

- 468. Therapeutic Recreation Techniques**
(HPR 448.) Winter. 3(2-2) PRR 467.
Instructional, intervention, and interaction techniques in therapeutic recreation. Treatment planning, terminology, documentation, and leisure counseling. Field trip required.
- 470. Commercial Recreation Enterprises**
Fall. 4(4-0) EC 201; ACC 230 or approval of department.
Management methods and problems in commercial recreation enterprises with an emphasis on small business.
- 471. Recreation Products Consumption**
Winter. 4(4-0) EC 201; ACC 230 or ACC 202; or approval of department.
Recreation, economic and personality theories of consumption. Specific recreation product industry case studies.
- 480. Supervised Study**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 10 credits. Approval of department.
Seminars on current problems. Supervised readings. Individual undergraduate research on selected topics.
- 801. Dimensions of Recreation and Leisure**
Fall. 3(3-0) Approval of department.
Concepts of recreation and leisure in the United States and their implications for professional development. Extensive reading into concepts, definitions, values, educational components and historic roots of recreation and leisure.
- 840. Recreation Economics**
Spring. 4(4-0) FOR 809 or approval of instructor. Interdepartmental with the departments of Forestry and Resource Development.
Applications of economic analysis to recreation resource problems including measurement of demand and supply, valuation of recreation resources, determination of economic impact, economic decision making and policy considerations.
- 842. Park and Recreation Policy**
Winter. 3(3-0) Interdepartmental with the Department of Resource Development.
Recreation, leisure and work concepts. Determination of needs for recreation facilities. Factors affecting public and private allocation of resources for provision of needed facilities.
- 844. Recreation Research Methods**
Winter. 4(4-0) Approval of department.
Relate recreation research to broader context of social scientific investigation and to the nature and philosophy of social scientific research. Examine the theoretical and methodological approaches in recreation research.
- 846. Urban and Regional Recreation Resource Planning**
Fall. 4(4-0) Approval of department.
Evaluation and application of recreation planning techniques at urban and regional levels. Analysis of programs, policies, land areas, facilities, and populations as they pertain to leisure service delivery systems.

- 848. Recreation Resource Law**
Spring. 3(3-0)
Legal basis for public recreation. Methods of acquiring recreational resources, including contracts and condemnation procedures. Administrative problems, including zoning, liability, civil rights and law enforcement. Study of cases and statutes.
- 871. Selected Topics**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
Selected topics in recreation resource planning, administration, management, policy, and research.
- 880. Special Problems**
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 10 credits. Approval of department.
Advanced work for non-thesis projects or advanced individual study in recreation: policy, land use, planning, systems administration and management, economics, recreation forestry, commercial recreation enterprises, recreation and social problems, environmental interpretation, travel and touring, spatial analysis, leisure concepts, research.
- 899. Master's Thesis Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 999. Doctoral Dissertation Research**
Fall, Winter, Spring, Summer. Variable credit. May reenroll for a maximum of 36 credits. Approval of department.

PATHOLOGY

PTH

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

- 410. General Pathology**
Spring. 3(3-0) ANT 316; PSL 432 or concurrently. Interdepartmental with and administered by Medical Technology.
Features of lethal and sublethal cell injury and inflammation and repair process. Definition of the major causes of pathologic change with a consideration of specific associated diseases.
- 411. Basic Histopathology**
Spring. 2(1-2) ANT 420, PSL 432; M T 410 or concurrently. Interdepartmental with and administered by Medical Technology.
Microscopic examination of cell injury and death, inflammation and tissue repair. Pathologic tissue changes in diseases resulting from degenerative changes, abnormal metabolism, neoplasia, immunologic processes, infection, mechanical trauma and malnutrition.
- 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.
- 507. Human Pathology I**
Fall. 6(5-2) Admission to a college of medicine; ANT 540, ANT 543, BCH 512, PSL 500E; or approval of instructor.
General concepts of disease as manifested by response of the human body to insult or injury. Study of disease in the cardiovascular and endocrine systems. Laboratories will emphasize gross and microscopic morphology.
- 508. Human Pathology II**
Winter. 5(4-2) PTH 507.
Diseases of respiratory, gastrointestinal, urinary, and male reproductive systems, skin and bone. Laboratories will emphasize gross and microscopic study of lesions and a problem-solving approach to disorders.
- 509. Human Pathology III**
Spring. 4(3-2) PTH 508.
Diseases of nervous system, muscle, female reproductive system, and blood forming organs. Laboratory sessions will emphasize clinical pathologic techniques and problem solving exercises.
- 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.
- 525. Neuropathology Problem Solving Exercises**
Fall, Winter, Spring, Summer. 2(0-4) Medical student or approval of instructor.
Independent study of 24 neuropathology problem solving exercises, including clinical history and brain specimens.

