

**PATHOLOGY** **PTH**

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

- 404. General Pathology**  
*Fall, Spring. 5(3-6) ANT 420, Junior Medical Technology majors, or approval of department.*
- 407. Clinical Pathology**  
*Winter, Summer. 3(3-0) or 5(3-4) Approval of department.*  
Theory and technics in hematology and coagulation.
- 408. Clinical Pathology**  
*Fall, Spring. 3(3-0) or 5(3-4) Approval of department.*  
Immunohematology, urinalysis, and topics in blood chemistry.
- 502. Human Pathology I**  
*Winter. 2 to 5 credits. Admission to a college of medicine or approval of department. ANT 560 for College of Osteopathic Medicine students.*  
Pathologic processes and specific disease syndromes with emphasis on clinical applications. Concepts of disease and pathologic process in selected common diseases or conditions for the beginning medical student with a limited knowledge of anatomy, physiology and biochemistry.
- 503. Human Pathology II**  
*Spring. 3(3-0) PTH 502.*  
An introductory study of neuropathology in which vocabulary and concepts of neuromuscular diseases are systematically reviewed. Self-instructional option available.
- 504. Human Pathology III**  
*Fall. 3(2-2) PTH 503 or approval of department.*  
A continuation of PTH 503. Diseases of the cardiovascular system, including stress effects, arteriosclerosis and disorders of autonomic and endocrine regulation. Laboratory sessions include the study of histologic sections.
- 505. Human Pathology IV**  
*Winter. 3(2-2) PTH 504 or approval of department.*  
A continuation of PTH 504. The systems include: lung, kidney, male genitourinary and bone and joints. In the laboratory sections, gross and microscopic changes in diseased tissues are studied and correlated with lecture material. Separate lab sessions covering pulmonary function tests, acid-base balance and urinalysis are included.
- 506. Human Pathology V**  
*Spring. 3(2-2) PTH 505 or approval of department.*  
A continuation of PTH 505. The systems include gastrointestinal tract (including liver and pancreas), female reproductive tract and breast.
- 520. Biology of Blood Diseases Laboratory**  
*Spring. 1(0-3) Enrollment in a college of medicine or a graduate program in a biological science; MED 520 concurrently.*  
Laboratory experience correlating basic science and clinical concepts of hematology.
- 550. Veterinary Pathology**  
*Spring. 5(3-4) Third-term Veterinary Medicine students or approval of department.*  
Principles of pathology, including causes of disease, disturbances of cell growth and metabolism, necrosis, circulatory changes, inflammation and neoplasia.
- 552. Veterinary Clinical Pathology**  
*Winter. 4(3-3) Fifth-term Veterinary Medicine students or approval of department.*  
Technical aspects, principles and interpretation of selected laboratory procedures in hematology, chemistry, cytology and related areas.
- 608. Pathology Clerkship**  
*Fall, Winter, Spring, Summer. 3 to 17 credits. May reenroll for a maximum of 17 credits. H M 602 or approval of department.*  
Anatomic and clinical pathology, with emphasis on clinical-pathological correlations. Conducted in the pathology departments of affiliated hospitals.
- 651. Veterinary Clinical Pathology Clerkship**  
*Fall, Winter, Spring, Summer. 4 credits. Satisfactory completion of term 8 of the professional veterinary curriculum, approval of department.*  
Concepts in laboratory interpretation and diagnosis.
- 652. Veterinary Necropsy Clerkship**  
*Fall, Winter, Spring, Summer. 4 credits. Satisfactory completion of term 8 of the professional veterinary curriculum, approval of department.*  
Supervised necropsy and interpretation of findings.
- 655. Problems in Veterinary Clinical Pathology**  
*Fall, Winter, Spring, Summer. 4 credits. PTH 651, approval of department.*  
Problems related to subspecialties such as hematology, clinical chemistry, cytology and applied immunology.
- 656. Problems in Veterinary Necropsy**  
*Fall, Winter, Spring, Summer. 4 credits. PTH 652, approval of department.*  
Problems related to necropsy and interpretation of findings.
- 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 reenroll 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(6-0) 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(6-0) PTH 802 and approval of department.*  
Continuation of PTH 802.
- 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. Postmortem Diagnosis**  
*Fall, Spring. 3(0-9) May reenroll 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 results of other tests.
- 811. Advanced Clinical Pathology**  
*Fall. 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) PTH 408 or approval of department.*  
Pathology of diseases of blood and an analysis of diagnostic laboratory procedures.
- 820. Oncology**  
*Spring. 3(6-0) Approval of department.*  
A study of benign and malignant neoplasms with emphasis on gross and microscopic characteristics and diagnosis.
- 826. Laboratory Animal Pathology**  
*Spring. 4(3-3) Graduate status and approval of department.*  
Macro and microscopic studies on the diseases of laboratory animals with special emphasis on naturally-occurring diseases which might interfere with the interpretation of experimental results.
- 899. Master's Thesis Research**  
*Fall, Winter, Spring, Summer. Variable credit. Approval of department.*
- 921. Pathology of Nutritional and Metabolic Diseases**  
*Summer of even-numbered years. 4(3-2) Approval of department; PTH 404 or ANT 420. ANS 525, BCH 452, HNF 462 recommended. Interdepartmental with Human Nutrition and Foods and the departments of Large Animal Surgery and Medicine, and Animal Husbandry. Administered by Human Nutrition and Foods.*  
Development, physiopathology and morphologic pathology of nutritional and metabolic diseases including carbohydrate, protein, fatty acid, vitamin and mineral deficiencies, their experimental induction and their medical or economic significance.
- 980. Histopathologic Diagnosis**  
*Fall, Winter, Spring, Summer. 3(0-9) May reenroll for a maximum of 6 credits. PTH 803, PTH 820.*  
Trimming, histopathologic examination, description, diagnosis and reporting of specimens from biopsy and necropsy.

