

**Descriptions —Park, Recreation and Tourism Resources
of
Courses**

491. Special Topics in Park and Recreation Resources
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
P: PRR 215; PRR 320. R: Approval of department; application required.
Group studies for advanced undergraduate students having special interests in Park and Recreation 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, Resource Development, Forestry, and Economics. Administered by 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.

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 of odd-numbered years. 3(3-0)
R: Open only to graduate students in Park and Recreation Resources, Resource Development, Forestry, and Fisheries and Wildlife.
Integration of marketing concepts and methods into agency planning and decision making.

874. Leisure, Travel and Tourism
Spring. 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)
P: PRR 840, PRR 841.
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 graduate students in Park and Recreation Resources. Approval of department.

923. Theory of Resource and Environmental Economics
Spring of even-numbered years. 3(3-0) Interdepartmental with Agricultural Economics, Resource Development, Forestry, and Economics. Administered by Agricultural Economics.
P: AEC 829, EC 805.
Economic theory of environmental change and control. Market and non-market allocation mechanisms. Temporal issues of conservation and growth. Contemporary issues in research and policy.

944. Advanced Research Methods
Summer. 3(3-0)
P: 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 Recreational Resources.

PATHOLOGY PTH

**Department of Pathology
College of Human Medicine
College of Osteopathic Medicine
College of Veterinary Medicine**

525. Neuropathology Problem Solving Exercises
Fall, Spring, Summer. 2 credits.
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 1 semester of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in PTH 550.
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 2 semesters of the graduate-professional program in the College of Veterinary Medicine. Not open to students with credit in PTH 552.
Hematology. Pathology of hematopoietic, lymphatic, digestive, urinary, respiratory, integumentary, cardiovascular, nervous, reproductive, musculoskeletal, endocrine, ocular, and otic systems.

590. Special Problems in Pathology
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
R: Open only to graduate-professional students in College of Human Medicine or Osteopathic Medicine.
Individual directed work on an experimental, theoretical, or applied problem in pathology.

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.
P: For graduate-professional students in College of Human Medicine: FMP 602, FMP 608, MED 608, PHD 600. For graduate-professional students in College of Osteopathic Medicine: Completion of Units I and II. 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. A student may earn a maximum of 6 credits in all enrollments for this course.
P: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Not open to students with credit in PTH 651 or PTH 652.
Necropsy and surgical and clinical pathology. Interpretation of gross findings and laboratory data.

631. Necropsy Clerkship
Fall, Spring. 3 credits.
P: PTH 630. R: Completion of 5 semesters 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 5 semesters in the graduate-professional program in the College of Veterinary Medicine. Approval of department.
Supervised projects involving gross pathology, histopathology, clinical pathology, or molecular pathology.

633. Transfusion Medicine
Fall, Spring, 3 credits.
R: Completion of 5 semesters of the graduate-professional program in the College of Veterinary Medicine. Management of blood donors, blood banking, and cross match technologies. Administration of blood components. Blood typing in large and small animals.

812. Advanced Clinical Chemistry
Spring of even-numbered years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology.
P: BCH 462, MT 414, 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-numbered years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology.
P: MT 422.
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-numbered years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology.
P: 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.

840. Advanced Hemostasis
Fall of odd-numbered years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology.
P: BCH 462, MT 422.
Physiology, pathophysiology, and laboratory evaluation of hemostatic disorders.

851. Advanced General Pathology
Fall of even-numbered years. 3(3-0)
P: PTH 852 concurrently. R: Approval of department.
Fundamental concepts of cell injury, inflammation, and oncogenesis. Mechanisms of disease.

852. Advanced General Pathology Laboratory
Fall of even-numbered years. 1 credit.
P: PTH 851 concurrently.
Histopathologic and ultrastructural study of general morphologic patterns of inflammation cell injury and neoplasm.

853. Advanced Systemic Pathology
Spring of odd-numbered 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-numbered years. 3(3-0)
P: PTH 540, PTH 552, PTH 609, PTH 651. R: Approval of department.
Hematology including anemias, leukocyte responses and hemostasis. Clinical chemistry including tests to evaluate organs.

855. Proseminar
Fall of odd-numbered 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. Pathotoxicology
Summer of odd-numbered years. 3(3-0)
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.

857. Correlative Diagnostic Pathology
Fall, Spring, Summer. 3 credits.
R: Approval of department.
Diagnosis of animal diseases by necropsy, biopsy, or clinical pathology. Correlation of diagnostic test results with history, laboratory data and morphologic findings. Compiled and formal presentation of findings.

858. Pathology of Avian Diseases
Spring of even-numbered years. 2(2-0)
C: Pathology students must take PTH 859 concurrently.
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-numbered years. 1 credit.
C: Pathology students must take PTH 858 concurrently.
R: Approval of department.
Recognition and description of microscopic lesions of avian diseases.

860. Clinical Laboratory Diagnosis of Infectious Diseases
Spring of even-numbered years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology.
P: MIC 451, 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.

901. Investigating the Lung
Fall of even-numbered years. 3(3-0) Interdepartmental with Large Animal Clinical Sciences and Physiology. Administered by Large Animal Clinical Sciences.
R: Open only to M.S. and Ph.D. students in Large Animal Clinical Sciences, Small Animal Clinical Sciences, Physiology, and Pathology. Approval of department.
Classic and current concepts of respiratory structure and function in health and disease. Mechanisms of lung 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.

PEDIATRICS PED

Department of Pediatrics 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.

619. Ambulatory Care Clerkship
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 15 credits in all enrollments for this course. Interdepartmental with Family Practice and Medicine. Administered by Family Practice.
P: FMP 602. R: Open only to graduate-professional students in College of Human Medicine.
Continuous and comprehensive patient care under supervision of appropriate physicians.

620. Directed Studies
Fall, Spring, Summer. 1 to 30 credits. A student may earn a maximum of 30 credits in all enrollments for this course.
P: PED 600. R: Open only to graduate-professional students in the College of Osteopathic Medicine. Approval of department.
Study in general or specialty pediatrics.

PEDIATRICS AND HUMAN DEVELOPMENT PHD

Department of Pediatrics and Human Development College of Human Medicine

523. Genetics for Medical Practice
Summer. 1(1-0) Interdepartmental with Biochemistry.
R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
Basic principles of genetics for medical students.

524. Genetics Clinic
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
P: PHD 523. R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
Role of genetics in health care delivery under the direction of a faculty member.

591. Special Problems in Human Development
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 12 credits in all enrollments for this course.
R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
Work under the direction of a faculty member on an experimental, theoretical, or applied problem.