

promotion and nursing care to the sick in their homes. Roles, responsibilities and functions of the nurse in the community are stressed.

**404. Survey of Nursing**  
Fall, Winter, Spring. 4 credits. Seniors.

Development of nursing to present status, current problems and long-term goals. Fields of service open to graduate nurses; nursing organizations, national, state and local, their services and objectives.

**406. Senior Nursing**  
Fall, Winter, Spring. 8(3-20) Senior majors.

A study of basic principles of leadership and their application in the practice of team nursing.

**OSTEOPATHIC MEDICINE\* O M**

**College of Osteopathic Medicine**

**501. Medical Biology I**  
Fall. 4(4-0)

Integrated aspects of biology providing a foundation and vocabulary preparatory to studies in osteopathic medicine.

**502. Medical Biology II**  
Winter. 7(6-3)

Continuation of 501 emphasizing pathology and pharmacology.

**530. Clinical Science I**  
Fall. 1(1-0)

Fundamental concepts and skills essential to the performance of a clinical history and physical examination.

**531. Clinical Science II**  
Winter. 2(2-0)

Techniques, concepts and skills required for competent history taking and physical examination utilizing lectures, laboratory and films for instructional purposes.

**532. Clinical Science III**  
Spring. 4(4-0)

A clinical study program providing an opportunity to learn the skills of history taking and physical examination by actual performance of the involved techniques on patients under physician supervision.

**533. Clinical Science IV**  
Summer. 4(4-0)

Continuation of 532.

**534. Clinical Science V**  
Fall. 4(4-0)

A clinic-based program providing additional emphasis on history taking and physical examination as well as developing fundamental abilities in diagnosis and problem solving in the clinic setting.

**535. Clinical Science VI**  
Winter. 4(4-0)

A continuation of 534.

**536. Clinical Science VII**  
Spring. 4(4-0)

Continuation of 535.

**537. Clinical Science VIII**  
Summer. 4(4-0)

Continuation of 536.

**550. Systems Biology I**  
Spring. 7(5-6) 502.

A multidisciplinary approach to the hemato-poetic and nervous systems providing a functional integration of basic science and clinical information.

**551. Systems Biology II**  
Summer. 6(5-3)

Continuation of 550 with emphasis on a multi-disciplinary approach to the nervous system.

**552. Systems Biology III**  
Fall. 11(8-9)

Continuation of 551 with emphasis on multi-disciplinary approach to the cardiovascular system.

**553. Systems Biology IV**  
Winter. 11(8-8)

Continuation of 552 with emphasis on multi-disciplinary approach to the respiratory, renal and urinary systems.

**554. Systems Biology V**  
Spring. 11(9-5)

Continuation of 553 with emphasis on multi-disciplinary approach to the gastrointestinal system.

**555. Systems Biology VI**  
Summer. 11(9-6)

Continuation of 554 with emphasis on multi-disciplinary approach to the study of pediatrics, obstetrics and gynecology.

**600. Clinical Science Practicum**  
Fall, Winter, Spring, Summer. 15 credits. May re-enroll for a maximum of 60 credits.

A clinic oriented course covering the major areas of medical practice including involvement in Family Practice and Community Health Services.

**620. Directed Studies**  
Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 24 credits. Approval of department.

Individual or group work on special problems in medicine.

**OBSTETRICS, GYNECOLOGY  
AND REPRODUCTIVE  
BIOLOGY\* OGR**

**College of Human Medicine**

**608. Obstetrics/Gynecology Clerkship**  
Fall, Winter, Spring, Summer. 1 to 17 credits. May re-enroll for a maximum of 43 credits. H M 602.

Experience with gynecologic and obstetrical patients, in in-patient and out-patient settings, under the direction of community practitioners and members of the MSU faculty.

\*Established July 1, 1971.

**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, Spring. 5(4-4) CEM 132.

Detailed study of common packaging materials such as wood, paper, paperboards, plastics, metal foils and sheets, glass, and cushioning media. A one-day field trip required.

**330. Graphics for the Packaging Industry**  
Winter. 4(3-3) 320 or approval of school.

Designing graphics for specific types of printing processes and for various packaging materials. Considerations in ink formulation, identification of the various printing processes used, and the advantages and disadvantages of various reproduction methods as used for packaging.

**422. Packaging Systems**  
Fall, Winter, Spring. 5(4-4) 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**  
Winter, Spring. 5(4-3) 422, MTH 215, or approval of department.

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 re-enroll for a maximum of 9 credits. 422, 2.5 grade-point average and approval of school.

Development of solutions to specific packaging problems.