## Descriptions - PATHOLOGY

of

### Courses

990. **Advanced Correlative Pathology**  
Fall, Winter, Spring, Summer. 5(0-15)  
May reenroll 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. **Doctoral Dissertation Research**  
Fall, Winter, Spring, Summer.  
Variable credit. Approval of department.

## PEDIATRICS PED

(Established effective January 1, 1979.)

### College of Osteopathic Medicine

590. **Special Problems in Pediatrics**  
Fall, Winter, Spring, Summer. 1 to 8  
credits. Approval of department.  
Each student will work under direction of a faculty member on an experimental, theoretical or applied problem.

600. **Pediatrics Clerkship**  
(O M 652.) Fall, Winter, Spring,  
Summer. 6 or 8 credits. Grade P in all courses  
offered in terms 1 through 8 or approval of  
department.  
Practical clinical exposure in the area of  
pediatrics. Program developed to achieve  
proficiency in motor skills and aptitudes;  
comprehension of concepts and principles; patient  
evaluation, diagnosis, management and therapy.

620. **Directed Studies**  
Fall, Winter, Spring, Summer. 2 to 24  
credits. PED 600 or approval of department.  
Study in general or specialty pediatrics.

## PEDIATRICS AND HUMAN DEVELOPMENT PHD

(Name changed July 1, 1979. Formerly  
Department of Human Development.)

### College of Human Medicine

520. **Genetics Clinic**  
Fall, Winter, Spring, Summer. 1 to 3  
credits. My reenroll for a maximum of 9 credits.  
Students will interview and examine patients with  
inheritable disorders, perform related laboratory  
diagnostic procedures, and participate in genetic  
counseling conferences and discussions.

531. **Medical Genetics**  
Spring. 1(1-0) ANT 544 or approval of  
department.  
Basic genetic principles and their application to  
clinical medicine, prenatal genetic diagnosis,  
exercises in genetic counseling and the  
importance of relevant laboratory tests.

532. **Phenomena of Development**  
Fall. 5(5-0) PHD 531 or approval of  
department.  
Normal psychological and physical development  
of the human including intellectual, social,  
emotional and endocrinological growth from  
infancy through adolescence. Clinical examples  
highlight deviations from the normal course of  
development.

590. **Special Problems in Human Development**  
Fall, Winter, Spring, Summer. 1 to 6  
credits. May reenroll for a maximum of 12  
credits. Human Medicine students or approval of  
department.  
Each student will work under direction of a staff  
member on an experimental, theoretical or  
applied problem.

608. **Pediatric Specialty Clerkship**  
Fall, Winter, Spring, Summer. 1 to 17  
credits. May reenroll for a maximum of 43  
credits. H M 602; primary clerkship.  
Clinical experience with pediatric patients under  
the direction of members of the faculty of the  
Department of Human Development and  
community pediatricians. Fall, Saginaw. Winter,  
Lansing. Spring, Grand Rapids. Summer, Flint.

