The scope and status of Michigan natural resources used for recreation. Historical and philosophical foundations of management and policy. Analysis of contemporary environmental and recreational policy issues.

Leisure and Society
Fall, Spring, Summer. 3(3-0)
Leisure as a social, psychological, political, economic and cultural force in the United States.

Our National Parks and Recreation Lands
Fall, Spring, Summer. 3(3-0)
Scope and history of federal recreation lands. Comparisons of national parks to other federal lands. Recreation land management in other nations. Future federal land management options.

Introduction to Parks, Recreation, and Leisure
Fall, Spring, Summer. 3(3-0)
The scope and management of recreation services and resources. Historical and philosophical foundations. Influence of recreation behavior on state, national, international, economic, political and social institutions.

Recreation Program Management
Fall, Spring. 4(3-2)
Programming and leadership principles for planning, management, and evaluation. Program design and conduct to service different clienteles, using leisure education, program development, and small group processes. Field trips required.

Field Work in Park and Recreation Resources
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Approval of department. Professional field experience in a park or recreation setting.

Field Study in Park, Recreation and Tourism Resources Delivery Systems
Spring. 2 credits. P:M (PRR 213 and PRR 215): R: Open only to sophomores or juniors or seniors. Approval of department; application required. Field course illustrating public, non-profit, and commercial recreation delivery systems. Interrelationships of recreation with natural resources, cultural resources, facilities, and communities. Partnerships and competition among providers. Field trips required.

Coaching Sports for Athletes with Disabilities
Spring of even years. 2(2-0) Interdepartmental with Kinesiology. Administered by Department of Kinesiology. SA: PES 300B

Environmental Attitudes and Concepts
Fall. 3(3-0) RB: One ISS course or one PSY course or one SOC course. R: Not open to freshmen. History of attitudes and values associated with the environment, wilderness, environmentalism, environmental quality, conservation, and preservation. Perceptions and assessment of modern environmental problems.

Recreation and Natural Resources Communication (W)
Fall, Spring. 3(2-0) P:M (PRR 213) and completion of Tier I writing requirement. R: Open only to students in the Department of Park, Recreation and Tourism Resources. Not open to freshmen. Principles of communication for recreation and natural resource audiences. Application to various forms of interpretive media including verbal, graphic, and written. Field trips required.

Administration and Operation of Park and Recreation Systems
Fall. 3(3-0) P:M (PRR 213 and PRR 215) RB: (PRR 293) R: Not open to freshmen or sophomores. Administration, operation and policy of park, recreation and tourism organizations. Legal foundations, concepts and responsibilities, ethical decision-making and personnel management.

Management of Park and Recreation Agencies and Organizations
Spring. 3(0-0) P:M: (PRR 213 and PRR 215) RB: Not open to freshmen or sophomores. Management concepts and methods. Budgeting, service marketing, and strategic planning in park, recreation and tourism organizations.

Physical Resource Management in Parks, Recreation and Tourism
Fall. 3(2-2) P:M (PRR 213 and PRR 215) RB: (PRR 293) R: Open only to sophomores or juniors or seniors. Relationships among natural resources, the environment, recreational use and site design and development. Principles to safeguard, maintain and restore recreation environments.

Planning and Evaluation in Parks, Recreation and Tourism
Fall. 3(3-0) P:M (PRR 215 and PRR 213) RB: (PRR 293) R: Open only to juniors or seniors. Planning, research and evaluation of recreation and tourism systems. Research methods, resource inventory and classification, use estimation, demand forecasting, marketing, and needs assessment. Formative, process, and summative evaluations using secondary data, surveys, observation, experiments, case studies and focus groups.
464 Natural Resource Economics and Social Science (W)
Fall. 3(2-2) Interdepartmental with Forestry; Fisheries and Wildlife; Resource Development. Administered by Department of Forestry. P.M.: (EC 201 or EC 202) and completion of Tier I writing requirement. R: Not open to freshmen or sophomores. Application of economic and social science principles and techniques to production and consumption of natural resources. Benefit-cost analysis. Regional impact analysis. Social impact assessment.

466 Natural Resources Planning and Policy
Spring. 3(2-2) Interdepartmental with Forestry; Fisheries and Wildlife; Resource Development. Administered by Department of Forestry. R: Open only to seniors or graduate students in the Department of Forestry or Department of Fisheries and Wildlife or Department of Park, Recreation and Tourism Resources or Department of Resource Development. Scientific, environmental, social, and institutional factors affecting planning and policy-making. Focus on ecosystem-based planning and policy issues through development of a multiple-use plan. Case studies.

