

VETERINARY MEDICINE

Course Structure

COURSE NO.	COURSE TITLE	CREDITS	SEM
VMD 601	RUMINANT MEDICINE - I	3+0	I
VMD 602	RUMINANT MEDICINE - II	3+0	II
VMD 603	EQUINE MEDICINE	2+0	I
VMD 604	CANINE AND FELINE MEDICINE	2+0	II
VMD 605	AVIAN MEDICINE	2+1	II
VMD 606	DISEASES OF ANIMAL SPECIES OF REGIONAL IMPORTANCE	1+0	I
VMD 607	SWINE MEDICINE	1+0	I
VMD 608	METABOLIC DISEASES	2+0	I
VMD 609	DISEASES OF ANIMALS CAUSED BY TOXICANTS	1+0	II
VMD 610	VETERINARY FORENSIC MEDICINE	1+1	II
VMD 611	CLINICAL DIAGNOSTIC TECHNIQUES	0+2	I
VMD 612	CLINICAL PRACTICE - I	0+3	I
VMD 613	CLINICAL PRACTICE - II	0+3	II
VMD 691	MASTER'S SEMINAR	1	I, II
VMD 699	MASTER'S RESEARCH	20	I, II
VMD 701	ADVANCES IN GASTROENTROLOGY	2+0	I
VMD 702	ADVANCES IN CARDIOPULMONARY MEDICINE	2+0	II
VMD 703	ADVANCES IN NEUROLOGICAL AND UROLOGICAL DISORDERS	2+0	II
VMD 704	ADVANCES IN ENDOCRINE AND DERMATOLOGICAL DISORDERS	2+0	II
VMD 705	ADVANCES IN METABOLIC DISEASES	1+2	I
VMD 706	ADVANCES IN INFECTIOUS DISEASES OF RUMINANTS	1+2	II
VMD 707	ADVANCES IN INFECTIOUS DISEASES OF EQUINES	1+2	I
VMD 708	ADVANCES IN INFECTIOUS DISEASES OF PET ANIMALS	1+2	II
VMD 709	ADVANCES IN DISEASES OF POULTRY	1+2	I
VMD 710	ADVANCES IN VETERINARY DIAGNOSTICS	1+2	II
VMD 711	ADVANCES IN VETERINARY THERAPEUTICS	1+2	I
VMD 712	ADVANCED CLINICAL PRACTICE I	0+2	I
VMD 713	ADVANCED CLINICAL PRACTICE II	0+2	II
VMD 714	ADVANCED CLINICAL PRACTICE III	0+2	I
VMD 790	SPECIAL PROBLEM	0+2	I, II
VMD 791	DOCTORAL SEMINAR I	1	I, II
VMD 792	DOCTORAL SEMINAR II	1	I, II
VMD 799	DOCTORAL RESEARCH	45	I, II

