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 receive 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.

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 301 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 receive 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 receive 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

1DC. Resource Ecology and Man
Fall, Winter, Spring, Summer. 3(3-0)
Outdoor skills for utilization of plant and animal material and natural resources in the outdoor setting. General study of outdoor skills with specialization in mountain guiding, canoeing, and camping. Field trips required.

301. Wilderness Survival
Fall, Winter, Spring, Summer. 3(3-0)
Outdoor skills for utilization of plant and animal material and natural resources in the outdoor setting. General study of outdoor skills with specialization in mountain guiding, canoeing, and camping. Field trips required.

302. Environmental Attitudes and Concepts
Fall. 3(3-0)
Examination of the human values associated with the environment, resources and development. Environmental policies of government. Reflation between economic policies and environmental controversies. Field trips required.

304. Designs for Recreation: Nature and Man
Fall, Spring. 3(3-0) Approval of department.
Design strategies are used to determine the relationships between characteristics of the environment and man's use of it. Integration of work, leisure, and recreation with environmental potential and limits is emphasized.

344. Leisure and Recreation Resources
Fall, Spring. 3(3-0)
Leisure and recreation in relation to park and recreation resources. History and philosophy, significance in modern society, and impact on urban and rural 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, state and federal levels. Field trips 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 trips required.
444. Park and Recreation Area Design
Fall, Winter. 4(4-2) 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 local, state, and national 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 management 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 synthesis 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.

451. Environmental Interpretation II: Methods and Devices
Spring. 4(3-1) PRR 251.
Methodology and software 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(0-4) 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, Winter, Spring. 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.

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 values, 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.