**Descriptions — Pathology
of
Courses**

540. Introduction to Laboratory Medicine
(OST 551.) Winter. 2 credits. ANT 560, BCH 501, PTH 502.

Introduction to laboratory medicine leading to proficiency in patient evaluation and diagnosis through understanding of common pathologies and basic laboratory procedures in blood, urine and feces analysis.

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. Grade P in all courses offered in terms 1 through 8.
Anatomic and clinical pathology, with emphasis on clinical-pathological correlations. Conducted in the pathology departments of affiliated hospitals.

609. Laboratory Medicine Clerkship
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 12 credits. Grade P in all courses in terms 1 through 8.
Current laboratory procedures. Correlation of data from patients with clinical disease, to morphologic abnormalities and altered pathophysiology.

621. Histopathology Clerkship
Winter. 4 credits. Satisfactory completion of term 8 of the professional veterinary curriculum, approval of department.
Supervised instruction in the examination and interpretation of histologic lesions caused by animal diseases.

651. Veterinary Clinical Pathology Clerkship
Fall, 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.

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. 1 to 12 credits. May reenroll for a maximum of 12 credits. Approval of department.
Elective work for students in medicine interested in pathology as a specialty, or in the special pathology of diseases of a particular class or species, and for graduate students interested in pathological techniques or in nonthesis research.

801. Pathology Seminar
Fall, Winter, Spring. 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.
Presentations and discussions by departmental graduate students, faculty or outside speakers on current topics in pathology.

802. Advanced Histopathology
Fall. 4(3-3) Approval of department.
Comprehensive study of the histopathologic aspects of systemic and special pathology; review of current literature and concepts of pathogenesis, microscopic and ultrastructural pathology.

803. Advanced Histopathology
Winter. 4(3-3) Approval of department.
Continuation of PTH 802.

804. Oncology
(820.) Spring. 4(3-3) Approval of department.
Benign and malignant neoplasms with emphasis on gross and microscopic characteristics and diagnosis. Current concepts of oncogenesis and tumor therapy.

805. Pathology Proseminar
Fall. 2(2-0) Approval of department.
Instruction in preparation and presentation of seminars; philosophy and methods of research; theses and other research reports; literature review; illustration of research data; practical assignments.

808. Clinical Pathology Diagnosis
Summer. 3(0-9) Approval of department.
Diagnosis of animal diseases based on hematologic, cytologic and biochemical tests. Emphasis on the correlation of laboratory data with clinical history and physical findings.

810. Postmortem Diagnosis
Fall. 3(0-9) May reenroll for a maximum of 6 credits. Approval of department.
Diagnosis of animal diseases by means of necropsy and other laboratory techniques. Emphasis on correlation and interpretation of gross and microscopic lesions and results of other tests.

812. Advanced Human Hematology
Winter. 5(3-4) M T 407 or approval of department.
Selected topics in hematology including the pathogenesis, mechanisms and morphology of hematologic diseases in humans.

815. Histopathologic Diagnosis
(980.) Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 6 credits. PTH 802, PTH 803, PTH 804, PTH 810, approval of department.
Preparation, histopathologic examination, description, diagnosis and reporting of specimens from biopsy and necropsy.

818. Pathotoxicology
Summer of even-numbered years.
4(4-0) One graduate 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.

820. Advanced Human Hematology
Fall of odd-numbered years. 2(2-0) M T 420, M T 421 or approval of department.
Selected topics in hematology including the pathogenesis, mechanisms and morphological picture of hematologic diseases in humans.

821. Advanced Veterinary Hematology
(811.) Spring of odd-numbered years.
4(3-3) Approval of department.
Current concepts in the pathogenesis, mechanisms and morphology of hematologic diseases of animal species.

822. Advanced Clinical Biochemistry
(811.) Spring of even-numbered years.
4(3-3) Approval of department.
Selected topics in clinical biochemistry, enzymology, immunopathology and related subdisciplines that focus on current technology used in the diagnosis of disease.

826. Laboratory Animal Pathology
Winter of even-numbered years. 4(3-3) Approval of department.
Gross, histologic, ultrastructural and clinicopathologic study of diseases of laboratory animals.

840. Advanced Hemostasis
Fall of even-numbered years. 2(2-0) M.S. candidates in Clinical Laboratory Science or approval of department.
Physiology, pathophysiology and laboratory evaluation of hemostatic disorders.

899. Master's Thesis Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

990. Advanced Correlative Pathology
Fall, Spring. 5(1-15) Approval of department.
Compilation and formal presentation of the correlative findings of case material in anatomic and/or clinical pathology.

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

PEDIATRICS PED

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
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.