VETERINARY MEDICINE

Course Contents

VMD 601	RUMINANT MEDICINE - I	3+0	SEM - I
Objective	Study of diseases of various body systems, bacterial and viral diseases of bovine, sheep and goats.		
Theory	<u>UNIT-I:</u> General systemic states. Diseases of alimentary system, liver and urinary system. <u>UNIT-II:</u> Diseases of respiratory, nervous, cardiovascular, blood and blood forming organs, musculoskeletal system and skin. <u>UNIT-III:</u> Mastitis, joint ill, ulcerative lymphangitis, anthrax, clostridial infections, black quarter, bacillary haemoglobinuria, botulism, colibacillosis, pasteurellosis, listeriosis, tuberculosis, John's disease, braxy, entero-toxaemia, brucellosis, salmonellosis, leptospirosis, actinomycosis, actinobacillosis. <u>UNIT-IV:</u> Foot and mouth disease, mucosal disease complex, PPR, malignant head catarrh, infectious bovine rhinotracheitis, rabies, scrapie, louping ill, blue tongue, pox diseases, rinderpest and ephemeral fever.		
Suggested Readings	Chakrabarti A. 1998. <i>Text Book of Clinical Veterinary Medicine</i> . Kalyani. Radostits OM, Gay CC, Blood DC & Hinchcliff KW. 2008. <i>Veterinary Medicine</i> . 10 th Ed. WB Saunders.		
VMD 602	RUMINANT MEDICINE - II	3+0	SEM - II
Objective	Study of parasitic and fungal diseases of bovine, sheep and goats.		
Theory	<u>UNIT-I:</u> Ringworm, cutaneous sporotrichosis, aspergillosis, coccidiomycosis, rhinosporidiosis, mucormycosis, histoplasmosis, candidiasis, blastomycosis. <u>UNIT-II:</u> Bovine tropical theileriosis, babesiosis, anaplasmosis, trypanosomiasis, toxoplasmosis, coccidiosis. <u>UNIT-III:</u> Sarcocystosis, fascioliosis, amphistomiasis, gastro-intestinal nematodiosis, schistosomiasis, verminous bronchitis, echino-coccosis, coenurosis, tape worm infestations.		
Suggested Readings	Chakrabarti A. 1998. <i>Text Book of Clinical Veterinary Medicine</i> . Kalyani Publ. Radostits OM, Gay CC, Blood DC & Hinchcliff KW. 2008. <i>Veterinary Medicine</i> . 10 th Ed. WB Saunders.		
VMD 603	EQUINE MEDICINE	2+0	SEM - I
Objective	Study of etiology, epidemiology, pathogenesis, symptomatology, diagnosis, treatment and prevention of diseases of equines.		
Theory	<u>UNIT-I:</u> General systemic states and diseases of various body systems (alimentary, urinary, respiratory, nervous, cardiovascular, blood and blood forming organs, musculoskeletal and integumentary). <u>UNIT-II:</u> Anthrax, tetanus, botulism, strangles, glanders, malignant edema, actinomycosis, clostridial infections, African horse sickness, infectious equine anaemia, equine influenza, equine encephalomyelitis, equine viral rhinopneumonitis, equine viral arteritis, ulcerative lymphangitis. <i>Rhodococcus equi</i> pneumonia. <u>UNIT-III:</u> Trypanosomiasis/ dourine, babesiosis, parasitic pneumonia, cutaneous eczema, cutaneous acne, cutaneous pustular dermatitis, candidiasis, histoplasmosis, coccidiomycosis, dermatophytosis.		
Suggested Readings	Wintzer H. 1986. <i>Equine Diseases</i> . Verlag Paul Parey. Radostits OM, Gay CC, Blood DC & Hinchcliff KW. 2008. <i>Veterinary Medicine</i> . 10 th Ed. WB Saunders.		

VMD 604 **CANINE AND FELINE MEDICINE** **2+0** **SEM - II**

Objective

Study of etiology, epidemiology, pathogenesis, symptomatology, diagnosis and treatment of diseases of dogs and cats.

Theory

UNIT-I: General systemic states, hypothyroidism, diabetes mellitus, diabetes insipidus, rickets.

UNIT-II: Bacterial diseases: leptospirosis, tetanus, botulism. Viral diseases: canine distemper, infectious canine hepatitis, parvovirus infection, rabies, corona virus infection.

UNIT-III: Parasitic diseases: toxoplasmosis, neosporosis, sarcoptic mange, demodectic mange, hookworm and toxocara canis infections, leishmaniasis, canine babesiosis, ehrlichiosis, hepatozoonosis.

UNIT-IV: Feline diseases: feline pan-leucopaenia, feline infectious peritonitis, feline herpesvirus, feline spongiform encephalopathy, feline calci and feline immuno-deficiency viral diseases.

Suggested Readings

Dunn JK. 1999. *Textbook of Small Animal Medicine*. WB Saunders.

Ettinger SJ & Feldman EC. 2000. *Text Book of Veterinary Internal Medicine*. Vols. I, II. Saunders.

Gorman NT. 1998. *Canine Medicine and Therapeutics*. Blackwell.

Tilley LP & Smith FWK Jr. 2004. *The 5-minute Veterinary Consult (Canine and Feline)*. 3rd Ed. Lippincot, Williams & Wilkins.

VMD 605 **AVIAN MEDICINE** **2+1** **SEM - II**

Objective

Study of etiology, epidemiology, pathogenesis, symptomatology, diagnosis and treatment of diseases of avian species.

