

**493 Professional Internship in Park, Recreation and Tourism Resources**  
Fall, Spring, Summer. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: (PRR 393 and PRR 293) R: Open only seniors in the Department of Park, Recreation and Tourism Resources. Approval of department; application required. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, AEE 493, ANR 493, ANS 493, CSS 493, FIM 493, FW 493, HRT 493, PKG 493, PRM 493, PRR 493, and RD 493.

Supervised professional experiences in agencies and businesses related to park, recreation and tourism resources.

**815 Park and Recreation Program Services**  
Fall. 3(3-0)

Concepts, theories, and philosophies of leisure and recreation. Role and function of delivery systems in communities. Management of the program-planning process and provision of recreation services to diverse groups.

**829 The Economics of Environmental Resources**

Fall. 3(3-0) Interdepartmental with Agricultural Economics; Economics; Forestry; Resource Development. Administered by Department of Agricultural Economics.

Economic principles related to environmental conflicts and public policy alternatives. Applications to water quality, land use, conservation, development, and global environmental issues.

**840 Recreation and Tourism Economics**  
Fall. 3(3-0)

Economic concepts in public and private sector recreation and tourism decisions. Non-market valuation techniques. Regional economic impact. Demand and supply. Forecasting consumption trends. Financial and benefit cost analysis.

**841 Park and Recreation Administration and Policy**  
Fall. 3(3-0)

Administration and management of park and recreation services in urban and rural environments. Policy development and evaluation. Planning, financing, staffing, operating and evaluating organizational structures.

**842 Parks and Protected Areas Policy and Management**

Spring of even years. 3(3-0)

History of policies related to parks and protected areas. Current state and federal policies and agencies. Interaction between policy and management. Current US and international issues and applications.

**844 Research Methods in Recreation, Parks, and Tourism**  
Spring. 3(3-0)

Recreation research needs, techniques, assessment and application. Management problems and decision making.

**848 The Law and Leisure Services**  
Spring. 3(3-0)

Risk control. Legal audits. Human rights mandates. Legal information systems. Contracts and participant forms. Intentional tort and negligence concepts. Personnel legal processes.

**870 Park, Recreation and Natural Resources Marketing**  
Fall. 3(3-0) R: Open only to graduate students in the Department of Park, Recreation and Tourism Resources or Department of Resource Development or Department of Forestry or Department of Fisheries and Wildlife.

Integration of marketing concepts and methods into agency planning and decision making.

**874 Leisure, Travel and Tourism**  
Fall. 3(3-0)

Modern concepts of leisure, travel, and tourism. Historical antecedents and current concepts of leisure, travel, and tourism.

**879 Case Studies in Park and Recreation Resources**  
Spring. 3(3-0)

Integrated approach to policy, planning, and management problems.

**890 Independent Study**

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 7 credits in all enrollments for this course.

Supervised individual study in an area of parks, recreation, leisure, or tourism.

**891 Selected Topics**

Fall, Spring, Summer. 3 to 6 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

Selected topics in park and recreation resources of current interest and importance.

**892 Park and Recreation Resources Seminar**

Fall, Spring. 1 to 2 credits. A student may earn a maximum of 2 credits in all enrollments for this course.

Current policy issues, problems and research in parks, recreation and tourism.

**899 Master's Thesis Research**

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to master's students in the Park, Recreation and Tourism Resources major. Approval of department.

Master's thesis research.

**923 Advanced Environmental and Resource Economics**

Spring of even years. 3(3-0) Interdepartmental with Agricultural Economics; Economics; Forestry; Resource Development. Administered by Department of Agricultural Economics. P:NM: (AEC 829 and EC 805)

Advanced economic theory of environmental management and policy. Treatment of externalities and market and non-market approaches to environmental improvement. Topics in conservation and sustainable economic growth. Applications to research and policy.