**425. Packaging Process Analysis**  
Fall, Winter, Spring. 4(3-3) 422; CPS 110.

The integrated study of the operation structure and control of the packaging and package-making process. A one-day field trip is required.

**428. Packaging Development**  
Fall, Spring. 4(3-2) 320.

A study of the functions of each area concerned with the development of packages to meet present-day requirements of protection and merchandising.

**430. Packaging Machinery**  
Spring. 4(3-3) 320 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.

**463. Seminar**  
Fall. 2(0-4) *Must have job experience to enroll.*

Detailed report on work performed in practical experience or outside packaging projects.

**801. Package Design**  
Fall. 4(3-3)

Advanced work in the development of the graphic and structural design of packages.

**834. Special Investigations in Packaging**

Fall, Winter, Spring, Summer. *Variable credit.*

**899. Research**

Fall, Winter, Spring, Summer. *Variable credit. Approval of school.*

**Building Construction**

**B C**

**200. Dynamics of American Housing**  
Fall, Winter, Spring, Summer. 3(3-0)

Impact of housing on the economic and social welfare of America. Analysis of the residential building industry and its problems in providing adequate housing.

**312. Structural Design**

Fall. 4(4-0) 200 or approval of department.

Consideration of structural design systems as used in light construction.

**412. Housing Utilities Design**  
Winter. 4(4-0)

Design of and planning for mechanical and electrical utilities in housing.

**413. Residential Construction Systems**  
Spring. 4(3-2) 312 or approval of department.

Analysis of the primary construction systems employed in the residential building industry, especially the economic and social aspects in meeting the housing goals of the U. S.

**415. Building Materials**

Spring. 4(4-0) 312 or approval of department.

Properties of building materials pertinent to their application and performance in service.

**416. Building Costs**

Winter. 4(2-4) *Approval of department.*

Methods of cost estimating. Effects of codes and production practices on costs.

**417. Residential Finance**

Winter. 4(4-0) *Juniors.*

Analysis of financial programs for the construction, rehabilitation, remodeling and purchase of homes; especially meeting the nation's goals for low to moderate income housing.

**418. Special Topics**

(F P 418.) Fall, Winter, Spring, Summer. 1 to 3 credits. *Approval of department.*

Selected topics in housing.

**420. Construction Management**

(F P 314, B C 314.) Spring. 4(2-2) 416 or approval of department.

Systems management techniques for residential building organizations inclusive of organization development, operations, planning, scheduling and control, and administrative systems and procedures.

**835. Research in Building Construction**

(F P 835.) Fall, Winter, Spring, Summer. *Variable credit. Approval of department.*

**899. Research**

(F P 899.) Fall, Winter, Spring, Summer. *Variable credit. Approval of department.*

**PARK AND RECREATION  
RESOURCES\***

**PRR**

**College of Agriculture and  
Natural Resources**

**200. Resource Ecology and Man**

For course description, see Interdisciplinary Courses.

**300. Wilderness Survival**

Fall, Spring. 3(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.

**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.

**344. Leisure and Recreation Resources**

(R D 344.) Fall. 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**

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**

(R D 440.) Fall. 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**

(R D 442.) 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.

**444. Park and Recreation Area Design**

(R D 444.) Fall. 4(2-4) *Approval of department.*

Planning and design principles of space, scale, and circulation applied to the use of park and

\*Established January 1, 1969. Formerly a part of the Department of Resource Development.

recreation areas and facilities. Field trip required.

**446. Park Area Operations**

(R D 446.) 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.

**448. Field Studies in Park Administration**

(R D 448.) 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**

(R D 440., 350.) Fall, Spring. 3(2-0) *Not open to majors.*

Fundamentals of outdoor recreation resource management. Planning, development, and administration of programs and facilities. Two weekend field trips required.

**450. Natural Resource Administration**

Fall, Spring. 4(4-0) *Interdepartmental with Fisheries and Wildlife, Forestry, and Resource Development Departments and Natural Resources. Administered by the Forestry Department.*

Concepts and methods of administering wild-land 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) 351.

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

**480. Supervised Study**

Fall, Winter, Spring, Summer. 1 to 4 credits. *May re-enroll 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.

**842. Park and Recreation Policy**

Fall. 3(3-0) *Interdepartmental with the Resource Development Department.*

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

**846. Urban Recreation Area and Program Analysis**

Spring. 4(4-0) *Approval of department.*

Analysis of urban public, private and commercial recreation areas, facilities, and programs. Construction of a typology of urban communities. Course is conducted in selected urban communities in Michigan.