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.

A continuation of 535.

537. **Clinical Science VIII**

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

A continuation of 536.

540. **Modern Systems Biology I**

Spring. 5 to 15 credits. 502.

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

541. **Modern Systems Biology II**

Summer. 5 to 15 credits.

Continuation of 550 with emphasis on a multidisciplinary approach to the nervous system.

542. **Modern Systems Biology III**

Fall. 5 to 15 credits.

Continuation of 551 with emphasis on multidisciplinary approach to the cardiovascular system.

543. **Modern Systems Biology IV**

Winter. 5 to 15 credits.

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

544. **Modern Systems Biology V**

Spring. 5 to 15 credits.

Continuation of 553 with emphasis on multidisciplinary approach to the gastrointestinal system.

545. **Modern Systems Biology VI**

Summer. 5 to 15 credits.

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

560. **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.

562. **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**

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.

Experiences 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**

College of Agriculture and Natural Resources

210. **Principles of Packaging**

Fall, Winter, Spring, Summer. 3(3-6)

A general course in packaging principles covering the growth and development of the field, and the technological and motivational problems involved in recent day packaging. Consideration will be given to the basic functions of the package and their relation to the needs and wants of our society.

310. **Packaging Materials**

Fall, Spring. 2(2-0)

Common packaging materials including wood, paper, cardboard, plastics, metal foils and sheets, glass, adhesives cushioning media, their basic properties in relation to performance of package.

320. **Packaging Materials Laboratory**

Fall, Spring. 2(0-3) 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.

*Established July 1, 1971.

**423. Dynamics of Packaging**

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

A study of the protective function of the packaging system 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 6 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**

**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) 390 or approval of department.

Consideration of structural design systems as well as used in light construction.

**412. Housing Utilities Design**

Winter. 4(4-0)

Design of and planning for mechanical and electrical utilities in housing.
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.
Industrial and environmental quality. Cur-
rent environmental controversy. Field trip re-
quired.

304. Designs for Recreation: Nature
and Man
Fall, Spring. 3(3-0)
Design strategies are used to demonstrate
relationships between characteristics of the
environment and man's use of it. Integration
of work, leisure, and recreation use within
environmental potentials and limits is em-
phasized.

344. Leisure and Recreation
Resources
Leisure in relation to park and recreation re-
sources. 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 informa-
tion services in private, municipal, county, state
and federal park and recreation areas. The role
of the park interpreter (naturalist).

440. Park and Recreation
Administration
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
Winter. 3(2-0)
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
Fall, Winter, Spring. 4(2-4)
HRT 212 or 215, or HRT 318; 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 re-
quired.

446. Park Area Operations
Spring. 3(0-0) Approval of depart-
ment.
Problems in operations and maintenance of park
and recreation areas and facilities. Personnel
practices, budgeting, and maintenance sched-
ules. Selection and adaptability of maintenance
equipment. Field trip required.

449. Recreation Land Management
Fall, Spring. 3(3-0) Not open to
majors.
Fundamentals of outdoor recreation resource
management. Planning, development, and ad-
ministration of programs and facilities.

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 De-
partment.
Concepts and methods of administering wild-
land properties. The legal, economic and social
environment. Benefit-cost analysis of manage-
ment changes. Unit organization, personnel
management and accounting. Presents a sys-
tems 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 read-
ings. Individual undergraduate research on se-
lected 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. Deter-
mination of needs for recreation facilities. Fac-
tors affecting public and private allocation of
resources for provision of needed facilities.

844. Recreation Research Methods
Fall. 4(4-0) SOC 312 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 ap-
proaches in recreation research.

846. Urban Recreation Area and
Program Analysis
Spring. 4(4-0) Approval of depart-
ment.
Analysis of urban public, private and commer-
cial recreation areas, facilities, and programs.
Construction of a typology of urban commu-
nities. Course is conducted in selected urban
communities in Michigan.

PARK AND RECREATION
RESOURCES* PRR

College of Agriculture and
Natural Resources

IDC. Resource Ecology and Man
For course description, see Interdis-
ciplinary Courses.

300. Wilderness Survival
Fall, Winter, Spring, Summer. 4(3-0)
Outdoor skills for utilization of plant and ani-
mal materials to provide shelter, fire, signals,
water and food in the outdoors. Psychology
and attitudes conducive to wilderness survival
and appreciation. Field trip required.

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