

PATHOLOGY

652*. Veterinary Necropsy Clerkship
 Fall, Spring, Summer. 2(-)
 P: Completion of Year 3 of the College of Veterinary Medicine. R: Year 4 College of Veterinary Medicine Veterinary Medicine none
 Supervised necropsy and interpretation of findings.

656*. Problems in Veterinary Necropsy Clerkship
 Spring. 2(-)
 P: Completion of Year 3 of The College of Veterinary Medicine. R: Year 4 College of Veterinary Medicine Veterinary Medicine none
 Problems related to necropsy and the interpretation of findings.

851*. Advanced General Pathology
 Fall. 3(3-0)
 P: Approval of Department
 Fundamental concepts of cell injury, inflammation, and oncogenesis; emphasis on mechanisms of disease

852*. Advanced General Pathology Laboratory
 Fall. 1(00-02)
 Histopathologic and ultrastructural study of general morphologic patterns of inflammation cell injury and neoplasm.

853*. Advanced Systemic Pathology
 Spring. 4(3-2)
 P: Approval of department
 Pathological aspects of the nervous, endocrine, cardiovascular, respiratory, urinary, genital, musculoskeletal, integumentary and special sense systems.

854*. Advanced Clinical Pathology
 Spring of odd-numbered years.
 3(03-00)
 P: Proir courses in hematology and clinical chemistry. Dept approval
 Veterinary hematology including anemias leukocyte responses and hemostasis. Clinical chemistry including tests to evaluate various organs.

855*. Proseminar
 Summer of odd-numbered years.
 2(02-00)
 P: Approval of Department
 Instruction in preparation, editing and review of research manuscripts and grants. Reproduction, presentation and critiquing of oral presentations. Thesis preparation. Illustrations of research data. Philosophy and methods of research.

856*. Pathotoxicology
 Summer of even-numbered years.
 3(03-00)
 P: One graduate level course in pathology or approval of instructor
 Pathologic changes in tissues of animals used in toxicologic studies. Clinical pathologic assessments. Gross, histologic and ultrastructural changes in organ systems.

857*. Correlative Diagnostic Pathology
 Fall, Spring, Summer. 3(00-06) May reenroll for a maximum of 6 credits.
 P: Approval of Department
 Diagnosis of animal diseases by necropsy, biopsy or clinical pathology; Emphasis on correlation of findings with history, laboratory data and morphologic findings; compiled and formal presentation of findings.

890*. Problems in Veterinary Pathology
 Fall, Spring, Summer. 1 to 12 credits.
 May reenroll for a maximum of 12 credits.
 P: Approval of Department
 Each student will work under the direction of a faculty member on an experimental, theoretical or applied problem in veterinary pathology

891*. Problems in Pathology
 Fall, Spring, Summer. 1 to 12 credits.
 May reenroll for a maximum of 12 credits.
 P: Approval of Department
 Each student will work under the direction of a faculty member on an experimental, theoretical or applied problem in pathology

892*. Pathology Seminar
 Fall, Spring. 1(01-00) May reenroll for a maximum of 3 credits.
 P: Approval of department
 Presentation and discussions by departmental graduate students, faculty or outside speakers on current topics in pathology

899*. Master's Thesis Research
 Fall, Spring, Summer. 1 to 10 credits.
 May reenroll for a maximum of 10 credits.
 P: Approval of Department
 Individual work on research problems for the masters degree in pathology

999*. Doctoral Dissertation Research
 Fall, Spring, Summer. 1 to 12 credits.
 May reenroll for a maximum of 99 credits.
 P: Admission to Doctoral Program in Pathology
 Individual research directed towards a dissertation for the doctoral degree in pathology.

PEDIATRICS AND HUMAN DEVELOPMENT PHD

523. Genetics for Medical Practice
 Summer. 1(1-0) Interdepartmental with the Department(s) of Biochemistry.
 R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
 Basic principles of genetics for medical students.

524. Genetics Clinic
 Fall, Spring, Summer. 1 to 4 credits.
 May reenroll for a maximum of 8 credits.
 P: PHD 523 R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
 Role of genetics in health care delivery under the direction of a faculty member.

591. Special Problems in Human Development
 Fall, Spring, Summer. 1 to 6 credits.
 May reenroll for a maximum of 12 credits.
 R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
 Work under the direction of a faculty member on an experimental, theoretical, or applied problem.

