

**PACKAGING**

**PKG**

**College of Agriculture and Natural Resources**

- 210. **Principles of Packaging**  
*Fall, Winter, Spring, Summer. 3(3-0)*  
A general course in packaging principles covering the growth and development of the field, and the technological and motivational problems involved in present day packaging. Consideration will be given to the basic functions of the package and their relation to the needs and wants of our society.
- 320. **Packaging Materials**  
*Fall, Winter. 4(4-0) PKG 210, PHY 237, CEM 130.*  
Common packaging materials including wood, paper, paperboard, plastics, metal foils and sheets, glass, adhesives, cushioning media; their basic properties in relation to performance of package.
- 330. **Package Printing**  
*Winter. 3(3-0) PKG 320 or approval of school.*  
Basic printing processes used for packaging materials. Advantages, disadvantages and identification of these printing methods.
- 340. **Packaging and the Environment**  
*Winter. 4(4-0)*  
Broad study of the effects of packaging on environmental quality, including solid waste, air and water quality, laws, economics, energy considerations and resources conservation.
- 422. **Packaging Systems**  
*Winter, Spring. 4(4-0) PKG 320 or approval of school.*  
Design, use and evaluation of packages and packaging systems. A one-day field trip is required.
- 423. **Dynamics of Packaging**  
*Spring. 4(3-3) PKG 422 or approval of school.*  
A study of the protective function of the packaging systems in relation to their environment and shock and vibration isolation methods. A one-day field trip is required.
- 424. **Packaging Problems**  
*Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 9 credits. PKG 422, 2.50 grade-point average and approval of school.*  
Development of solutions to specific packaging problems.
- 425. **Packaging Process Analysis**  
*Fall, Spring. 4(4-0) PKG 422.*  
The integrated study of the operation structure and control of the packaging and package-making process. A one-day field trip is required.
- 427. **Packaging Materials and Systems Laboratory**  
*Fall, Winter, Spring. 4(2-6) PKG 320, PKG 422 or approval of school.*  
Methods of measuring properties of packaging materials. Design, manufacture and performance testing of complete packages. Techniques for evaluating test results. Value of various test methods.

- 428. **Packaging Development**  
*Fall, Spring. 4(3-2) PKG 427, CPS 110, Seniors.*  
Development of packages to meet present-day requirements of protection and merchandising.
- 429. **Packaging Economics**  
*Winter. 3(3-0) PKG 422, EC 200, AFA 201 or approval of school.*  
Examination of economic issues in packaging as they relate to policies of the firm and of government. Relationships between economic policy and social issues.
- 430. **Packaging Machinery**  
*Spring. 4(4-0) PKG 422 or approval of school.*  
The components for automated packaging lines, and auxiliary materials handling equipment, including consideration of design, selection, specification and operation of machinery for the package-making and package-filling operations. One-day field trip required.
- 440. **Special Topics**  
*Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 12 credits if different topics are taken. Juniors or approval of school.*
- 463. **Seminar**  
*Fall. 2(0-4) Senior Majors.*  
Discussions on current packaging problems.
- 801. **Packaging Systems**  
*Fall. 4(3-3)*  
Analysis of various existing packaging systems; problem solving exercises.
- 820. **Permeability and Shelf Life**  
*Winter. 4(3-3) PKG 422, MTH 113, CPS 110 or approval of school.*  
Comprehensive study of the relationship of the storage life of packaged food and agricultural products and the gas, moisture, and vapor permeability of packages in various environments. Computer aided package design.
- 822. **Seminar**  
*Fall. 1(1-0) Approval of department.*  
Discussions of recent advances in packaging and reports by graduate students and faculty on research problems. Field trips required.
- 834. **Special Investigations in Packaging**  
*Fall, Winter, Spring, Summer. Variable credit.*
- 840. **Selected Topics**  
*Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 12 credits if different topics are taken. Approval of department.*
- 899. **Master's Thesis Research**  
*Fall, Winter, Spring, Summer. Variable credit. Approval of school.*

