

580A. Clinical Nurse Specialist Practicum I
(580.) Winter. 2(1-3) N E 564, approval of college.
Beginning skill development in physical assessment and interviewing, history taking.

580B. Clinical Nurse Specialist Practicum I
(580.) Spring. 3(1-6) N E 580A, approval of college.
Completion of physical examination and patient history, interpreting data. Health assessment of adult.

581. Clinical Nurse Specialist Practicum II
Fall. 5(2-9) N E 564, N E 565, N E 580B, CMS 521 or concurrently, approval of college.
Nursing management of clients in primary care. Focus on health maintenance, health promotion and self care. Single acute problems. Longitudinal study of a family.

582. Clinical Nurse Specialist Practicum III
Winter. 5(2-9) N E 581, approval of college.
Primary care management of clients with chronic health problems. Utilizes stress-adaptation framework. Longitudinal study of a family.

583. Clinical Nurse Specialist Practicum IV
Spring. 5(2-9) N E 582, approval of college.
Primary care management of clients with multiple health problems. Focus on loss theory. Longitudinal study of a family.

590. Special Problems
Fall, Winter, Spring. 1 to 6 credits. May reenroll for a maximum of 12 credits. Approval of instructor.
Individual or group in-depth study of specific areas in nursing. Independent study.

595. Selected Topics
Fall, Winter, Spring. 2 to 6 credits. May reenroll for a maximum of 6 credits if different topics are selected. Approval of instructor.
Selected issues, trends, programs or theories in nursing.

899. Master's Thesis Research
Fall, Winter, Spring. 1 to 6 credits. May reenroll for a maximum of 15 credits. N E 570, approval of instructor.
Clinical research problem related to primary health care.

OBSTETRICS, GYNECOLOGY AND REPRODUCTIVE BIOLOGY OGR

College of Human Medicine

608. Obstetrics/Gynecology Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll 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.

609. Obstetrics and Gynecology Advanced Clerkship
Fall, Winter, Spring, Summer. 4 to 16 credits. May reenroll for a maximum of 16 credits. OGR 608, approval of department and approval of community coordinator.
Advanced clinical experience in gynecology and/or obstetrics.

610. Gynecology Ambulatory Clinic
Fall, Winter, Spring, Summer. 4 to 16 credits. May reenroll for a maximum of 16 credits. H M 602.
Contraception, management of abnormal Pap smear, pregnancy and abortion counseling, and general office gynecology.

OSTEOPATHIC MEDICINE O M

College of Osteopathic Medicine

590. Special Problems in Osteopathic Medicine
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.

620. Directed Studies
Fall, Winter, Spring, Summer. 2 to 24 credits. May reenroll for a maximum of 48 credits. Admission to a college of medicine or approval of department.
Individual or group work on special problems in medicine.

651. Obstetrics—Gynecology Clerkship
Fall, Winter, Spring, Summer. 12 credits. Grade P in all courses offered in terms 1 through 8.
Clinical exposure in obstetrics and gynecology. Program developed to achieve efficiency in obstetrical patient evaluation, management; motor skills, aptitudes; care of new born; evaluation of postpartum patient; management of gynecologic problems.

653. Surgery/Anesthesiology Clerkship
Fall, Winter, Spring, Summer. 12 credits. Grade P in all courses offered in terms 1 through 8.
Clinical exposure in area of surgical diagnosis, management, treatment. Program structure developed to achieve proficiency in motor skills, aptitudes; comprehension of concepts and principles; patient evaluation, diagnosis, management, and therapy.

656. Orthopedics Clerkship
Fall, Winter, Spring, Summer. 6 credits. May reenroll for a maximum of 12 credits. Grade P in all courses offered in terms 1 through 8.
Clinical exposure in area of orthopedics. Program structure developed to achieve proficiency in motor skills, aptitudes; comprehension of concepts and principles; patient evaluation, diagnosis, management, and therapy.

658. Otorhinolaryngology Clerkship
Fall, Winter, Spring, Summer. 6 credits. May reenroll for a maximum of 12 credits. Grade P in all courses offered in terms 1 through 8.
Clinical exposure in area of otorhinolaryngology. Program structure developed to achieve proficiency in motor skills, aptitudes; comprehension of concepts and principles; patient evaluation, diagnosis, management, and therapy.

