

**Description — Park and Recreation Resources of Courses**

**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 consideration.

**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 4 credits. May reenroll for a maximum of 10 credits. Approval of department.*  
 Independent study in recreation, leisure, recreation travel, and tourism.

**889. Applied Professional Project**  
*Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 4 credits. PRR 844, approval of department.*  
 Master's degree Plan B research paper.

**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.

**501. Introduction to Human Pathology**  
*Spring. 2(1-2) Admission to the College of Human Medicine and ANT 543; or approval of department.*  
 Pathologic processes and specific disease syndromes with emphasis on clinical applications. Concepts of disease. Pathologic processes in selected common diseases or conditions.

**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.

**507. Human Pathology I**  
*Fall. 5(4-2) PTH 501.*  
 Diseases of the cardiovascular and endocrine systems and blood forming organs. Laboratory sessions will emphasize gross and microscopic morphology and clinical pathologic techniques.

**508. Human Pathology II**  
*Winter. 4(3-2) PTH 501.*  
 Diseases of the respiratory, gastrointestinal, urinary and male reproductive systems. Laboratory sessions will emphasize gross and microscopic study of lesions and a problem solving approach to disorders.

**509. Human Pathology III**  
*Spring. 2(1-2) PTH 501.*  
 Diseases of female reproductive system, bone and skin. Laboratory sessions will emphasize gross and microscopic study of lesions.

**510. Human Pathology IV**  
*Spring. 2(2-0) PTH 501.*  
 Diseases of nervous system and muscle. Problem solving exercises will be utilized.

**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.

**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**  
*Fall. 5(3-4) Second year 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.

**590. Special Problems in Pathology**  
*Fall, Winter, Spring, Summer. 1 to 12 credits. May reenroll for a maximum of 12 credits if different topics are taken. Admission to a professional program in the College of Osteopathic Medicine or Human Medicine; approval of department.*  
 Each student will work under direction of a faculty member on an experimental, theoretical or applied problem in pathology.

**592. Special Problems in Veterinary Pathology**  
*Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 12 credits. Admission to the professional program in the College of Veterinary Medicine.*  
 Each student will work under direction of a faculty member on an experimental, theoretical or applied problem in pathology.

**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. 3 credits. Completion of 9 terms of professional program, 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. 3 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 Systemic Pathology I**

Winter of even-numbered years. 4(3-3) Approval of department.

Histopathologic aspects of the digestive, respiratory and urinary systems. Pathogenesis related to morphologic change.

**803. Advanced Systemic Pathology II**

Fall of even-numbered years. 4(3-3) Approval of department.

Histopathologic aspects of the eye and ear and of the nervous, endocrine and integumentary systems. Pathogenesis related to morphologic change.

**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.

**806. Advanced General Pathology**

Fall of odd-numbered years. 3(3-0) Approval of department.

Fundamental concepts of cell injury, inflammation and oncogenesis. Emphasis on molecular and biochemical mechanisms of pathologic processes.

**806L. Advanced General Pathology Laboratory**

Fall of odd-numbered years. 1(0-3) Approval of department, PTH 806 concurrently.

Histopathologic and ultrastructural study of morphologic patterns in inflammation, cell injury and neoplasia.

**807. Advanced Systemic Pathology III**

Winter of odd-numbered years. 4(3-3) Approval of department.

Histopathologic aspects of the cardiovascular, hemolymphatic, musculoskeletal and reproductive systems. Pathogenesis related to morphologic change.

**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. Interdepartmental with and administered by Medical Technology Program.

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. Interdepartmental with and administered by Medical Technology Program.

Physiology, pathophysiology and laboratory evaluation of hemostatic disorders.

**899. Master's Thesis Research**

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**901. Investigating the Lung**

Fall of even-numbered years. 3(3-0) Approval of department. Interdepartmental with the departments of Large Animal Clinical Sciences, and Physiology. Administered by the Department of Large Animal Clinical Sciences.

Classic and current concepts of respiratory structure and function in health and disease and mechanisms of lung injury.

**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. 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. May reenroll for a maximum of 48 credits. PED 600 or approval of department.

Study in general or specialty pediatrics.