

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. 3 to 8 credits. Admission to a college of medicine.

Continuation of 501 emphasizing pathology and pharmacology.

530. Clinical Science I
Fall. 2(1-3) Admission to a college of medicine.

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. 1(0-3) Admission to a college of medicine

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. 1(0-3) Admission to a college of medicine.
Continuation of 532.

534. Clinical Science V
Fall. 1(0-3) Admission to a college of medicine.

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. 1(0-3) Admission to a college of medicine.
A continuation of 534.

536. Clinical Science VII
Spring. 1(0-3) Admission to a college of medicine.
Continuation of 535.

537. Clinical Science VIII
Summer. 1(0-3) Admission to a college of medicine.
Continuation of 536.

550. Systems Biology I
Spring. 5 to 15 credits. 502.

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

551. Systems Biology II
Summer. 5 to 15 credits
Continuation of 550 with emphasis on a multi-disciplinary approach to the nervous system.

552. Systems Biology III
Fall. 5 to 15 credits.
Continuation of 551 with emphasis on multi-disciplinary approach to the cardiovascular system.

553. Systems Biology IV
Winter. 5 to 15 credits.
Continuation of 552 with emphasis on multi-disciplinary approach to the respiratory, renal and urinary systems.

554. Systems Biology V
Spring 5 to 15 credits.
Continuation of 553 with emphasis on multi-disciplinary approach to the gastrointestinal system.

555. Systems Biology VI
Summer. 5 to 15 credits.
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.

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.

*Established July 1, 1971.

320. Packaging Materials
Fall, Spring. 3(3-0)
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.

321. Packaging Materials Laboratory
Fall, Spring. 2(0-6) 320 or concurrently.
Problems and techniques of measuring the properties of packaging materials and the use of those measurements.

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.

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
Fall, Winter. 4(3-3) 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) 422, MTH 113, 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 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
Winter, Spring. 4(3-3) 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) 422 or approval of school
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) 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.

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, 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 300 and 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.

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, Winter. 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, Winter. 4(2-4)
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.

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 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) 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.

844. Recreation Research Methods
Fall. 4(4-0) SOC 492 or 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.

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