

**480. Supervised Study**  
*Fall, Winter, Spring, Summer. 1 to 4 credits. May re-enroll for a maximum of 10 credits. Approval of department.*  
 Seminars on current problems. Supervised readings. Individual undergraduate research on selected topics.

**484. Senior Proseminar**  
*Winter. 1(1-0) Senior majors.*  
 Seminars on current professional problems and literature.

**842. Park and Recreation Policy**  
*Winter. 3(3-0) Interdepartmental with the Resource Development Department.*  
 Recreation, leisure and work concepts. Determination of needs for recreation facilities. Factors affecting public and private allocation of resources for provision of needed facilities.

**880. Special Problems**  
*Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 10 credits. Approval of department.*  
 Seminars on current problems. Supervised readings. Independent study of selected topics.

**899. Research**  
*Fall, Winter, Spring, Summer. Variable credit. Approval of department.*

**PATHOLOGY PTH**

**College of Human Medicine  
 College of Veterinary Medicine**

**404. General Pathology**  
*Fall. 5(3-6) ANT 421; Junior Medical Technology majors, or approval of department.*

**407. Clinical Pathology**  
*Winter. 5(3-4) 404 or approval of department.*  
 Theory and technics in histopathology, hematology, blood banking, clinical microscopy and chemical pathology, including urinalysis, blood chemistry and histochemistry.

**408. Clinical Pathology**  
*Spring. 5(3-4) 404 or approval of department.*  
 Continuation of 407.

**501. Pathology of Infancy and Childhood**  
*Winter. 5(5-0) Year V Human Medicine Students.*  
 An analysis of disease processes in the immature human between birth and puberty.

**550. Pathology I**  
*Fall, Spring. 7(3-9) Human Medicine or Veterinary Medicine students, or approval of department.*  
 Principles of pathology, including causes of disease, disturbances of cell growth and metabolism, necrosis, circulatory changes, inflammation, repair and neoplasms; pathology of the hematopoietic, cardio-vascular and urinary systems; integration of principles of clinical pathology.

**560. Pathology II**  
*Winter, Summer. 7(3-9) 550.*  
 Continuation of 550, with coverage of the digestive, respiratory, genital, nervous, skeletal, muscular, and integumentary systems.

**610. Veterinary Clinical Pathology Laboratory**  
*Fall, Spring. 3(0-9) 560.*

Laboratory procedures in the diagnosis of disease; examination of body tissues and/or fluids from the living or dead animal; postmortem techniques.

**615. Diseases of Poultry**  
*Winter, Summer. 4(4-0) Eighth-term Veterinary Medicine students.*

Etiology, signs, lesions, differential diagnosis and control of infectious and noninfectious diseases of birds, with emphasis on domestic poultry.

**800. Problems in Pathology**  
*Fall, Winter, Spring, Summer. Variable credit. Approval of department.*

Elective work for students in veterinary medicine interested in pathology as a speciality, or in the special pathology of diseases of a particular class or species, and for graduate minors and majors interested in pathological techniques or in non-thesis research.

**801. Pathology Seminar**  
*Fall, Winter, Spring, Summer. 1(1-0) May re-enroll for a maximum of 3 credits for M.S. candidates and 6 credits for Ph.D. candidates. Approval of department.*  
 Seminar required of all majors in Pathology.

**802. Advanced Histopathology**  
*Fall. 5(0-15) 560 and approval of department.*

A relatively advanced and comprehensive study in the histopathologic aspects of systemic and special pathology; independent study in the field of pathogenesis and microscopic pathology.

**803. Advanced Histopathology**  
*Winter. 5(0-15) 802 and approval of department.*  
 Continuation of 802.

**804. Histopathologic Techniques**  
*Fall. 3(1-6) Approval of department.*  
 Theory and practice in preparation of tissues for examination with the light microscope; special stains and histochemical procedures included.

**805. Pathology Proseminar**  
*Fall. 2(2-0) Approval of department.*  
 Philosophy and methods of research; theses and other research reports; literature review; illustration of research data; practical assignments.

**810. Post-Mortem Diagnosis**  
*Winter, Summer. 3(0-9) May re-enroll for a maximum of 6 credits. Approval of department. Required of majors.*  
 Instruction and practice in diagnosis of animal diseases by means of necropsy and other laboratory techniques. Emphasis will be placed upon correlation and interpretation of gross and microscopic lesions and the results of other tests.

**811. Advanced Clinical Pathology**  
*Winter. 3(1-6) Approval of department.*  
 Application of standard and newer techniques and instrumentations in hematology, biochemistry, parasitology, etc., to the diagnosis of disease.

**812. Hematology**  
*Winter. 5(3-4) 408 or 610 or approval of department.*  
 Pathology of diseases of blood and an analysis of diagnostic laboratory procedures.

**820. Oncology**  
*Spring. 3(0-9) 560 and approval of department.*  
 A study of benign and malignant neoplasms with emphasis on gross and microscopic characteristics and diagnosis.

**821. Pathology of Nutritional and Metabolic Diseases**  
*Spring of odd-numbered years. 3(1-6) Approval of department.*

The pathogenesis and macroscopic and microscopic lesions of nutritional deficiencies and imbalance and of other disturbances of metabolism.

**899. Research**  
*Fall, Winter, Spring, Summer. Variable credit. Approval of department.*

**910. Biology of Disease**  
*Fall. 3(2-3) Approval of department. Primarily for students in the biological sciences.*  
 Basic morphologic changes in disease with emphasis on the related physiologic pathology. Laboratory includes relevant problems in post-mortem diagnosis.

**980. Histopathologic Diagnosis**  
*Fall, Winter, Spring, Summer. 3(0-9) May re-enroll for a maximum of 6 credits. 803, 820.*  
 Trimming, histopathologic examination, description, diagnosis and reporting of specimens from biopsy and necropsy.

**990. Advanced Correlative Pathology**  
*Fall, Winter, Spring, Summer. 5(0-15) May re-enroll for a maximum of 15 credits. Approval of department.*  
 Experience in morphologic and clinical pathology and correlation of these with the clinical aspects of disease.

**999. Research**  
*Fall, Winter, Spring, Summer. Variable credit. Approval of department.*

**PHARMACOLOGY PHM**

**College of Human Medicine  
 College of Veterinary Medicine**

**480. Special Problems**  
*Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 5 credits. Approval of department.*

**510. Principles of Pharmacology**  
*Fall, Spring. 9(6-8) Fifth-term Veterinary Medicine students or approval of department.*  
 Principles of pharmacodynamics and essentials of prescription writing.

**511. Applied Pharmacology**  
*Winter, Summer. 4(4-0) 510.*  
 Chemotherapy and toxicology.

**810. Synaptic Transmission**  
*Winter. 4(4-0) Approval of department.*  
 Chemical and electrical aspects of the transmission of nervous impulses at synaptic and neuroeffector junctions and the influences of drugs upon these processes.

**811. Organ System Pharmacology**  
*Winter of even-numbered years. 4(3-3) 510 and approval of department.*  
 Current concepts and recent advances in the areas of cardiovascular, renal and syncytial smooth muscle pharmacology.