

**PATHOBIOLOGY AND DIAGNOSTIC INVESTIGATION PDI**

**Department of Pathobiology and Diagnostic Investigation College of Veterinary Medicine**

**514 Veterinary Neurosciences**  
Fall. 2(2-0) R: Open to graduate-professional students in the College of Veterinary Medicine.

Introduction to the sensory, motor, and the special senses systems as they relate to domestic animals.

**518 Comparative Veterinary Gross Anatomy I**  
Fall. 4(2-6) R: Open to graduate-professional students in the College of Veterinary Medicine.

Introduction to canine anatomy through lectures and dissection.

**519 Comparative Veterinary Gross Anatomy II**

Spring. 4(2-6) R: Open to graduate-professional students in the College of Veterinary Medicine.

Introduction to comparative anatomy of all domestic animals through lectures and dissection. Clinically relevant anatomy.

**520 Veterinary Tissue Structure and Function**  
Fall. 4(3-3) R: Open to graduate-professional students in the College of Veterinary Medicine.

Microscopic anatomy and cellular physiology of vertebrate tissues. Introduction to the use of the microscope.

**521 Veterinary Organ Microanatomy**  
Spring. 2(1-3) R: Open to graduate-professional students in the College of Veterinary Medicine.

Microanatomy of organ systems and relationship of structure to function.

**551 General Pathology**  
Fall. 2(1-2) RB: Completion of year 1 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: PTH 551

Host responses to injury, including cell degeneration, necrosis, disturbances of growth and development, neoplasia, circulatory disturbances, and inflammation.

**553 Systemic Pathology**  
Spring. 4(3-2) RB: Completion of Year 1 in the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: PTH 553

Anatomic pathology of digestive, urinary, respiratory, integumentary, cardiovascular, nervous, reproductive, musculoskeletal, endocrine, and lymphatic systems.

**554 Veterinary Clinical Pathology**  
Spring. 3(2-2) RB: Completion of Year 2 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Collection and assessment of body fluids and tissue. Interpretation of test results. Pathophysiological basis for test abnormalities. Basic technical laboratory competencies.

**560 Introduction to Veterinary Cytology**  
Fall. 1(0-2) RB: Completion of year 2 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Principles of sample collection, slide preparation, fluid analysis and interpretation using clinical case material.

**561 International Veterinary Medicine**  
Fall. 1(1-0) RB: Completion of year 2 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Veterinary sciences and the needs of international countries.

**562 Introduction to Emerging and Foreign Animal Diseases**

Spring. 1(1-0) RB: Completion of year 1 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Emerging and exotic animal diseases, their recognition, diagnosis, and proper reporting.

**563 Topographic and Applied Anatomy of Live Cats and Dogs**

Spring. 1(0-2) RB: Completion of year 1 of the graduate professional program in CVM. R: Open to graduate-professional students in the College of Veterinary Medicine.

Identification of structures and landmarks of clinical significance in live cats and dogs in relation to the structures imaged using endoscopy, ultrasonography, radiology, MRI, and CT scans.

**564 Topographic and Applied Anatomy of Live Horses and Cattle**

Fall. 1(0-2) RB: Completion of year 2 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Identification of structures and landmarks of clinical significance in live horses and cattle in relation to the structures imaged using endoscopy, ultrasonography, radiology, MRI, and CT scans.

**565 Surgical Anatomy of Cats and Dogs**  
Fall. 1(0-2) RB: Completion of year 2 of the graduate professional program in the College of Veterinary Medicine.

Anatomy of the cat and dog encountered during commonly used surgical approaches.

**590 Selective Topics in Pathobiology and Diagnostic Investigation**

Fall, Spring. 1(1-0) RB: Completion of year 1 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Important field of study in Pathobiology and Diagnostic Investigation.

**610 Veterinary Gross Anatomy Dissection**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: ANTV 610

Dissection and prosection of selected regions of domestic animals.

**611 Research Problems in Veterinary Anatomy**

Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: ANTV 611

Veterinary gross anatomy, cell biology, histology, or neurobiology.

**630 Diagnostic Pathology Clerkship**

Fall, Spring. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: PTH 630

Necropsy and clinical pathology techniques and interpretation of clinical findings, post mortem findings, and diagnostic laboratory results.

**631 Necropsy Clerkship**

Summer. 3 credits. P: PDI 630 RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: PTH 631

Supervised necropsy. Interpretation and presentation of findings.

**632 Problems in Veterinary Pathology**

Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Completion of Semester 5 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: PTH 632

Supervised projects involving gross pathology, histopathology, clinical pathology, or molecular pathology.

**633 Special Problems in Veterinary Pathology**

Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Completion of Semester 5 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Supervised off-campus experience or project involving gross pathology, histopathology, ultrastructural pathology, clinical pathology, or molecular pathology. Experience may emphasize diagnostic pathology or research. Settings may include, but are not limited to other colleges of veterinary medicine, private industry, and governmental institutions.

