterial and mycotic agents. Parasitic diseases of poultry & rabbits. Nutritional deficiency diseases. Diseases of birds other than domestic poultry.

Title: Meat Hygiene & Control	Credit hours	
Code Number: FOH 555	Lectures	Practical
Prerequisite courses: (306, 352, 355, 401)	2	1 (2)

Introduction to slaughtering; Preslaughter handling and methods of slaughter. Antemortem and postmortem inspection and stamping. Meat quality parameters; Efficiency of bleeding. Physiological conditions and abnormal conditions due to bacterial, viral and parasitic diseases. Microbiology of meat; Tests for freshness; Bacteriological examinations; Antibiotic residues. Emergency slaughtering. Meat borne diseases.

Food serving establishment hygiene and control.

Residues: antibiotics, hormones, pesticides, mycotoxins, heavy metals; Methods of detection.

Title: Forensic Medicine and Vet. Regulations	Credit hours	
Code Number: TFV 556	Lectures	Practical
Prerequisite courses: 401, 403, 455)	1	1 (2)

Forensic Medicine: Introduction; Signs of death and subsequent phenomena; Sudden death from natural causes; Medico-legal reports and certificates; Identification of injuries by mechanical violence; Bullet wounds; Examination of blood and seminal stains. Injuries from burns and electric current. Identification of meat from medico-legal point of view.

Title: Theriogenology of Pet Animals	Credit hours	
Code Number: THG 557	Lectures	Practical
Prerequisite courses: (455, 504)	2	1 (2)

Obstetrics: Physiology of Pregnancy; Normal birth; Normal puerperium; Dystocia; Pathology of puerperium.

Gynaecology: Female reproduction; Anatomy and physiology of the genital system; Reproductive endocrinology; Estrous cycle; Infertility.

Andrology and A.I.: Functional anatomy of the male genital system; Semen collection; Evaluation; Processing and insemination technique; Andrological problems.

Title: Poultry & Fish Meat Hygiene & Control	Credit hours	
Code Number: FOH 558	Lectures	Practical
Prerequisite courses: (555)	2	1 (2)

Fish and shell fish; Rigor mortis; Fish food poisoning; Chem. composition; Different types of fishes; Examination for freshness. Poultry; technical aspects of slaughter plant, ante and post mortum inspection, carcass judgement. Animal by products; Rendering, utilization, impact on public health.

Title: Zoonoses	Credit hours	
Code Number: ZON 601	Lectures	Practical
Prerequisite courses: (451, 506, 555)	3	1 (2)

Classification; Technical meanings; Epidemiology and ecology of bacterial, viral, rickettsial, mycotic and parasitic zoonoses.

Title: Meat Technology and Preservation	Credit hours	
Code Number: FOH 602	Lectures	Practical
Prerequisite courses: (555)	1	1 (2)

Technology of meat: chemical composition, chemical structure of meat, technological properties, meat protein, non-meat ingredients, reduction of size of meat particles, equipment, emulsion type products, ground type products.

Examination for quality of meat products: minced meat, luncheon, hamburger, canned meat, basterma.

Poultry and Fish Products.

Preservation principles: bacterial methods (physical), high temperature and radiation, bacteriostatic methods (physical and chemical), chilling, freezing, drying, salting, pickling and smoking.

Title: Dairy Technology and Preservation	Credit hours	
Code Number: FOH 603	Lectures	Practical
Prerequisite courses: (451)	1	1 (2)

Dairy technology & preservation of cream, butter & ghee, cheese, fermented milk, concentrated milk, milk powder, infant's food and ice-cream.