609. **Human Development and Pediatric Sub-Specialties**  
Fall, Winter, Spring, Summer. 1 to 17  
credits. May reenroll for a maximum of 34  
credits. H M 602.  
Elected experiences in selected clinical and basic  
sciences related to pediatrics and human  
development.

610. **Ambulatory Pediatrics**  
Fall, Winter, Spring, Summer. 1 to 12  
credits. May reenroll for a maximum of 12  
credits. PHD 608.  
Clinical experience in outpatient and community  
settings involving ongoing child health care  
including chronic medical illnesses and common  
behavioral problems.

611. **Infectious Diseases**  
Fall, Winter, Spring, Summer. 1 to 12  
credits. May reenroll for a maximum of 12  
credits. PHD 608.  
Combined office or clinic and inpatient  
experience in evaluating and managing pediatric  
patients with infectious diseases.

612. **Neonatology**  
Fall, Winter, Spring, Summer. 1 to 12  
credits. May reenroll for a maximum of 12  
credits. PHD 608.  
Clinical experience involving modern neonatal  
techniques and care patterns for the sick neonate.

613. **Pediatric Cardiology**  
Fall, Winter, Spring, Summer. 1 to 12  
credits. May reenroll for a maximum of 12  
credits. PHD 608.  
Office, clinic and hospital experience in  
diagnostic and therapeutic pediatric cardiology  
including special diagnostic procedures.

614. **Pediatric Endocrinology and Metabolism**  
Fall, Winter, Spring, Summer. 1 to 12  
credits. May reenroll for a maximum of 12  
credits. PHD 608.  
Clinic and hospital experience in evaluating  
patients with endocrine and metabolic disorders.

615. **Pediatric Hematology and Oncology**  
Fall, Winter, Spring, Summer. 1 to 12  
credits. May reenroll for a maximum of 12  
credits. PHD 608.  
Clinical experience in evaluating and managing  
pediatric patients with common hematologic and  
oncologic disorders.

## PHARMACOLOGY AND TOXICOLOGY PHM

(Effective July 1, 1978. Formerly Department of  
Pharmacology)

### College of Human Medicine College of Osteopathic Medicine College of Veterinary Medicine

350. **Introductory Human Pharmacology**  
Spring. 3(3-0) PSL 432 or PSL 241 or  
concurrently; or approval of department.  
General principles; central nervous system,  
autonomic nervous system, cardiovascular and  
renal drugs; chemotherapy; and other selected  
basic topics.

430. **Drug Abuse**  
Fall of odd-numbered years. 4(4-0)  
Juniors or approval of department. Biology and  
chemistry recommended.  
Actions, mechanism of action, toxicity and uses of  
drugs of abuse. Sociological and psychological  
aspects of drug abuse and the legal aspects of the  
sale and distribution of drugs are considered.

480. **Special Problems**  
Fall, Winter, Spring, Summer. 1 to 3  
credits. May reenroll for a maximum of 9  
credits. Approval of department.  
Limited amounts of individual work on selected  
research problems for undergraduate students.

503. **Cell Biology**  
Fall. 5(5-0) Admission to the College of  
Human Medicine. Interdepartmental with the  
departments of Biochemistry, Microbiology and  
Public Health, and Physiology. Administered by  
the Department of Microbiology and Public  
Health.  
Principles of cell biology for medical students.

520A. **Principles of Pharmacology**  
Fall. 4(4-0) PSL 500B, PSL 500C.  
Drug absorption, distribution, biotransformation,  
elimination, receptor theory and  
pharmacogenetics; chemical toxicity; autonomic  
nervous system, cardiovascular and renal  
pharmacology.

520B. **Principles of Pharmacology**  
Winter. 4(4-0) PSL 500A; BCH 501.  
Drug absorption, distribution, biotransformation,  
elimination, antagonism; receptor theory and  
pharmacogenetics. Chemotherapy:  
antineoplastic, antiviral and antimicrobial agents.  
Toxicology and emergency therapies.  
Pharmacology related to the autonomic nervous  
system.

521A. **Pharmacodynamics**  
Winter. 5(4-2) PHM 520A. Primarily  
for students of Veterinary Medicine.  
Endocrine, autocoid and central nervous system  
pharmacology; chemotherapy; antimicrobials,  
anthelmintics, antineoplastics.