**925 Environmental and Resource Economics Research**

Spring of odd years. 3(3-0) Interdepartmental with Agricultural Economics; Forestry; Resource Development; Economics. Administered by Department of Agricultural Economics. P:NM: (AEC 829 and EC 805) SA: AEC 991H

Topics such as contingent or non-market valuation, institutional analysis, pollution prevention, environmental quality and location, recreational demand modeling, and environmental risk management. Research process in environmental and resource economics.

**944 Advanced Research Methods**  
Summer. 3(3-0) P:NM: (PRR 844)

Applications of advanced and specialized research methods to problems in recreation and tourism. Measurement, sampling, and research design.

**999 Doctoral Dissertation Research**

Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to Ph.D. students in Park and Recreation Resources.

Doctoral dissertation research.

## PATHOBIOLOGY AND DIAGNOSTIC INVESTIGATION PTH

### Department of Pathobiology and Diagnostic Investigation College of Veterinary Medicine

**525 Neuropathology Problem Solving Exercises**

Fall, Spring, Summer. 2(0-4) R: Open only to graduate-professional students in College of Human Medicine or Osteopathic Medicine.

Independent study of 24 neuropathology problem solving exercises.

**542 Basic Principles of Pathology**

Spring. 2 credits. R: Graduate-professional students in colleges of Human and Osteopathic Medicine.

Fundamental pathologic processes; clinical applications.

**551 General Pathology**

Spring. 3(2-2) R: Completion of Semester 1 of the graduate professional program in the College of Veterinary Medicine.

Host responses to injury, including cell degeneration, necrosis, disturbances of growth and development, neoplasia, circulatory disturbances and inflammation.

**553 Clinical and Systemic Pathology**

Fall. 5(4-2) R: Completion of Semester 2 of the graduate professional program in the College of Veterinary Medicine.

Hematology. Pathology of hematopoietic, lymphatic, digestive, urinary, respiratory, integumentary, cardiovascular, nervous, reproductive, musculoskeletal, endocrine, ocular, and otic systems.