**PARK AND RECREATION RESOURCES**

**PRR**

**College of Agriculture and Natural Resources**

- IDC. **Resource Ecology and Man**  
*For course description, see Interdisciplinary Courses.*
- 300. **Wilderness Survival**  
*Fall, Winter, Spring, Summer. 4(3-0)*  
Outdoor skills for utilization of plant and animal materials to provide shelter, fire, signals, water and food in the outdoors. Psychology and attitudes conducive to wilderness survival and appreciation. Field trip required.
- 301. **Wilderness Survival (TV)**  
*Fall, Winter, Spring, Summer. 3(3-0)*  
*Credit may not be earned in both PRR 300 and PRR 301.*  
A television lecture course dealing with the principles and attitudes necessary to promote survival in a wilderness setting.
- 302. **Environmental Attitudes and Concepts**  
*Fall. 3(3-0)*  
Beliefs and attitudes toward land by primitive man and ancient civilizations. Effects of Muir, Thoreau, and others on man/land relationships. Industrialism and environmental quality. Current environmental controversy. Field trip required.
- 304. **Designs for Recreation: Nature and Man**  
*Fall, Spring. 3(3-0) Approval of department.*  
Design strategies are used to demonstrate relationships between characteristics of the environment and man's use of it. Integration of work, leisure, and recreation uses within environmental potentials and limits is emphasized.
- 344. **Leisure and Recreation Resources**  
*Fall, Spring. 3(3-0)*  
Leisure in relation to park and recreation resources. History and philosophy, significance in modern society, and impact on urban and natural resource developments.
- 351. **Environmental Interpretation I: Principles**  
*Fall, Winter. 3(3-0)*  
Philosophy, needs, types, and uses of information services in private, municipal, county, state and federal park and recreation areas. The role of the park interpreter (naturalist).
- 440. **Park and Recreation Administration**  
*Winter, Spring. 4(4-0)*  
Park and recreation organization, administration and policy at municipal, county, and regional level. Field trip required.
- 442. **State and Federal Recreation Resource Policy**  
*Winter. 3(3-0)*  
Origin, development and significance of public policy in recreation resource development in the United States with emphasis at state and federal levels. Field trip required.

## Descriptions - PARK AND RECREATION RESOURCES

of

### Courses

#### 444. Park and Recreation Area Design

Fall, Winter. 4(2-4) PRR 304; HRT 211 or HRT 212, or BOT 318 or approval of department.

Planning and design principles of space, scale, and circulation applied to the use of park and recreation areas and facilities. Field trip required.

#### 445. Comprehensive Recreation Planning

Fall, Winter. 4(4-0) EC 200, PRR 344 or approval of department.

Comprehensive planning techniques for recreation resources at national, state, and local levels. Supply-demand analysis, forecasting, impact assessment, survey methods and citizen input for recreation system planning.

#### 446. Park Area Operations

Winter, Spring. 3(3-0) Approval of department.

Problems in operations and maintenance of park and recreation areas and facilities. Personnel practices, budgeting, and maintenance schedules. Selection and adaptability of maintenance equipment. Field trip required.

#### 447. Recreation Planning Projects

Fall, Spring. 4(1-6) PKG 444, PKG 445, PKG 446 or approval of department.

Accumulative research, planning and evaluation of recreation resources. Supervised project requiring synthesization of recreation planning and design criteria as selected by student and approved by instructor. Field trip required.

#### 448. Field Studies in Park Administration

Fall. 3 credits. Approval of department.

Investigation and analysis of outstanding park and recreation programs. Visits to areas under local, state, and federal jurisdiction. Evaluation of administrative practices, area management, and operation policies. Conducted as a traveling class with agency assistance.

#### 449. Recreation Land Management

Winter. 3(3-0) Not open to majors.

Fundamentals of outdoor recreation resource management. Planning, development, and administration of programs and facilities.

#### 450. Natural Resource Administration

Fall, Spring. 4(4-0) Seniors. Interdepartmental with the departments of Fisheries and Wildlife, Forestry, and Resource Development and Agriculture and Natural Resources. Administered by the Department of Forestry.

