

VETERINARY PATHOLOGY

Course Structure – at a Glance

CODE	COURSE TITLE	CREDITS
VPP 601	GENERAL PATHOLOGY	2+1
VPP 602	TECHNIQUES IN PATHOLOGY	1+1
VPP 603	ANIMAL ONCOLOGY	1+1
VPP 604	CLINICAL PATHOLOGY	1+2
VPP 605	NECROPSY PROCEDURES AND INTERPRETATIONS –I	0+1
VPP 606	NECROPSY PROCEDURES AND INTERPRETATIONS –II	0+1
VPP 607	SYSTEMIC PATHOLOGY	2+1
VPP 608	PATHOLOGY OF INFECTIOUS DISEASES OF DOMESTIC ANIMALS	2+1
VPP 609	TOXICOPATHOLOGY	2+1
VPP 610	AVIAN PATHOLOGY	2+1
VPP 611	PATHOLOGY OF LABORATORY ANIMALS, FISH AND WILD ANIMALS	2+1
VPP 612	VETEROLEGAL PATHOLOGY	1+0
VPP 691	MASTER’S SEMINAR	1+0
VPP 699	MASTER’S RESEARCH	20
VPP 701	PATHOLOGY OF NUTRITIONAL AND METABOLIC DISTURBANCES	2+1
VPP 702	ADVANCES IN TOXICOPATHOLOGY	2+1
VPP 703	ADVANCES IN DIAGNOSTIC PATHOLOGY	1+2
VPP 704	ULTRASTRUCTURAL PATHOLOGY	1+1
VPP 705	IMMUNOPATHOLOGY	2+1
VPP 706	PATHOLOGY OF IMPORTANT AND EMERGING DISEASES OF PETS AND LIVESTOCK	1+1
VPP 707	ADVANCES IN AVIAN PATHOLOGY	2+1
VPP 708	PATHOLOGY OF FUNGAL DISEASES	2+1
VPP 709	MOLECULAR PATHOLOGY OF CELL INJURY	2+1
VPP 710	EXPERIMENTAL PATHOLOGY	1+1
VPP 790	SPECIAL PROBLEM	0+2
VPP 791	DOCTORAL SEMINAR I	1+0
VPP 792	DOCTORAL SEMINAR II	1+0
VPP 799	DOCTORAL RESEARCH	45

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Course Contents

VPP 601	GENERAL PATHOLOGY	2+1
Objective		
To acquaint students with different types of degenerations, cell injuries caused by different types of irritants and inflammation.		
Theory		
<u>UNIT I</u>		
Introduction and history of pathology, principles of pathology including etiology, course and termination of disease.		
<u>UNIT II</u>		
Advanced study of various degenerations, infiltrations, necrosis, endogenous and exogenous pigmentations.		
<u>UNIT III</u>		
Circulatory and growth disturbances. Reversible and irreversible cell injury.		
<u>UNIT IV</u>		
Inflammation including vascular and cellular alterations with emphasis on chemical mediators. Hypersensitivity and immune mediated mechanisms, Mechanism of healing and fever.		
Practical		
To study the gross and microscopic changes in degenerations, infiltrations, pigmentations, circulatory and growth disturbances and different types of necrosis in different tissues of domestic animals. Study of gross and histopathological features of different types of inflammation.		
Suggested Readings		
McGavin MD & Zachary JF. 2006. <i>Pathologic Basis of Veterinary Diseases</i> . 4 th Ed. Elsevier		
Vegad JL. 2007. <i>Text Book of Veterinary General Pathology</i> . 2 nd Ed. International Book Distr.		
VPP 602	TECHNIQUES IN PATHOLOGY	1+1
Objective		
To acquaint students with different techniques used frequently in Veterinary Pathology.		
Theory		
<u>UNIT I</u>		
Basic histopathological techniques, collection of tissues, fixation, processing and section cutting, staining by routine and special methods.		
<u>UNIT II</u>		
Principles of dark ground, phase contrast and fluorescent microscopy and micrometry.		
<u>UNIT III</u>		
Histochemical techniques for demonstration of fat, glycogen and fibrous connective tissue, mucopolysaccharides and common enzymes.		

Practical

Collection of tissues for histopathological, histochemical, toxic, bacterial and viral examination. Use of different fixatives for preservation of museum specimens. Application of different techniques- histopathological, cryosectioning, micrometry, routine and special staining. Demonstration of different inclusions, bacteria and fungi in tissues. Histochemical techniques to demonstrate different tissue constituents.

