

**Description — Osteopathic Medicine
of
Courses**

560. Systems Biology - Musculoskeletal
Summer. 6 credits. ANT 560, ANT 565; PSL 500A; MPH 521; BCH 502; PHM 521; PTH 502.

A multidisciplinary approach to the musculoskeletal system providing functional integration of basic science and clinical information.

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. Subspecialty Clerkship: Child Psychiatry
Fall, Winter, Spring, Summer. 4 to 16 credits. PSC 608. Interdepartmental with and administered by the Department of Psychiatry. Subspecialty experiences in psychiatry in clinical settings with child patients and their families.

614. The Osteopathic Examination I
Winter, Spring. 1(0-4) OST 533 or approval of instructor.
Emphasizes continuing development of palpatory diagnostic skills, neuromusculoskeletal patient assessment, selection and utilization of appropriate osteopathic manipulative treatment.

615. The Osteopathic Examination II
Spring, Summer. 1(0-4) OST 614 or approval of instructor.
Introductory clinical course in the application of neuromusculoskeletal assessment, palpatory diagnosis and osteopathic manipulative treatment in ambulatory clinics.

616. The Osteopathic Examination III
Fall, Summer. 1(0-4) OST 615 or approval of instructor.
Introductory clinical course in the application of neuromusculoskeletal assessment, palpatory diagnosis and osteopathic manipulative treatment in the hospital setting.

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.

321. Technical Principles for Packaging
Fall, Winter, Spring. 4(3-2) PKG 210, PHY 237 or approval of school.
Relationships between package systems and distribution environments. Testing, evaluating and predicting package performance under various environmental influences.

330. Package Printing
Winter. 3(3-0) PKG 321 or approval of school.
Basic printing processes used for packaging materials. Advantages, disadvantages and identification of these printing methods.

331. Plastic and Glass Packaging
Fall, Winter, Spring. 4(3-2) PKG 321, CEM 143, CEM 161 or approval of school.
Physical and chemical properties of plastics and glass and their relationship to selection, design, manufacture, performance and evaluation of container systems.

332. Paper and Metal Packaging
Fall, Winter, Spring. 4(3-2) PKG 321, CEM 143, CEM 161 or approval of school.
Physical and chemical properties, manufacture, conversion and use of wood, paper, paperboard, metals, metal foils and related components. Design, use and evaluation of packages made from these materials.

340. Packaging and the Environment
Winter. 3(3-0)
Broad study of the effects of packaging on environmental quality including solid waste management, air and water quality, laws, economics, energy considerations, resource conservation and environmental ethics.

423. Dynamics of Packaging
Fall, Winter, Spring. 4(3-2) PKG 331, PKG 332 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 331, PKG 332, 2.50 grade-point average, approval of school.
Development of solutions to specific packaging problems.

425. Packaging Process Analysis
Fall, Winter, Spring. 4(3-2) PKG 331, PKG 332.
The integrated study of the operation, structure and control of packaging and package-making processes. A one-day field trip is required.

428. Packaging Development
Fall, Winter, Spring. 4(3-2) PKG 423, PKG 425, Seniors.
Development of packages to meet present-day requirements of protection and merchandising.

429. Packaging Economics
Winter. 3(3-0) PKG 331, PKG 332, EC 202, ACC 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 331, PKG 332 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.

435. Distribution Packaging
Fall, Winter, Spring. 3(3-0) EC 202, PKG 331, PKG 332, Juniors or approval of school.
Interrelationships between packaging and other segments of the distribution system. Market related issues in packaging; materials handling, transportation, and inventory control.

438. Pharmaceutical Packaging
Winter. 4(3-2) PKG 331, PKG 332.
Special requirements for packaging pharmaceuticals and medical devices. Evaluations of package systems and packaging procedures that meet these requirements.

440. Special Topics (MTC)
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 12 credits if different topics are taken. Juniors or approval of school.

448. Design of Shipping Containers
Spring. 2(1-2) PKG 423.
Students design, build and test a shipping package system for an industrial product. Lectures by industry personnel on specific shipping containers not discussed in other packaging courses.

450. Packaging Laws and Regulations
Spring. 3(3-0) PKG 331, PKG 332 or approval of school.
History and development of packaging laws and regulations. Relationships among law, government regulation and commercial regulation. Effect of current laws and regulations on packaging. Personal liability of the packaging professional.

455. Food Packaging
Fall. 4(3-2) PKG 331, PKG 332 or approval of school.
Food packaging systems and their relationship to specific products, processes, regulations and equipment.

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.

810. Advanced Packaging Materials
Spring. 3(2-2) PKG 331, PKG 332 or approval of school.
Physical and chemical properties of packaging materials. Relationship between properties of materials and performance of packages.

820. Permeability and Shelf Life
Winter. 4(3-3) PKG 331, PKG 332, MTH 113, CPS 115 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. 1 to 4 credits. May reenroll for a maximum of 8 credits. Approval of school.

840. Selected Topics
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll 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.