Theory

UNIT-I: Diseases due to deficiency of vitamins (vitamins A, B complex, C, D,E and K); minerals (calcium, phosphorus, manganese, zinc) and sodium chloride; miscellaneous diseases/conditions/ vices.

UNIT-II: Bacterial diseases: *Escherichia coli* and salmonella infections, coryza, fowl cholera, gangrenous dermatitis, mycoplasmosis, CRD.

UNIT-III: Viral diseases: Newcastle disease, infectious bursal disease, Marek's disease, infectious bronchitis, inclusion body hepatitis, hydro-pericardium syndrome, avian pox, infectious laryngo-tracheitis, avian influenza, lymphoid leucosis, avian encephalomyelitis, infectious bronchitis.

UNIT-IV: Fungal and parasitic diseases: aspergillosis, candidosis, favus, mycotoxicosis, coccidiosis, roundworm and tape worm infestations, vaccination schedule etc.

Practical

Post-mortem examination of poultry birds, collection of clinical material for laboratory diagnosis.

Suggested Readings

Calnek BW, Barnes HA, Beard CW, Reid WM & Yoder HW Jr. 1999. *Diseases of Poultry*. 10th Ed. Iowa State Univ. Press.

Jordan ETW and Pattison, M. 1996. *Poultry Diseases*. WB Saunders.

Leeson S, Diaz G & Summers JD. 2001. *Poultry Metabolic Disorders and Mycotoxins*. IBDC Publ.

VMD 606 **DISEASES OF ANIMAL SPECIES OF REGIONAL IMPORTANCE (CAMEL)** **1+0** **SEM - I**

Objective

Study of diseases of important regional animal species (camel).

Theory

The animal species, to be studied/ taught is to be decided by the individual institution. For Veterinary College at CCS HAU Hisar, camel diseases will be covered.

UNIT-I: General systemic states, nutritional deficiency disorders.

UNIT-II: Specific diseases (malli, kapali, jhooling, peritonitis, specific peritonitis, satyriasis, kumri, allotriophagia, tibersa and other common infectious diseases.

Suggested Readings

- Gahlot TK. 2000. *Selected Topics on Camelids*. The Camelid Publishing House, Bikaner.
Kohler I, Rollfeson E & Evelyn M. 2001. *Field Manual of Camel Diseases: Traditional and Modern Health Care of Dromedary*. Germany.
Wernery U & Kaden M. 2002. *Infectious Diseases of Camelids*. Blackwell.

VMD 607	SWINE MEDICINE	1+0	SEM - I
Objective	Study of etiology, epidemiology, pathogenesis, symptomatology, diagnosis and treatment of diseases of swine.		
Theory	<u>UNIT-I</u> : General systemic states, swine influenza, hog cholera, African swine fever, swine pox, vesicular exanthema, vesicular stomatitis, rabies. <u>UNIT-II</u> : Porcine enteroviruses, pseudorabies, listeriosis, leptospirosis, brucellosis, anthrax, salmonellosis, swine erysipelas, pasteurellosis, tuberculosis mange etc.		
Suggested Readings	Radostits OM, Gay CC, Blood DC & Hinchcliff KW. 2008. <i>Veterinary Medicine</i> : 10 th Ed. WB Saunders. Howard W Dunne & Allen D Leman (Eds.). 1978. <i>Diseases of Swine</i> . Iowa State Univ. Press.		
VMD 608	METABOLIC DISEASES	2+0	SEM - I
Objective	Study of metabolic, production and deficiency diseases of domestic animals.		
Theory	<u>UNIT-I</u> : General aspects, production diseases (parturient paresis, downer cow syndrome, ketosis, post-parturient haemoglobinuria, hypomagnesemic tetany, pregnancy toxaemia). <u>UNIT-II</u> : Lactation tetany of mares, eclampsia of bitches, osteodystrophia fibrosa, azoturia of equines, rheumatism-like syndrome in buffaloes, hypothyroidism, diabetes mellitus and diabetes insipidus in dogs. <u>UNIT-III</u> : Deficiency diseases (calcium, phosphorus, vitamin-D ₃ , vit-A, vit B-complex, vit-C and vit-K). <u>UNIT-IV</u> : Deficiency diseases (iron, copper, cobalt, zinc, manganese, iodine, vitamin E and selenium).		
Suggested Readings	Dunn JK. 1999. <i>Text Book of Small Animal Medicine</i> . WB Saunders. Radostits OM, Gay CC, Blood DC & Hinchcliff KW. 2008. <i>Veterinary Medicine</i> . 10 th Ed. WB Saunders.		
VMD 609	DISEASES OF ANIMALS CAUSED BY TOXICANTS	1+0	SEM - II
Objective	Study of diseases caused by various toxicants in domestic animals.		
Theory	<u>UNIT-I</u> : Diseases caused by physical agents and poisoning of organic and inorganic compounds. farm chemicals and phytotoxins. <u>UNIT-II</u> : Diseases caused by mycotoxins and zootoxins, poisonous plants, snake and insect bites.		
Suggested Readings	Kahn Cynthia M. (Ed.). 2005. <i>The Merck Veterinary Manual</i> . Merck & Co. Radostits OM, Gay CC, Blood DC & Hinchcliff KW. 2008. <i>Veterinary Medicine</i> . 10 th Ed. WB Saunders.		
VMD 610	VETERINARY FORENSIC MEDICINE	1+1	SEM - II
Objective	To familiarize students with various aspects of Veterinary Forensic Medicine.		
Theory	<u>UNIT-I</u> : Veterolegal aspects of ante mortem and post mortem examination. <u>UNIT-II</u> : Examination of wounds, blood, offenses, frauds in animals and their products, animal cruelty and welfare.		