Suggested Readings

Culling CFA. 1969. *Handbook of Histological Techniques*. Butter Worths.
Lillie RD. 1965. *Histopathologic Techniques and Practical Histochemistry*. 3rd Ed. McGraw-Hill.

VPP 603 ANIMAL ONCOLOGY 1+1**Objective**

To acquaint students with different types of neoplasms of domestic animals, their nature, cause, pathology and diagnosis.

TheoryUNIT I

Study of different neoplasms of animals including their identification, and epidemiology.

UNIT II

Etiology, histogenesis and experimental production.

UNIT III

Tumour immunology, cell cultures, transplantation and biological behaviour.

Practical

To study the gross and microscopic changes in different types of neoplasms.

Suggested Readings

Meuten DJ. 2002. *Tumors in Domestic Animals*. 4th Ed. Blackwell.

VPP 604 CLINICAL PATHOLOGY 1+2**Objective**

To acquaint students with clinical alterations in blood, urine, CSF and other body fluids due to different diseases.

TheoryUNIT I

Study of changes in blood, urine, faeces, cerebrospinal fluid and biopsy specimens and their interpretation.

UNIT II

Exfoliative cytology, organ function tests and their interpretation.

UNIT III

Biochemical profile of blood/plasma/serum and its correlation with disease conditions in domestic animals.

Practical

Evaluation of laboratory investigations on blood, urine, faeces and biopsy specimens from natural and experimentally produced disease conditions.

Suggested Readings

Benzamin MM. 1978. *Outline of Veterinary Clinical Pathology*. 3rd Ed. Iowa State Univ. Press.
Coles EH. 1967. *Veterinary Clinical Pathology*. WB Saunders.

UNIT II

Pathogenesis, gross and microscopic pathology of diseases caused by toxic plants, organic and inorganic poisons commonly taken or administered maliciously to different species of domestic animals.

Practical

To study gross and histopathological alterations as a result of ingestion of toxic plants and extraneous poisons in domestic animals.

Suggested Readings

Jones TC, Hunt RD & King NW 1997. *Veterinary Pathology*. Blackwell Publishing.

VPP 610

AVIAN PATHOLOGY

2+1

Objective

To teach the students about the different disease conditions of poultry including pathology and diagnosis.

Theory

UNIT I

Pathology of infectious diseases of chickens, turkeys, ducks and other birds.

UNIT II

Pathology of non-infectious diseases of chickens, turkeys, ducks and other birds.

Practical

Necropsy examination of the different species of poultry; study of gross and histopathological lesions in naturally occurring and artificially produced diseases of birds.

Suggested Readings

Calnek BW. 1991. *Diseases of Poultry*. 9th Ed. Iowa State Univ. Press.
Saif YM, Barnes FJ, Glisson JR, Fadly AM, Mc Dougald LR & Swayne D. 2008. *Diseases of Poultry*. 11th Ed. Blackwell Publishing.

VPP 611

PATHOLOGY OF LABORATORY ANIMALS, FISH AND WILD ANIMALS

2+1

Objective

To teach the pathology and diagnosis of different disease conditions of laboratory animals, fish and wild animals.

Theory

UNIT I

Introduction, disease transmission and inter-phase.

UNIT II

Pathology of important infectious diseases (viz. bacterial, viral, fungal and parasitic) of fish, laboratory and wild/zoo animals.

UNIT III

Pathology of non-infectious diseases of fish, lab/ wild/zoo animals.

Practical

Post-mortem examination of wild animals including wild birds. Study of gross and microscopic lesions of important infectious and non - infectious diseases of fish and laboratory animals.

Suggested Readings

Arora BM. 1984. *Wildlife Diseases in India*. Periodical Expert Book Agency.

Practical

Gross and histopathological studies pertaining to above conditions.

Suggested Readings

Selected articles from journals.

VPP 710 EXPERIMENTAL PATHOLOGY 1+1**Objective**

To provide expertise in designing the experiments and handling of animals.

TheoryUNIT I

Need for experimentation in research, animal experimentation techniques, preparation of experimental protocols, biochemical studies, pathological examination of clinical samples.

UNIT II

Transplantation techniques, immune regulation, tissue culture, blood cell separation protocols, electrophoresis and chromatography, study of animal model and designing of experiment.

Practical

Short research problems involving contemporary issues and research techniques.

Suggested Readings

Selected articles from journals.

VPP 790 SPECIAL PROBLEM 0+2**Objective**

To provide expertise in handling practical research problem(s).

Practical

Short research problem(s) involving contemporary issues and research techniques.