Concepts and methods of administering wildland properties. The legal, economic and social environment. Benefit-cost analysis of management changes. Unit organization, personnel management and accounting. Presents a systems view of administration.

#### 451. Environmental Interpretation II: Methods and Devices

Spring. 4(3-1) PRR 351.

Methodology and equipment used in information transmission in natural, historic, and scenic areas. Site selection and development criteria for natural resource interpretation.

#### 452. Sky Interpretation

Spring 3(2-2) PRR 351 or approval of department.

Observations of celestial objects and phenomena; past and present concepts of the sky; and procedures and materials for interpreting the sky.

#### 455. Natural Resource Economics

Winter. 4(4-0) FOR 450 or approval of department. Interdepartmental with the departments of Fisheries and Wildlife, Forestry, Resource Development and Agriculture and Natural Resources. Administered by the Department of Forestry.

Basic economic and political principles and techniques that govern the production and consumption of forest land products, including basic forest valuation procedures.

#### 470. Commercial Recreation Enterprises

Fall. 4(4-0) EC 201; AFA 202 or approval of department.

The planning, design, impact, and natural resource base of privately-owned outdoor recreation businesses.

#### 471. Recreation Products Consumption

Winter. 4(4-0) PKG 470 recommended; EC 201, AFA 202, or approval of department.

Recreation, economic and personality theories of consumption. Specific recreation product industry case studies.

#### 480. Supervised Study

Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 10 credits. Approval of department.

Seminars on current problems. Supervised readings. Individual undergraduate research on selected topics.

#### 484. Senior Proseminar

Winter. 1(1-0) Senior majors.

Seminars on current professional problems and literature.

#### 801. Dimensions of Recreation and Leisure

Fall. 3(3-0) PRR 344 or approval of department.

Concepts of recreation and leisure in the United States and their implications for professional development. Extensive reading into concepts, definitions, values, educational components and historic roots of recreation and leisure.

#### 840. Recreation Economics

Spring. 4(4-0) FOR 809 or approval of instructor. Interdepartmental with the departments of Forestry and Resource Development.

Application of economic analysis to recreation resource problems including measurement of demand and supply, valuation of recreation resources, determination of economic impact, economic decision making and policy considerations.

#### 842. Park and Recreation Policy

Winter. 3(3-0) Interdepartmental with the Department of Resource Development.

Recreation, leisure and work concepts. Determination of needs for recreation facilities. Factors affecting public and private allocation of resources for provision of needed facilities.

#### 844. Recreation Research Methods

Winter. 4(4-0) Approval of department.

Relate recreation research to broader context of social scientific investigation and to the nature and philosophy of social scientific research. Examine the theoretical and methodological approaches in recreation research.

#### 846. Urban and Regional Recreation Resource Planning

Fall. 4(4-0) Approval of department.

Evaluation and application of recreation planning techniques at urban and regional levels. Analysis of programs, policies, land areas, facilities, and populations as they pertain to leisure service delivery systems.

#### 848. Recreation Resource Law

Spring. 3(3-0)

Legal basis for public recreation. Methods of acquiring recreational resources, including contracts and condemnation procedures. Administrative problems, including zoning, liability, civil rights and law enforcement. Study of cases and statutes.

#### 850. Development of Water Recreation Resources

Winter. 3(3-0) Approval of department.

Administration, research, design, and construction of water recreation facilities. Policy issues, use conflict, and fiscal planning reviewed in light of interagency relationship and legislative mandate.

#### 871. Selected Topics

Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.

Selected topics in recreation resource planning, administration, management, policy, and research.

#### 880. Special Problems

Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 10 credits. Approval of department.

Advanced work for non-thesis projects or advanced individual study in recreation: policy, land use, planning, systems administration and management, economics, recreation forestry, commercial recreation enterprises, recreation and social problems, environmental interpretation, travel and touring, spatial analysis, leisure concepts, research.

#### 899. Master's Thesis Research

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

#### 999. Doctoral Dissertation Research

Fall, Winter, Spring, Summer. Variable credit. May reenroll for a maximum of 36 credits. Approval of department.