UNIT-III: Study of common laws related to veterolegal aspects.

Practical

Ante- mortem and post- mortem examination, examination of wounds, blood, offenses, frauds in animals and their products, collection, dispatch and examination of veterolegal samples.

Suggested Readings

Sharma SN, Gahlot AK, Tanwer RK. 2003. *Veterinary Jurisprudence*. NBS Publishers, Bikaner.

VMD 611 CLINICAL DIAGNOSTIC TECHNIQUES 0+2 SEM - I

Objective

Study the diagnostic protocols and procedures for various diseases of farm and companion animals.

Practical

UNIT-I: Clinical tests and their interpretation related to diseases of alimentary tract, liver, cardio vascular system, blood and blood-forming organs of various species of animals.

UNIT-II: Clinical tests and their interpretation related to respiratory, urinary, nervous, endocrine, musculoskeletal and integumentary systems of various species of animals.

Suggested Readings

Kelly WR. 1984. *Veterinary Clinical Diagnosis*. Balliere Tindall, London.
Kaneko JJ, Harvey JW & Bruss ML. 2008. *Clinical Biochemistry of Domestic Animals*. 6th Ed. Academic Press, Amsterdam.

VMD 612 CLINICAL PRACTICE - I 0+3 SEM - I

Objective

Application of the theoretical concepts in practice.

Practical

Diagnostic and therapeutic protocol application, specimen collection, examination and management of diseased farm and companion animals.

Note: This course will be conducted in TVCC (College Clinics), where students shall participate in diagnosis and treatment of diseased animals.

VMD 613 CLINICAL PRACTICE – II 0+3 SEM - II

Objective

Application of the theoretical concepts in practice.

Practical

Diagnostic and therapeutic protocol application, specimen collection, examination and management of diseased farm and companion animals.

Note: This course will be conducted in TVCC (College Clinics), where students shall participate in diagnosis and treatment of diseased animals.

VMD 701 ADVANCES IN GASTROENTEROLOGY 2+0 SEM - I

Objective

Study of contemporary advances in gastroenterology.

Theory

UNIT-I: Advances in diagnosis, therapy and control of diseases of gastrointestinal system and associated organs of farm animals.

UNIT-II: Advances in diagnosis, therapy and control of diseases of gastrointestinal system and associated organs of companion animals.

Suggested Readings

Selected articles from journals.

VMD 702 ADVANCES IN CARDIO-PULMONARY 2+0 SEM - II
MEDICINE

Objective

Study of recent advances in the field of cardiopulmonary medicine.

Theory

UNIT-I: Advances in diagnosis and therapeutic management of diseases of circulatory system.

UNIT-II: Advances in diagnosis and therapeutic management of diseases of respiratory system.

UNIT-III: Advances in diagnosis and therapeutic management of diseases of blood and blood forming organs in animals.

