

Descriptions – Osteopathic Medicine (College of)
of
Courses

551. Systems Biology I
(O M 550.) Fall. 3 to 12 credits. ANT 560, BCH 501.
A multidisciplinary approach to the hematopoietic systems providing a functional integration of basic science and clinical information.

552. Systems Biology II
Spring. 3 to 6 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521B, PTH 502.
A multidisciplinary approach to the integumentary system providing a functional integration of basic science and clinical information.

553. Systems Biology III
(O M 551.) Spring. 5 to 15 credits. ANT 563, PSL 500A, PTH 502, BCH 502, PHM 520B, MPH 521.
A multidisciplinary approach to the nervous system providing a functional integration of basic science and clinical information.

554. Systems Biology IV
(O M 552.) Fall. 5 to 15 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521B, PTH 502.
Continuation of OST 553 with emphasis on multidisciplinary approach to the cardiovascular system.

555. Systems Biology V
(O M 553.) Winter. 5 to 10 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521B, PTH 502.
Continuation of OST 554 with emphasis on multidisciplinary approach to the respiratory system.

556. Systems Biology VI
(O M 553.) Winter. 5 to 10 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521B, PTH 502.
Continuation of OST 555. This system will represent a multidisciplinary approach to the urinary system.

557. Systems Biology VII
(O M 554.) Spring. 5 to 15 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521B, PTH 502.
Continuation of OST 556 with emphasis on multidisciplinary approach to the gastrointestinal system and metabolism.

558. Systems Biology VIII
(O M 555.) Summer. 5 to 15 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521B, PTH 502.
Continuation of OST 557 with emphasis on multidisciplinary approach of the growth and development within (but not limited to) the field of pediatrics, obstetrics and gynecology.

590. Special Problems
Fall, Winter, Spring, Summer. 1 to 8 credits. May reenroll for a maximum of 32 credits. Approval of department.
Each student will work under direction of a faculty member on an experimental, theoretical or applied problem.

610. The Osteopathic Examination I
(F M 630.) Fall. 1(0-4) Admission to a college of medicine or approval of instructor.
Instruction in the osteopathic examination.

611. The Osteopathic Examination II
(F M 640.) Winter. 1(0-4) OST 610 or approval of instructor.
Continuation of OST 610.

612. The Osteopathic Examination III
(F M 650.) Spring. 1(0-4) OST 611 or approval of instructor.
Continuation of OST 611.

613. The Osteopathic Examination IV
(F M 660.) Summer. 1(0-4) OST 612 or approval of instructor.
Continuation of OST 612.

614. The Osteopathic Examination V
(F M 670.) Winter. 1(0-4) OST 612 or approval of instructor.
Continuation of OST 613.

615. The Osteopathic Examination VI
(F M 680.) Winter. 1(0-4) OST 612 or approval of instructor.
Continuation of OST 614.

616. The Osteopathic Examination VII
(F M 690.) Spring. 1(0-4) OST 613, OST 614, OST 615 or approval of instructor.
Continuation of OST 615.

620. Systems Biology-Directed Studies
Fall, Winter, Spring, Summer. 1 to 15 credits. Admission to a professional medical program or approval of coordinator.
A directed study in systems biology for the continuing advanced student or remediation of any systems biology: hemopoietic, integumentary, nervous, cardiovascular, respiratory, urinary, gastrointestinal, growth and development.

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, Spring. 4(4-0)
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.

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
Fall, Winter. 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
Winter, Spring. 4(4-0) 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.

427. Packaging Materials and Systems Laboratory
Fall, Winter, Spring. 3(1-6) 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 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.

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.

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.

834. Special Investigations in Packaging
Fall, Winter, Spring, Summer. Variable credit.

899. 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.

444. Park and Recreation Area Design
Fall, Winter, Spring. 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 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 Natural Resources. Administered by the Department of Forestry.

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) PRR 351.

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

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 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.