475. Packaging Economics
Fall, 3(0-2) P: EC 201 or EC 292.
Economic issues in packaging as they relate to policies of the firm and of government. Relationship between economic policy and societal issues.

480. Packaging Laws and Regulations
Spring, 3(3-0) P: PKG 320 or PKG 325. R: Open only to Packaging majors.
History and development of packaging laws and regulations. Relationships among law, government regulation and commercial regulation. Effect of current laws and regulations on packaging.

485. Packaging Systems Development
Fall, Spring, 3(3-1) P: PKG 452. R: Open only to seniors or graduate students in Packaging.
Package development including selection, design and implementation of package systems for protection, distribution, merchandising use and disposal.

490. Directed Studies in Packaging
Fall, Spring, Summer, 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
P: PKG 320, PKG 325. R: Open only to Packaging majors. Approval of department; application required.
Development of solutions to specific packaging problems. Supervised individual study.

491. Special Topics
Fall, Spring, Summer, 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
Selected topics of current interest.

492. Senior Seminar
Fall, Spring, 1(2-0) R: Open only to seniors in Packaging.
Seminar on current packaging issues, business organization and operation, and accepted practices in a corporate environment.

505. Advanced Packaging Dynamics
Spring, 3(2-2) P: PKG 310.

515. Permeability and Shelf Life
Spring, 3(2-2) P: MTH 184 or MTH 132; PKG 320; PKG 325.
Relationship between the storage life of packaged food and pharmaceutical products and the gas, moisture, and organic vapor permeability of packages in various environments.

517. Instruments for Analysis of Packaging Materials
Fall of even-numbered years. 4(3-2) P: PKG 320, PKG 325.

525. Polymeric Packaging Materials
Fall, 4(3-2) P: PKG 320.
Physical and chemical properties of polymeric materials and structures used in packaging. Relationship of properties to performance.

575. Stability and Recyclability of Packaging Materials
Fall of odd-numbered years. 3(3-0) P: PKG 320, PKG 325.
Interactions between packaging materials and environments: corrosion, degradation, stabilization, and recycling. Impacts of packaging disposal.

890. Independent Study in Packaging
Fall, Spring, Summer, 1 to 3 credits. A student may earn a maximum of 4 credits in all enrollments for this course.
P: Open only to graduate students in Packaging. Approval of department; application required.
Special investigations of unique packaging problems.

891. Selected Topics in Packaging
Fall, Spring, Summer, 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
P: Open only to graduate students in Packaging.
Selected topics of interest to graduate packaging students.

899. Master's Thesis Research
Fall, Spring, Summer, 1 to 8 credits. A student may earn a maximum of 99 credits in all enrollments for this course.
P: Open only to Master's students in Packaging.

PARK AND RECREATION RESOURCES

100. Recreation in Michigan Natural Resources
Spring, 3(3-0)
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.

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

210. 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.

213. 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.

215. Recreation Program Management
Fall, Spring, 4(3-0)
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.

223. 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.
P: PRR 213, PRR 215. R: Open only to students in Park and Recreation Resources. Approval of department. Professional field experience in a park or recreation setting.

300B. Coaching Sports for Athletes with Disabilities

302. Environmental Attitudes and Concepts
Fall, 3(3-0) P: 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.

320. Human Behavior in Park and Recreation Settings
Spring, 3(3-0) P: One PSY course or one SOC course.
Antecedents, intervening conditions, and outcomes of human behavior in park, recreation, and leisure settings. Interactions between recreation behavior and the natural environment. Problem solving in recreation.

351. Recreation and Natural Resources
Communication
Fall, 3(2-3) P: PRR 213. R: 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.

362. Recreation for Special Populations
Spring, 3(3-0) P: PRR 213. R: Not open to freshmen.
Therapeutic recreation services emphasizing handicapper and geriatric characteristics. Chemical dependency issues. Leisure lifestyle issues. Philosophical foundations and service models. Integration, normalization, inclusion, and empowerment concepts.

370. Administration and Operation of Parks and Recreation Systems
Fall, 4(4-0) P: PRR 215, PRR 351. R: Not open to freshmen and sophomores.
Policy, administration, and operations at municipal, county, and regional levels. Policy and administrative development of systems. Preparation and implementation of operation and maintenance plans and schedules.

371. Management of Park and Recreation Agencies and Organizations
Spring, 4(4-0) P: ACC 200, PRR 313, PRR 215. R: Not open to freshmen and sophomores.
Management and operating concepts and methods. Revenues and cost management, service marketing, staffing and supervision.
Descriptions — Park and Recreation Resources

Courses

392. Professional Seminar
Fall, Spring. 1(1-0)
P: PRR 293. R: Open only to majors in Park and Recreation Resources.
Linkage of field work and internship. Integration of course work with professional practice.

443. Parks and Recreation Planning and Design Concepts
Spring. 4(2-4)
P: PRR 351. R: Not open to freshmen and sophomores. Planning models and design analysis, synthesis, and communication of recreation and tourism subsystem and supply analysis.

449. Management of Natural Resource Based Recreation
Fall. 3(0-0)
R: Not open to freshmen and sophomores. The history of natural resource recreation management in the U.S. Techniques for dispersed and developed recreation management. Security of facilities, visitors, and personnel.

451. Park Interpretive Services and Visitor Information Systems
Spring of odd-numbered years. 3(2-2)

460. Resource and Environmental Economics

464. Natural Resource Economics and Social Science
Fall. 3(2-2) Interdepartmental with Forestry, Fisheries, and Wildlife, and Resource Development. Administered by Forestry.

465. Natural Resources Planning and Policy
Spring. 3(2-3) Interdepartmental with Forestry, Fisheries, and Wildlife, and Resource Development. Administered by Forestry.
P: FOR 409; FOR 464 or FW 454 or FW 424; FW 472 or FOR 449 or RD 415 or RD 460. R: Open only to seniors and graduate students in College of Agriculture and Natural Resources. 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.

467. Programming in Therapeutic Recreation
Fall. 3(3-0)
P: PRR 362. Comprehensive and individual program planning methods. Stressed planning practice, quality assurance, interview techniques, professional ethics, and terminology. Field trips required.

468. Therapeutic Recreation Techniques
Spring. 3(3-0)

473. Commercial Recreation and Tourism Enterprises
Fall. 3(3-0)

474. Community and Natural Resource Based Tourism
Spring of even-numbered years. 3(0-0)
R: Not open to freshmen and sophomores. Developing and sustaining tourism. Environmental, social, and economic considerations. Roles and responsibilities of agencies and organizations. Impact management. Tourism-based community and rural development.

475. Evaluation in Parks and Recreation
Fall. 3(2-2)
P: STT 200 or STT 201 or PSY 226 or GEO 427. R: Open only to seniors or graduate students. Evaluation concepts, approaches, and methods. Evaluation in management and administrative functions.

485. Legal Aspects of Parks, Recreation, and Sport
Fall. 3(3-0)
R: Open only to seniors or graduate students. Legal concepts in management and operation of public and private programs, areas and facilities. Tort liability and risk management. Rights and behavior constraints of clientele. Legal foundations of authority.

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.
P: PRR 215, PRR 320. 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.
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(0-0) Administration and management of park and recreation services in urban and rural environments. Policy development and evaluation. Planning, 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

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
Fall. 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.