Suggested Readings

Selected articles from journals.

VMD 703 ADVANCES IN NEUROLOGICAL AND 2+0 SEM - II
UROLOGICAL DISORDERS

Objective

Study of recent advances in the field of neurological and urological disorders.

Theory

UNIT-I: Advances in diagnosis, therapy and prevention of diseases of nervous and locomotor systems.

UNIT-II: Advances in diagnosis, therapy and prevention of diseases of urinary system.

Suggested Readings

Selected articles from journals.

VMD 704 ADVANCES IN ENDOCRINE AND 2+0 SEM - II
DERMATOLOGICAL DISORDERS

Objective

Study of recent advances in endocrine and dermatological disorders.

Theory

UNIT-I: Advances in diagnosis, therapy and prevention of diseases of integumentary system.

UNIT-II: Advances in diagnosis, therapy and prevention of diseases of endocrine system.

Suggested Readings

Selected articles from journals.

VMD 705 ADVANCES IN METABOLIC DISEASES 1+2 SEM - I

Objective

Study of recent advances and research methodology related to metabolic diseases of domestic/companion animals.

Theory

UNIT-I: Metabolic/production diseases of farm and companion animals.

UNIT-II: Nutritional deficiency diseases of farm and companion animals.

Practical

Short term assignment with some research component pertaining to metabolic/production/nutritional deficiency diseases of domestic and companion animals.

Suggested Readings

Selected articles from journals.

VMD 706 ADVANCES IN INFECTIOUS DISEASES 1+2 Sem II
OF RUMINANTS

Objective

Study of recent advances and research methodology related to infectious diseases of ruminants.

Theory

UNIT-I: Bacterial and viral diseases of bovines, sheep and goats.

UNIT-II: Fungal, parasitic and rickettsial diseases of bovines, sheep and goats.

Practical

Short term assignment with some research component pertaining to ruminant infectious diseases.

Suggested Readings

Selected articles from journals.

VMD 707	ADVANCES IN INFECTIOUS DISEASES OF EQUINES	1+2	SEM - I
	Objective		
	Study of recent advances and research methodology related to infectious diseases of equines and canines.		
	Theory		
	<u>UNIT-I:</u> Bacterial, viral and rickettsial diseases of equines.		
	<u>UNIT-II:</u> Fungal and parasitic diseases of equines.		
	Practical		
	Short term assignment with some research component pertaining to infectious diseases of equines.		
	Suggested Readings		
	Selected articles from journals.		
VMD 708	ADVANCES IN INFECTIOUS DISEASES OF PET ANIMALS	1+2	SEM - II
	Objective		
	Study of recent advances and research methodology related to infectious diseases of pet animals.		
	Theory		
	<u>UNIT-I:</u> Bacterial, viral and rickettsial diseases of pet animals.		
	<u>UNIT-II:</u> Fungal and parasitic diseases of pet animals.		
	Practical		
	Short term assignment with some research component pertaining to infectious diseases of pet animals.		
	Suggested Readings		
	Selected articles from journals.		
VMD 709	ADVANCES IN DISEASES OF POULTRY	1+2	SEM - I
	Objectives		
	Study of recent advances and research methodology related to diseases of poultry.		
	Theory		
	<u>UNIT-I:</u> Bacterial and viral diseases of poultry.		
	<u>UNIT-II:</u> Fungal, parasitic and miscellaneous diseases of poultry.		
	Practical		
	Short term assignment with some research component pertaining to diseases of poultry.		
	Suggested Readings		
	Selected articles from journals.		
VMD 710	ADVANCES IN VETERINARY DIAGNOSTICS	1+2	SEM - II
	Objective		
	Study of recent advances in diagnostics of animal diseases.		
	Theory		
	<u>UNIT-I:</u> Blood and serum biochemical and hematological analyses.		
	<u>UNIT-II:</u> Imaging techniques for the diagnosis of animal diseases (x-ray, contrast radiography, CAT scan, MRI, scintigraphy, echocardiography etc).		
	<u>UNIT-III:</u> Electrocardiography, ophthalmoscopy, ultrasonography, EEG, CVP, GFR assessment, pulse-oxymetry etc.		
	Practical		
	Assignments on advanced diagnostic techniques for various diseases of domestic animals. Use of above mentioned advanced diagnostic techniques where ever possible. Collection of CSF, Gastric / rumen /intestinal fluid, absorption and digestion tests, hematological interpretations, enzyme and other biochemical profiles.		
	Suggested Readings		
	Selected articles from journals.		