OSTEOPATHIC MEDICINE OST (COLLEGE OF)

500. Basic Concepts in Biomechanics
Fall. 2(2-0) Admission to a college of medicine or approval of department. Interdepartmental with the Department of Biomechanics.
Basic concepts of biomechanics and their relationship to functional anatomy and osteopathic manipulative therapy.

516. Medical Ethics
Winter. 3(3-0) Interdepartmental with and administered by the College of Human Medicine.
Analysis and evaluation of the ethical elements of medical decision making. Topics include: patient rights, physician responsibilities, euthanasia, informed consent, parentalism, confidentiality, biomedical research, and allocation of scarce resources.

520. Normal Endocrine Structure and Function
Spring. 3 credits. BCH 502.
An integrated basic science course presenting a series of lectures and laboratories related to the normal structure and function of the endocrine organs. Prerequisite for studying endocrine diseases in systems biology.

530. Comprehensive Patient Evaluation I
Fall. 2 to 6 credits. Admission to a college of medicine. ANT 565 or concurrently.
Interdepartmental course in physical examination skills. Stresses comprehensive, osteopathic evaluation of the patient.

531. Comprehensive Patient Evaluation II
Winter. 2 to 6 credits. OST 530, ANT 565.
Continuation of OST 530.

532. Comprehensive Patient Evaluation III
Spring. 4 credits. OST 531.
Interdepartmental course in physical examination skills. Stresses application of comprehensive, osteopathic evaluation of the patient. Introduction to office procedures and physical diagnosis.

533. Comprehensive Patient Evaluation IV
Fall. 2 to 6 credits. OST 532.
Interdepartmental course in physical examination skills. Stresses comprehensive, osteopathic evaluation of the patient. Includes preceptorship and appropriate systems biology clinical experiences.

**Descriptions — Osteopathic Medicine
of
Courses**

551. Introduction to Laboratory Medicine
Winter. 2 credits. ANT 560, BCH 501, PTH 502.

Introduction to laboratory medicine leading to proficiency in patient evaluation and diagnosis through understanding of common pathologies and basic laboratory procedures in blood, urine and feces analysis.

552. Systems Biology - Integumentary
Summer. 2 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521, PTH 502.

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

553. Systems Biology - Nervous System
Fall. 10 credits. ANT 563, PSL 500A, PTH 502, BCH 502, PHM 521, MPH 521.

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

554. Systems Biology - Cardiovascular
Spring. 15 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521, PTH 502.

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

555. Systems Biology - Respiratory
Summer. 8 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521, PTH 502.

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

556. Systems Biology - Urinary
Summer. 7 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 521, PTH 502.

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

557. Systems Biology - Gastrointestinal
Winter. 13 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PHM 520, PTH 502.

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

558. Systems Biology - Growth and Development
Fall. 5 credits. ANT 560, ANT 565, PSL 500A, MPH 521, BCH 502, PTH 502.

A multidisciplinary approach to growth and development within the field of pediatrics providing functional integration of biological, behavioral and clinical sciences.

559. Systems Biology - Reproductive
Fall. 7 credits. ANT 560, ANT 565; PSL 500A; MPH 521; BCH 502; PTH 502.

A multidisciplinary approach to the male and female reproductive system providing functional integration of basic science and clinical information (includes obstetrics and gynecology).

560. Systems Biology - Musculoskeletal
Fall. 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.

600. Ambulatory Care
Fall, Winter, Spring, Summer. 24 credits. Grade P in all courses offered in Terms 1-8 or approval of department.

A multidisciplinary approach in clinical settings to the ambulatory patient to achieve proficiency in motor skills, aptitudes, comprehension of concepts and principles: patient evaluation, diagnosis, management, and therapy.

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.

320. Packaging Materials
Fall, Winter, Spring. 4(4-0) PKG 210, PHY 237, CEM 141A or CEM 141B, CEM 161, CEM 143.

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, Spring. 4(4-0) PKG 320 or approval of school.

Design, use and evaluation of packages and packaging systems.

423. Dynamics of Packaging
Fall, Winter, 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
Fall, Winter, Spring. 4(4-0) PKG 422.

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. 4(2-4) 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, Winter, Spring. 4(3-2) PKG 427, CPS 115, Seniors.

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.

435. Distribution Packaging
Fall, Winter, Spring. 3(3-0) EC 200, PKG 422, 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.