600*. Pediatric Specialty Clerkship
 P: Completion of preclinical CHM curriculum. R: Open only to graduate-professional students in College of Human Medicine.
 Multidisciplinary approach to children and their families in a health care setting. Integrated biological, behavioral, and clinical sciences in assessing and planning children's health care needs.
 QA: PHD 600

601*. Human Development and Pediatric Sub-specialties(MTC)
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits. May reenroll for a maximum of 12 credits.
 Interdisciplinary with the Department(s) of .
 P: PHD 600 R: Grad Professional Students in College of Human Medicine
 Elective experience in selected clinical, behavioral, and basic sciences related to pediatrics and human development

602*. Ambulatory Pediatrics
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits. May reenroll for a maximum of 12 credits.
 P: PHD 600. R: Open only to graduate-professional students in College of Human Medicine.
 Clinical experience in outpatient and community setting involving ongoing child health care.
 QA: PHD 600

603*. Pediatric Infectious Diseases Clerkship
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits. May reenroll for a maximum of 12 credits.
 P: PHD 600. R: Open only to graduate-professional students in College of Human Medicine.
 Combines office, clinic, and inpatient experiences in evaluation and managing pediatric patients with infectious diseases.
 QA: PHD 611

604*. Neonatology
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits. May reenroll for a maximum of 12 credits.
 P: PHD 600 R: Grad Professional Students in College of Human Medicine
 Clinical experiences involving modern neonatal techniques and care patterns for the neonate including follow up

605*. Pediatric Cardiology Clerkship
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits. May reenroll for a maximum of 12 credits.
 P: PHD 600. R: Open only to graduate-professional students in College of Human Medicine.
 Office, clinic, and hospital experience in diagnostic and therapeutic pediatric cardiology including special diagnostic procedures.

606*. Pediatric Endocrinology and Metabolism Clerkship
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits. May reenroll for a maximum of 12 credits.
 P: PHD 600. R: Open only to graduate-professional students in College of Human Medicine.
 Clinic and hospital experience in evaluating patients with endocrine and metabolic disorders.

607*. Pediatric Hematology and Oncology Clerkship
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits. May reenroll for a maximum of 12 credits.
 P: PHD 600. R: Open only to graduate-professional students in College of Human Medicine.
 Clinical experience in evaluating and managing pediatric patients with common hematologic and oncologic disorders.

PEDIATRICS AND HUMAN DEVELOPMENT

608*. **Pediatric Pulmonary Disease Clerkship**
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits. May reenroll for a maximum of 12 credits.
 P: PHD 600. R: Open only to graduate-professional students in College of Human Medicine.
 Inpatient and outpatient clinical experiences in evaluating and managing pediatric patients with pulmonary problems. Diagnostic procedures, clinically relevant physiology, current research.

PEDIATRICS PED

580*. **Health Professionals' Role in the Treatment of Substance Abuse**
 Spring. 1(01-00)
 R: Open only to graduate and graduate-professional students in the colleges of Human Medicine, Nursing, and Osteopathic Medicine or approval of department.
 Practical knowledge base for recognizing and dealing with individuals affected by substance abuse.
 QA: PED 580

590*. **Special Problems in Pediatrics**
 Fall, Spring, Summer. 1 to 8 credits.
 May reenroll for a maximum of 8 credits.
 R: Open only to graduate-professional students in the College of Osteopathic Medicine. Approval of department.
 Experimental, theoretical, or applied problems under faculty direction.
 QA: PED 590

600*. **Pediatrics Clerkship**
 Fall, Spring, Summer. 6 to 12 credits in increments of 6 credits.
 R: Open only to graduate-professional students in the colleges of Osteopathic and Human Medicine. 2 years of medical school; approval of department.
 Practical clinical exposure in the area of pediatrics.
 QA: PED 600

620*. **Directed Studies**
 Fall, Spring, Summer. 2 to 24 credits.
 May reenroll for a maximum of 48 credits.
 P: PED 600. R: Open only to graduate-professional students in the College of Osteopathic Medicine. Approval of department.
 Study in general or specialty pediatrics.
 QA: PED 620

PHARMACOLOGY AND TOXICOLOGY PHM

350*. **Introductory Human Pharmacology**
 Fall, Spring. 3(3-0)
 P: PSL 240; PSL 241 or concurrently R: Sophomores or higher
 General principles, CNS and autonomic nervous system, cardiovascular and renal drugs; chemotherapy; other selected basic pharmacology topics.
 QA: PHM 350

430*. **Drug Abuse**
 Fall of odd-numbered years. 3(3-0)
 R: Juniors and above; Lower classes-approval of Dept.
 Fundamentals of pharmacology, physiology and neuroscience for a basic understanding of the pharmacodynamics of drugs of abuse; survey of other aspects of drugs of abuse.
 QA: PHM 430

450*. **Introduction to Chemical Toxicology**
 Spring. 3(3-0)
 P: BS 210, 211 and 212; CEM 242 R: Juniors and above
 Basic concepts of mammalian toxicology, including disposition of chemicals in the body, detoxication, elimination, and mechanisms of toxicity in major organ systems. Selected toxic agents discussed.
 QA: PHM 450