VMD 711	ADVANCES IN VETERINARY THERAPEUTICS	1+2	SEM - I
	Objective		
	Study of recent advances in Veterinary therapeutics.		
	Theory		
	<u>UNIT-I</u> : Fluid and electrolyte imbalance and therapy.		
	<u>UNIT-II</u> : Antimicrobial, antineoplastic and hormonal therapy.		
	<u>UNIT-III</u> : Blood transfusion and emergency critical care, peritoneal dialysis/hemodialysis, gastric lavage, fluid therapy, parenteral total nutrition, nebulization, oxygen therapy, paracentesis, thoracocentesis.		
	Practical		
	Assignments on advanced therapeutic approaches in various diseases of domestic animals.		
	Suggested Readings		
	Selected articles from journals.		
VMD 712	ADVANCED CLINICAL PRACTICE - I	0+2	SEM - I
	Objective		
	Application of the theoretical concepts in practice.		
	Practical		
	Diagnostic and therapeutic protocol application, specimen collection, examination and management of diseased farm and companion animals.		
	Note: This course will be conducted in TVCC (College Clinics), where students shall participate in diagnosis and treatment of diseased animals.		
VMD 713	ADVANCED CLINICAL PRACTICE - II	0+2	SEM - II
	Objective		
	Application of the theoretical concepts in practice.		
	Practical		
	Diagnostic and therapeutic protocol application, specimen collection, examination and management of diseased farm and companion animals.		
	Note: This course will be conducted in TVCC (College Clinics), where students shall participate in diagnosis and treatment of diseased animals.		
VMD 714	ADVANCED CLINICAL PRACTICE - III	0+2	SEM - I
	Objective		
	Application of the theoretical concepts in practice.		
	Practical		
	Diagnostic and therapeutic protocol application, specimen collection, examination and management of diseased farm and companion animals.		
	Note: This courses will be conducted in TVCC (College Clinics), where students shall participate in diagnosis and treatment of diseased animals.		
VMD 790	SPECIAL PROBLEM	0+2	SEM - I, II
	Objective		
	A short-term project work on some aspect of etio-pathogenesis, diagnosis and therapy of diseases of domestic animals.		

VETERINARY MEDICINE

List of Journals

- Indian Journal of Poultry Science
- Indian Journal of Veterinary Medicine
- Indian Journal of Veterinary Research
- Indian Veterinary Journal
- Journal of American Veterinary Medical Association
- Research in Veterinary Science
- Veterinary Medicine
- Veterinary Medicine and Small Animal Clinician
- Veterinary Record
- Veterinary Research Communications

e-Resources

- www.uni-sz.bg/bjvm/bjvm.htm (Bulgarian Journal of Veterinary Medicine)
- www.jarm.com (International Journal of Applied Research in Vety. Medicine)
- www.ispub.com/ostia/index..php?xmlFilePath=journals/ijvm/front.xml (Internet Journal of Veterinary Medicine)
- Isrvma.org/journal.htm. (Israel Journal of Veterinary Medicine)
- www.medwellonline.net/java/fp.html (Journal of Animal & Veterinary Advances)
- www.jstage.jst.go.jp/browse/jes/-char/en (Journal of Equine Science)
- www.stage.jst.go.jp/browse/jpsa (Journal of Poultry science)
- www.vesci.org (Journal of Veterinary Science)
- www.sasas.co.za (South African Journal of Animal Science)
- journals.tubitak.gov.tr/veterinary/index.php (Turkish Journal of Veterinary and Animal Sciences)
- vetmed.vri.cz (Veterinary Medicine)

Suggested Broad Topics for Master's and Doctoral Research

- Clinico-therapeutic aspects of bovine mastitis
- Hepatic, respiratory and skin disorders in animals
- Metabolic/nutritional deficiency disorders in animals with emphasis on hypophosphatemia, hypocupremia and hypomagnesemia
- Clinico-therapeutic studies on various infectious diseases of domestic and pet animals