473 Commercial Recreation and Tourism Businesses and Organizations
Fall. 3(3-0) RB: (PRR 370) R: Open only to juniors or seniors or graduate students. Start-up and management of commercial recreation and tourism businesses with an emphasis on small businesses. Roles and responsibilities of industry associations. Establishment and operation of tourism marketing organizations.

474 The Tourism System
Fall. 3(3-0) RB: (PRR 370 and PRR 371) R: Open only to juniors or seniors or graduate students. Major sectors and emerging types of tourism. Industry and market trends. Tourism and community development. Evaluating and managing the impact of tourism.

485 Legal Aspects of Community-Based Recreation
Fall. 3(3-0) P.M.: (PRR 213 and PRR 215) R: Open only to juniors or seniors. Application of legal concepts to management and operation of programs, services, and facilities of private nonprofit and public entities. Legal strategies. Human rights and behaviors. Management of risk liability.

487 Community-Based Recreation Facility Management
Spring. 3(2-2) RB: (PRR 388 and PRR 485) R: Open only to seniors or graduate students. Analysis of the operation and maintenance of facilities and equipment used in the delivery of recreation programs and services. Management of human interaction within communities. Field trips required.

488 Community-Based Recreation Programming
Spring. 3(2-2) RB: (PRR 215 and PRR 370 and PRR 371 and PRR 388 and PRR 485) R: Open only to juniors or seniors or graduate students. Recreation programs and services in rural and urban settings. Nonprofit, public and private agencies. Delivery systems and research procedures. Effective community-based recreation in relation to human services.

489 Seminar in Zoo and Aquarium Science
Fall. Spring. 1(1-0) A student may earn a maximum of 3 credits in all enrollments for this course. Interdepartmental with Zoology; Fisheries and Wildlife. Administered by Department of Zoology. R: Approval of department. Scientific writing and oral presentations related to zoo and aquarium studies.

490 Independent Study
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department; application required. Individualized readings and research compatible with students' interests and abilities under the guidance of a faculty member.

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. R: Approval of department; application required. Group studies for advanced undergraduate students having special interests in Park and Recreation Resources.

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, EEP 493, FIM 493, FW 493, HRT 493, PKG 493, PLP 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.

816 Environmental Design Theory
Fall. 3(3-0) Interdepartmental with Landscape Architecture; Horticulture; Human Environment and Design. Administered by Department of Geography. RB: Undergraduate design degree recommended. Differences between normative theories, scientific theories, models, and constructs. Exploration of normative theories related to thesis or practicum.
Case Studies in Park and Recreation Resources
Spring, 3(3-0)
Integrated approach to policy, planning, and management problems.

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.

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.

Selected Topics
Fall, Spring, Summer. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Selected topics in park and recreation resources of current interest and importance.

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.

Master's Thesis Research
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 9 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.

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. RB: (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.

Advanced Environmental and Resource Economics Research
Spring of odd years. 3(3-0) Interdepartmental with Agricultural Economics; Economics; Forestry; Resource Development. Administered by Department of Agricultural Economics. RB: (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.

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

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

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.

Basic Principles of Pathology
Spring. 2 credits. R: Graduate-professional students in colleges of Human and Osteopathic Medicine.
Fundamental pathologic processes; clinical applications.

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.

Clinical and Systemic Pathology
Fall, Spring. 2 credits. R: Graduate-professional students in College of Veterinary Medicine. R: Open only to graduate students in the College of Veterinary Medicine.
Hematology. Pathology of hematopoietic, lymphatic, digestive, urinary, respiratory, integumentary, nervous, reproductive, musculoskeletal, endocrine, ocular, and otic systems.

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.

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.

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.

Necropsy Clerkship
Fall, Spring. 3 credits. R: Completion of Semester 5 of the Graduate Professional Program in the College of Veterinary Medicine.
Supervised necropsy. Interpretation and presentation of findings.

Problems in Veterinary Pathology
Fall, Spring. 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.

Molecular and Developmental Neurobiology
Fall. 3(3-0) Interdepartmental with Neuroscience; Pharmacology and Toxictology; 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.

Advanced Clinical Chemistry
Spring of even years. 2(2-0) Interdepartmental with Medical Technology. Administered by Department of Chemistry. 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.

Concepts in Molecular Biology
Spring of odd years. 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.

Advanced General Pathology
Fall of even years. 3(3-0) R: Concurrently. R: Approval of department. R: Approval of department. Fundamental concepts of cell injury, inflammation, and oncogenesis. Mechanisms of disease.

Advanced General Pathology Laboratory
Fall of even years. 1(0-2) R: Concurrently R: Approval of department. Histopathologic and ultrastructural study of general morphologic patterns of inflammation cell injury and neoplasm.