480*. **special problems**
 Fall, Spring, Summer. 1 to 3 credits.
 May reenroll for a maximum of 9 credits.
 P: Approval of individual faculty member each term.
 Limited amounts of individual work on selected research problems for undergraduate students.
 QP: PHM 350 PHM 430 QA: PHM 480

554*. **Veterinary Pharmacology and Toxicology I**
 Fall. 3(3-0)
 P: Completion of Year 1 of the College of Veterinary Medicine. R: Year 2 College of Veterinary Medicine Veterinary Medicine none
 Drug absorption, distribution, biotransformation, elimination, receptor theory and pharmacogenetics; chemical toxicity; autonomic nervous system, cardiovascular and renal pharmacology.
 QA: PHM 554

555*. **Veterinary Pharmacology and Toxicology II**
 Spring. 3(3-0)
 P: Completion of Year 1 of the College of Veterinary Medicine. R: Year 2 College of Veterinary Medicine Veterinary Medicine none
 Endocrine, antacid and central nervous system pharmacology; chemotherapy; antimicrobials, anti-helminthics, antineoplastics.
 QA: PHM 555

556*. **Veterinary Pharmacology**
 Fall. 5(5-0)
 P: Admission to the College of Veterinary Medicine. R: College of Veterinary Medicine Veterinary Medicine none
 General principles of pharmacology (drug absorption, disposition, biotransformation, excretion, pharmacokinetics), pharmacologic agents of the autonomic nervous, cardiovascular, renal, central nervous, endocrine and gastrointestinal systems.

557*. **Veterinary Toxicology**
 Spring. 2(2-0)
 P: Admission to the College of Veterinary Medicine. R: College of Veterinary Medicine Veterinary Medicine none
 Principles of toxicology (determinants of toxic responses, analytical toxicology, genetic toxicology, toxin management); diagnosis, prevention, and treatment of common toxicoses.

563. **Medical Pharmacology**
 Summer. 3(3-0)
 R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
 General principles of pharmacology and selected drugs. Rational drug therapy.

594*. **Veterinary Toxicology**
 Spring. 3(3-0)
 P: Completion of Year 2 of the College of Veterinary Medicine. R: Year 3 College of Veterinary Medicine Veterinary Medicine none
 Pharmacological basis and pathological features of diseases of animals caused by common toxic chemicals with emphasis on clinical manifestations, diagnosis, prevention and treatment.

810*. **Synaptic Transmission**
 Spring of odd-numbered years. 3(03-00)
 R: Approval of Department
 Major and electrical aspects of nerve impulse transmission at synaptic and neuroeffector junctions. Influence of drugs on these processes.
 QA: PHM 810

813*. **Cardiac Pharmacology**
 Spring of even-numbered years. 3(03-00)
 P: PHM 819, PHM 820 R: Graduate Students Approval of Department
 Effects of drugs on normal physiological and biochemical processes in cardiac cells
 QA: PHM 813

814*. **Advanced principles of Toxicology**
 Spring of even-numbered years. 3(03-00)
 P: PHM 819 or equivalent
 Biochemical, molecular and physiological mechanisms of toxicology; responses of major organ systems to chemical insult; mechanisms of mutagenesis and carcinogenesis.
 QA: PHM 814

815*. **Concepts in Tumorigenesis**
 Spring of odd-numbered years. 2(02-00)
 P: BCH 451, 452 and 453 or equivalent; PSL 431 432 and 433 or equivalent;
 R: Approval of department
 Examination and discussion of literature for each topic in tumorigenesis.
 QP: PSL 433 BCH 453 QA: PHM 815

819*. **Principle of Drug-Tissue Interactions**
 Summer. 5(05-00)
 R: Graduate Students Approval of department
 Comprehensive overview of the important general principles necessary to understand the interaction of chemicals with biological systems.
 QA: PHM 819

820*. **Drug Actions, Effects and Uses**
 Fall. 5(05-00)
 P: PHM 819 R: Graduate Students Approval of Department
 Comprehensive presentation of the major principles of how the major drugs act physiologically and biochemically.
 QA: PHM 821

827*. **Advanced Neurobiology**
 Fall. 4(04-00) Interdepartmental with the Department(s) of Zoology, Physiology.
 R: Graduate students Approval of department
 Function of nervous system at cellular level: membrane biophysics and potentials, synaptic transmission.
 QA: PHM 827

839*. **Systems Neuroscience**
 Spring of odd-numbered years. 4(04-00) Interdepartmental with the Department(s) of Anatomy, Physiology.
 R: Graduate students
 Anatomy, pharmacology, and physiology of multicellular neural systems, including major sensory, motor, autonomic and chemo-regulatory systems in brain of vertebrates.
 QA: PHM 839