## Pathobiology and Diagnostic Investigation—PTH

- 608 Pathology Clerkship**  
Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Open only to graduate-professional students in College of Human Medicine or Osteopathic Medicine.  
Anatomic and clinical pathology with emphasis on clinical-pathological correlation. Conducted in pathology departments of affiliated hospitals.
- 609 Laboratory Medicine Clerkship**  
Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 16 credits in all enrollments for this course. R: Open only to graduate-professional students in College of Human Medicine or Osteopathic Medicine.  
Laboratory procedures. Correlation of laboratory data with morphologic abnormalities in patients with pathophysiology.
- 630 Diagnostic Pathology Clerkship**  
Fall, Spring. 3 credits. R: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.  
Necropsy and surgical and clinical pathology. Interpretation of gross findings and laboratory data.
- 631 Necropsy Clerkship**  
Fall, Spring. 3 credits. P:NM: (PTH 630) R: Completion of Semester 5 of the Graduate Professional Program in the College of Veterinary Medicine.  
Supervised necropsy. Interpretation and presentation of findings.
- 632 Problems in Veterinary Pathology**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Completion of Semester 5 of the graduate professional program in the College of Veterinary Medicine. Approval of department.  
Supervised projects involving gross pathology, histopathology, clinical pathology, or molecular pathology.
- 804 Molecular and Developmental Neurobiology**  
Fall. 3(3-0) Interdepartmental with Neuroscience; Pharmacology and Toxicology; Psychology; Zoology. Administered by Department of Neuroscience. RB: Bachelor's degree in a Biological Science or Psychology. R: Open only to graduate students in the Neuroscience major.  
Nervous system specific gene transcription and translation. Maturation, degeneration, plasticity and repair in the nervous system.
- 812 Advanced Clinical Chemistry**  
Spring of even years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology Program. P:NM: (BMB 462 and MT 414 and MT 416)  
Biochemical basis of selected pathologic conditions including inborn errors of metabolism, endocrine and other genetic disorders. Emphasis on current diagnostic techniques.
- 820 Advanced Human Hematology**  
Fall of even years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology Program. P:NM: (MT 422) SA: MT 820  
Selected topics in hematology including pathogenesis, mechanisms and morphological pictures. Emphasis on laboratory tests and interpretation of results.
- 830 Concepts in Molecular Biology**  
Spring of odd years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology Program. P:NM: One course in Biochemistry or concurrently.  
Techniques and theories of molecular biology, nucleic acid synthesis and isolation, enzymatic digestion and modification, electrophoresis, hybridization, amplification, library construction, and cloning.
- 851 Advanced General Pathology**  
Fall of even years. 3(3-0) P:NM: (PTH 852) concurrently. R: Approval of department.  
Fundamental concepts of cell injury, inflammation, and oncogenesis. Mechanisms of disease.
- 853 Advanced Systemic Pathology**  
Spring of odd years. 4(3-2) R: 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 even years. 3(3-0) P:NM: (PTH 540 and PTH 552 and PTH 609 and PTH 651) R: Approval of department.  
Hematology including anemias, leukocyte responses and hemostasis. Clinical chemistry including tests to evaluate organs.
- 855 Essentials of Scientific Communication**  
Fall of odd years. 2(2-0) R: Approval of department.  
Preparation, editing, and review of research manuscripts and grants. Critique of oral presentations. Illustrations of research data and thesis preparation. Philosophy and methods of research.
- 856 Concepts in Toxicologic Pathology**  
Summer of odd years. 2(2-0) R: Approval of department.  
Pathologic changes in tissues of animals used in toxicologic studies. Clinical pathologic assessments. Gross, histologic, and ultrastructural changes in organ systems.
- 858 Pathology of Avian Diseases**  
Spring of even years. 2(2-0) R: Approval of department.  
An overview of disease and pathology affecting domestic poultry, pet birds, and wild birds.
- 859 Avian Histopathology Laboratory**  
Spring of even years. 1(0-2) R: Approval of department.  
Recognition and description of microscopic lesions of avian diseases.
- 860 Clinical Laboratory Diagnosis of Infectious Diseases**  
Spring of even years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology Program. P:NM: (MIC 451 and MIC 464)  
Laboratory techniques for diagnosing infectious diseases in humans. Emphasis on differential diagnosis and correlation of microbiological results with serology, hematology, and clinical chemistry.
- 890 Problems in Veterinary Pathology**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department.  
Faculty supervised work on an experimental, theoretical or applied problem in veterinary pathology.
- 891 Problems in Pathology**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department.  
Faculty supervised work on an experimental, theoretical or applied problem in pathology.
- 892 Pathology Seminar**  
Fall, Spring. 1(1-0) A student may earn a maximum of 3 credits in all enrollments for this course. R: Approval of department.  
Presentation and discussion of current topics in pathology by departmental graduate students, faculty or outside speakers.
- 899 Master's Thesis Research**  
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course. R: Approval of department.  
Master's thesis research.
- 901 Investigating the Lung**  
Fall of even years. 2(2-0) Interdepartmental with Large Animal Clinical Sciences; Physiology. Administered by Department of Large Animal Clinical Sciences. R: Open only to graduate students.  
Integrative biology of the lung; structure and function; molecular, cellular, and organ responses to injury.
- 999 Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Admission to doctoral program in Pathology.  
Doctoral dissertation research.

## PEDIATRICS PED

### Department of Pediatrics and Human Development College of Osteopathic Medicine

- 590 Special Problems in Pediatrics**  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 48 credits in all enrollments for this course. R: Open only to graduate-professional students in the College of Osteopathic Medicine. Approval of department.  
Experimental, theoretical, or applied problems under faculty direction.
- 600 Pediatrics Clerkship**  
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate-professional students in the colleges of Osteopathic Medicine and Human Medicine upon completion of Units I and II.  
Practical clinical exposure in the area of pediatrics.