## Pathobiology and Diagnostic Investigation—PDI

- 634 Endocrinology Clerkship**  
Spring. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: PTH 634  
Principles of endocrinology and diagnosis of endocrinology disorders. Case review and interpretation.
- 635 Special Problems in Histopathology and Cytology Clerkship**  
Summer. 3 credits. P: PDI 630 RB: Completion of Semester 5 of the professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: PTH 635  
Study of the histopathology and clinical cytology of various diseases of veterinary importance.
- 636 Aquatic Animal Medicine Clerkship**  
Spring. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. SA: PTH 636  
Clinical, laboratory, and ecological principles of disease of aquatic organisms with special emphasis on impacts and management. Critical analysis and review of selected case studies and disease control regimen.
- 637 Poultry Medicine Clerkship**  
Fall. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine R: Open to graduate-professional students in the College of Veterinary Medicine.  
Diagnosis, treatment, and prevention of viral, bacterial, parasitic, fungal, and nutritional diseases of commercial poultry. Biosecurity principles, insect and rodent control, and the proper selection and use of disinfectants. Field trips required.
- 804 Molecular and Developmental Neurobiology**  
Fall. 3(3-0) Interdepartmental with Neuroscience and Pharmacology and Toxicology and Psychology and Zoology. Administered by Neuroscience. RB: Bachelor's degree in a Biological Science or Psychology. R: Open to graduate students in Neuroscience major.  
Nervous system specific gene transcription and translation. Maturation, degeneration, plasticity, and repair in the nervous system.
- 816 Integrative Toxicology: Mechanisms, Pathology and Regulation**  
Fall of odd years. 3(3-0) Interdepartmental with Animal Science and Biochemistry and Molecular Biology and Pharmacology and Toxicology. Administered by Pharmacology and Toxicology. P: PHM 819  
Biochemical, molecular, and physiological mechanisms of toxicology. Functional and pathological responses of major organ systems to chemical insult. Mechanisms of mutagenesis, carcinogenesis, and reproductive toxicology. Concepts in risk and safety assessment.
- 830 Concepts in Molecular Biology**  
Fall, Spring. 2(2-0) Interdepartmental with Biomedical Laboratory Diagnostics. Administered by Biomedical Laboratory Diagnostics. RB: One course in biochemistry or concurrently. SA: MT 830  
Techniques and theories of molecular biology, nucleic acid synthesis and isolation, enzymatic digestion and modification, electrophoresis, hybridization, amplification, library construction, and cloning.
- 851 Advanced General Pathology**  
Fall of even years. 3(3-0) R: Approval of department. SA: PTH 851  
Fundamental concepts of cell injury, inflammation, and oncogenesis. Mechanisms of disease.
- 853 Advanced Systemic Pathology**  
Spring of odd years. 3(0-6) R: Approval of department. SA: PTH 853  
Pathological aspects of the nervous, endocrine, cardiovascular, respiratory, urinary, genital, musculoskeletal, integumentary, and special sense systems.
- 854 Advanced Clinical Pathology**  
Fall of odd years. 2(2-0) RB: Doctor of Veterinary Medicine degree. R: Approval of department. SA: PTH 854  
Hematology, including anemias, leukocyte responses and hemostasis. Evaluation of clinical chemistry, urinalysis, and endocrinology.
- 855L Advanced Clinical Pathology Laboratory**  
Fall of odd years. 1(0-2) RB: Doctor of Veterinary Medicine degree. R: Approval of department.  
Clinical pathology laboratory techniques including sample preparation and examination of blood smears and cytologic preparations.
- 858 Pathology of Avian Diseases**  
Spring of even years. 2(2-0) R: Approval of department. SA: PTH 858  
Disease and pathology affecting domestic poultry, pet birds, and wild birds.
- 859 Avian Histopathology Laboratory**  
Spring of even years. 1(0-2) R: Approval of department. SA: PTH 859  
Recognition and description of microscopic lesions of avian diseases.
- 870 Laboratory Animal Pathology**  
Summer of odd years. 2(1-2) RB: Background in histopathology, veterinary medicine, and systemic pathology R: Approval of department.  
Diseases and pathology of laboratory animal species including mice, rats, ferrets, rabbits, primates, and fish, including current use of laboratory animals for toxicological pathology in industry.
- 890 Problems in Veterinary Pathology**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department. SA: PTH 890  
Faculty supervised work on an experimental, theoretical, or applied problem in veterinary pathology.
- 891 Problems in Pathobiology**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department. SA: PTH 891  
Faculty supervised work on an experimental, theoretical, or applied problem in pathobiology and diagnostic investigation.
- 892 Pathology Seminar**  
Fall, Spring. 1(1-0) A student may earn a maximum of 3 credits in all enrollments for this course. R: Approval of department. SA: PTH 892  
Presentation and discussion of current topics in pathology by departmental graduate students, faculty, or outside speakers.
- 893 Pathology Case Discussion Seminar**  
Fall, Spring. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students or lifelong graduate students in the Department of Pathobiology and Diagnostic Investigation. Approval of department. SA: PTH 893  
Utilization of a group of theme-based veterinary cases to train pathology residents and graduate students in diagnostic pathology.
- 894 Diagnostic Histopathology of Neoplastic Diseases of Domestic Animals**  
Spring of even years. 3(2-2) R: Approval of department.  
Histologic diagnosis of neoplastic diseases of domestic animals, including prognostic criteria, grading systems, and ancillary techniques to aid in diagnosis and prognosis.
- 899 Master's Thesis Research**  
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course. R: Open to masters students in the Department of Pathobiology and Diagnostic Investigation. Approval of department. SA: PTH 899  
Master's thesis research.
- 901 Investigating the Lung**  
Fall of even years. 2(2-0) Interdepartmental with Large Animal Clinical Sciences and Physiology. Administered by Large Animal Clinical Sciences. R: Open to graduate students.  
Integrative biology of the lung. Structure and function. Molecular, cellular, and organ responses to injury.
- 999 Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Open to doctoral students in the Department of Pathobiology and Diagnostic Investigation. Approval of department. SA: PTH 999  
Doctoral dissertation research.