

- 817 Environmental Design Studio**
Spring. 3(0-6) Interdepartmental with Landscape Architecture; Horticulture; Human Environment and Design. Administered by Department of Geography. P:M: (LA 816 and LA 883) RB: Undergraduate design degree.
Development of a student-selected environmental design project in a collaborative setting.
- 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.
- 883 Environmental Design Seminar**
Fall. 3(3-0) Interdepartmental with Landscape Architecture; Horticulture; Human Environment and Design. Administered by Department of Geography. RB: Undergraduate design degree.
Examination of the breadth of environmental design projects. Literature review of focused projects. Development of practicum or thesis proposals.
- 885 Leadership in Natural Resources and Environmental Management**
Fall. 3(3-0) Interdepartmental with Fisheries and Wildlife; Forestry; Agricultural Economics. Administered by Department of Fisheries and Wildlife.
Theory and practice of leadership in natural resource and environmental management. Integration across disciplinary and jurisdictional divisions.
- 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. 1 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.
- 895 Coastal and Maritime Heritage and Management**
Fall of even years. 3(3-0)
Integrated management of coastal and maritime resources. Coastal tourism. Natural, historic and cultural resources. Legal, social and political contexts. History and lifeways. Commercial and recreational uses. Research, conservation and outreach. Field trip required.
- 898 Master's Project**
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to master's students in Park, Recreation and Tourism Resources.
Master's project research or practicum.
- 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**
Fall. 3(3-0) Interdepartmental with Agricultural Economics; Economics; Forestry; Resource Development. Administered by Department of Agricultural Economics. RB: (AEC 829 and EC 812A)
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 Advanced Natural Resource Economics**
Spring. 3(3-0) Interdepartmental with Agricultural Economics; Forestry; Resource Development; Economics. Administered by Department of Agricultural Economics. RB: (EC 812A and AEC 829 and FOR 866) SA: AEC 991H
Economic theory of managing nonrenewable and renewable resources, including optimal use, the incentives for use under decentralized markets, and public policy design. Analysis of the co-evolution of economic and ecological systems.
- 944 Advanced Research Methods**
Summer. 3(3-0) RB: (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.
Doctoral dissertation research.

PATHOLOGY

PTH

Department of Pathobiology and Diagnostic Investigation College of Veterinary Medicine

- 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.
- 630 Diagnostic Pathology Clerkship**
Fall, Spring. 3 credits. RB: 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.

Pathology—PTH

- 631 Necropsy Clerkship**
Fall, Spring. 3 credits. RB: (PTH 630) 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. RB: Completion of Semester 5 of the graduate professional program in the College of Veterinary Medicine. R: Approval of department.
Supervised projects involving gross pathology, histopathology, clinical pathology, or molecular pathology.
- 634 Endocrinology Clerkship**
Spring. 3 credits. RB: Open only to graduate-professional students who have completed semester 5 of the graduate professional program in the College of Veterinary Medicine.
Principles of endocrinology and diagnosis of endocrinology disorders. Case review and interpretation.
- 635 Special Problems in Histopathology and Cytology Clerkship**
Spring. 3 credits. P:M: (PTH 630) RB: Completion of Semester 5 of the professional program in the College of Veterinary Medicine.
Study of the histopathology and clinical cytology of various diseases of veterinary importance.
- 804 Molecular and Developmental Neurobiology**
Fall. 3(3-0) Interdepartmental with Neuroscience; Pharmacology and Toxicology; Psychology; Zoology. Administered by Program in 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. RB: (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**
Spring of odd years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology Program. RB: (MT 424)
Pathogenesis, mechanisms, and morphological pictures. Laboratory tests and interpretation of results.
- 830 Concepts in Molecular Biology**
Fall, Spring. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology Program. RB: 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) RB: (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 years. 1(0-2) RB: PTH 851 concurrently. R: Approval of department.
Histopathologic and ultrastructural study of general morphologic patterns of inflammation cell injury and neoplasm.
- 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.
- 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.
- 857 Correlative Diagnostic Pathology**
Fall, Spring, Summer. 3(0-6) 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 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**
Fall of odd years. 2(2-0) Interdepartmental with Medical Technology. Administered by Medical Technology Program. RB: (MMG 451 and MMG 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.
- 893 Pathology Case Discussion Seminar**
Fall, Spring. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course. RB: (DVM and ENROLPROFV) DVM degree or current enrollment as a professional veterinary student required
Utilization of a group of theme-based veterinary cases to train pathology residents and graduate students in diagnostic pathology.
- 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 42 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.